



# UNDERGRADUATE BULLETIN 2021-2022

NYU SHANGHAI  
上海纽约大学

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NYU SHANGHAI





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2021-2022

1555 Century Ave  
Pudong, Shanghai  
China 200122

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# **{ Part I }**

## **Introduction and Overview**

# **This is NYU Shanghai** **这就是上海纽约大学**

NYU Shanghai is the third degree-granting campus in NYU's global network, joining NYU in New York and NYU Abu Dhabi. It is a world-class, comprehensive liberal arts and sciences research university in the heart of Shanghai, and unlike any other university in the world.

Since 1831, NYU has proudly been in and of the city of New York, unencumbered by gates, intimately woven into the identity and landscape of one of the great idea capitals of the world. In the heart of Greenwich Village, the NYU community has flourished, gaining as much from the city as it has contributed.

Just as NYU is proudly in and of the city of New York, NYU is also proudly in and of the city of Shanghai, another great idea capital and a magnet for the best of intellect, culture, and inquiry from all over the world. But Shanghai is like no other place: a city of the future, it also has its own history and traditions, which are a vital part of its fabric. With its diverse resources—the educational foundation of NYU and the vibrancy and relevance of Shanghai—NYU Shanghai is where your classroom education intersects with a life's education.





## The NYU Shanghai Vision

NYU Shanghai exemplifies the highest ideals of contemporary higher education by uniting the intellectual resources of New York University's global network with the multidimensional greatness of China. It guides students toward academic and moral excellence, preparing them for leadership in all walks of life, and it contributes to the endless quest for new insights into the human condition and the natural world.

### Values

NYU Shanghai operates in accord with the values of curiosity, rigor, integrity, respect, harmony, responsibility, and deep engagement with all humanity.

### Mission

In teaching, NYU Shanghai aspires to prepare its students for lives of discovery, satisfaction and contribution. They will study with superb teachers who nurture their capacity for original, rigorous, and critical thinking, and with diverse and intellectually gifted classmates. They will pursue a liberal education in the humanities, social sciences, natural sciences, and mathematics. They will immerse themselves in English, the language of international communication. They will master the skills of cross-cultural effectiveness in a community where half are from China and half are from other lands. They will reflect upon the role that great cities play in human progress, and upon the interdependent relationship between China and the rest of the world.

In research, NYU Shanghai aspires to produce original, rigorous, and important insights across a broad set of academic domains. Such insights do more than extend existing knowledge in predictable ways; they provide fresh understanding that is fully consistent with our observations and at the same time promise to have a significant influence on the thinking of others.

In public service, NYU Shanghai aspires to promote healthy development within the many communities it inhabits. It strives to be a responsible actor in the individual lives of students, teachers, and staff; in the local neighborhoods that surround its campus; in the district of Pudong, the city of Shanghai, and the nation of China; in East China Normal University; in New York University; in the interdependent society of humankind; and in a fully global ecosystem.

### Research at NYU Shanghai

NYU Shanghai will continue in the great tradition of universities that combine world-class research with exceptional teaching. Research Institutes are focused on Mathematics, Computational Chemistry, Neuroscience, Physics, and Social Development with a Center for Big Data for Society and Business and a Center for Global Asia opening this year. Both graduate and undergraduate students at NYU Shanghai will have the opportunity to participate in research opportunities.

## OVERVIEW

The NYU Shanghai academic experience is characterized by rigor, a global perspective, and a strong foundation in the liberal arts and sciences. Several distinct features define the NYU Shanghai approach and make it unique:

### ***A Truly Innovative Core Curriculum***

As our world evolves, education needs to evolve to meet the needs of 21st century students. The NYU Shanghai core curriculum is defined by a global orientation. Students explore social and cultural foundations through courses that span cultures and contexts, both Chinese and international. Writing and language courses develop students' communication skills in both English and Chinese. Mathematics and science are a part of every student's education, as are courses which introduce or strengthen a student's understanding of algorithmic thinking.

### ***Playing to Our Strengths***

NYU Shanghai has carefully developed a set of majors and specializations that capitalize not just on the world-class strength of NYU faculty, departments, and programs, but also on the limitless possibilities that Shanghai provides.

## PARTNERS

### **East China Normal University**

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ECNU is a high-level normal university founded in October 1951. The university is made up of 19 full-time schools and colleges, two unconventional (nontraditional distance learning and continuing education) colleges and five advanced research institutes, with 58 departments offering 70 undergraduate programs. It has over 4,000 faculty and staff and more than 28,000 students.

### **Shanghai Municipal Education Commission**

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The Shanghai Municipal Education Commission (SMEC) is responsible for determining the local policies and direction of the educational system in Shanghai.

### **Pudong New Area Government**

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Since the beginning of its development in 1990 when plans were first announced, Pudong has become a major economic development zone and has emerged as China's financial and commercial hub. The NYU Shanghai academic building is located along Century Avenue in Pudong, a location as central to Shanghai as Fifth Ave is to Manhattan.



## WHERE WE ARE

### Academic Building

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The NYU Shanghai academic building located on Century Avenue in Pudong is surrounded by bustling activity, a lively community, and some of the most iconic buildings in the world—all right in the heart of a thriving economy and Shanghai's commercial center.

Fifteen stories tall, with two additional levels underground. It includes an expansive library, which will house an extensive physical and electronic collection with access to NYU's global library resources; a 300-seat auditorium; a 150-person colloquium space; a theater, music, and arts hall; and kitchen and dining facilities. Also generously equipped with classrooms capable of accommodating varying class sizes, dedicated floors for teaching and practical laboratories for various sciences, intimate study spaces, and faculty and administrative offices, the building functions as a campus unto itself and as the center of a thriving academic community. Wireless IT services and a robust IT infrastructure ensure that the building, and by extension, the students and faculty, remain fully connected to the NYU global network.

### Residence Hall

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The NYU Shanghai residence halls is located in the

JinQiao area of Pudong. Housed in three towers of the Green Center complex, the residence hall is located within an international hub with easy access to both local and international shops and restaurants. By living alongside fellow students and Resident Assistants, students will form intimate communities and the walls of the classroom will be broken down, allowing for education and an exchange of ideas to continue and flourish, unfettered by class schedules.

### Location

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At NYU Shanghai, students receive the support, engage in the activities, and participate in the community that they would expect from any other university in the world—except they'll have China as their canvas.

Just minutes away from the Century Avenue academic building, students will find a fully equipped athletics center that all NYU Shanghai students can use.

Beyond the walls of the residence hall are neighborhoods begging to be explored: the

dazzling lights of the Bund, the winding labyrinthine passages of Taikang Lu, and the picturesque solitude of the Lujiazui Boardwalk are just some of the places where students can while away an afternoon, eat xiaolongbao, and take in the sights and sounds.

And beyond the city limits of Shanghai, the country of China is available: the Great Wall, the Lingyin Temple, the Forbidden City, the Chengdu Panda Reserve, and more. China is, after all, a country with a vast, varying geography and demography, and a history no longer confined to just the pages of a book, but completely within reach of all NYU Shanghai students.

# { Part II }

## Enrollment

Everything you need to know about:

- Registration, Advisement, and Counseling
- Degree Requirements



# *Registration, Academic Advisement, and Counseling*

## Registrar's Office

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The NYU Shanghai Registrar's office provides academic services and information on registration throughout the year. Any student with a question or problem is invited to come to the Registrar's office at Room 1049 for assistance or to view its website at [shanghai.nyu.edu/academics/registration](http://shanghai.nyu.edu/academics/registration). Office hours are weekdays from 9:00 a.m. -11:30 a.m. and 1:00 p.m. to 5:00 p.m.

Students can complete their initial registration through Albert, NYU's online registration system, at [home.nyu.edu](http://home.nyu.edu). Students can also use Albert to make later adjustments to their schedule.

## New Students

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Newly admitted students receive detailed registration information a few weeks prior to orientation. New students meet with an academic advisor during orientation to discuss their class schedule and other academic questions.

## Continuing Students

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Students currently enrolled in NYU Shanghai register in November for the spring term and in April for the fall term. Before registering, students should plan a provisional schedule and put it in the "shopping cart" function of Albert. They should also discuss their program and courses with their advisor, who then clears them for registration. Students may use the "validate" function in Albert to validate all of the courses they would like to enroll in before their appointed registration time. At the appointed time or thereafter, students access Albert to finalize the course enrollment process. Students should complete registration by paying their tuition and fees. Online tuition statements and payment options are available through the Office of the Bursar. Students are also responsible for clearing other registration holds such as library holds.

## Health Insurance and Immunization Policy

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All full-time students must be in compliance with NYU Shanghai's health insurance and immunization requirements. For pre registration immunization requirements, please see: <http://www.nyu.edu/students/health-and-wellness/student-health-center/next-stop-health-requirements/shanghai.html>. If a student fails to comply, the student will not be allowed to register for classes until he or she is in full compliance. If the student does not

receive clearance to register before the registration deadline for the semester, he or she will not be able to register and take classes until the next semester that they are in compliance. This policy includes first semester freshmen entering NYU Shanghai. The health insurance and immunization requirements of some study away sites and portal campuses may vary from those at NYU Shanghai. Students must be in compliance with those requirements during their semester abroad in order to be eligible for studying away at that site or campus.

## Academic Advising

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Academic advising is the process through which NYU Shanghai provides the necessary resources for students to make thoughtful choices in their academic studies. The primary purpose of academic advising is to assist students as they develop meaningful educational plans compatible with their life goals. Although the NYU Shanghai curriculum is well-defined, there will be opportunities, both within and beyond curricular constraints, for students to participate in courses and activities that support their academic and personal development.

While the ultimate responsibility for making decisions about life and educational plans rests with each individual student, academic advisors and faculty mentors assist students by suggesting options and by discussing possible outcomes of the choices they make. Students can expect that their academic advisors and faculty mentors in the majors will help them:

- Define academic goals and evaluate progress towards those goals;
- Understand academic policies and requirements, provide guidance during course selection, and provide help with identifying other meaningful educational experiences;
- Identify institutional and community support services for assistance if necessary;
- Monitor progress as they move through the undergraduate program.

Each semester, students are required to communicate with their academic advisor (and first and second year students to meet with their advisor) to review their registration plan for the following semester and ensure that they are making normal progress towards their degree. It is the individual student's responsibility to make certain that he or she fulfills the requirements for



graduation.

A first year advising program provides individual advising for new students entering in August. Each student is assigned an advisor who can provide information and support during the transition to college. The advisors serve as a liaison with other offices and can make referrals when appropriate. Advisors are therefore the best source for students to visit when they are unsure of where to go for help. Throughout the year, students needing additional assistance may also make an individual appointment with the Assistant Dean for Academic Affairs.

### **The Academic Resource Center**

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The Academic Resource Center (ARC) provides tutoring and support to students looking to reach their highest academic potential. Students can schedule a meeting through WOnline, or drop by the ARC, for the following:

- Individual and small-group tutoring in over 30 Math, Computer Science, Natural Sciences, Business, Economics, Interactive Media Arts/ Business, and Chinese Language courses
- Individual writing, speaking, reading, and listening consultations at any stage of the learning process
- Academic coaching in areas such as critical reading, note-taking strategies, goal setting and time management
- Workshops on writing, creativity, applications and software

Students are also welcome to study on their own in the comfortable, supportive atmosphere of the Academic Resource Center.

### **Career Development Center**

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The NYU Shanghai Career Development Center (CDC) aims to provide comprehensive career guidance to the entire student body. The CDC collaborates with employers, alumni, faculty, other departments, and external organizations to provide a range of resources and opportunities for students to achieve personal and professional success.

Students may sign up for individualized appointments with a career coach throughout the year. An appointment with a career coach can help students with any of the following topics:

- Identifying and exploring career interests;
- Setting professional goals and developing an individual timeline;
- Effectively searching for internships and jobs in a particular field;
- Editing resumes and cover letters;
- Participating in a mock interview;
- Performing assessments to identify strengths, skills and interests;
- Exploring pre-professional and graduate school options;

Besides coaching appointments, students may find many other ways to gain professional skills and build connections to expand their network. The CDC offers robust career-related programming during the academic year including career fairs, career speakers, industry panels, skills workshops, alumni mentor matching, internship grants and much more. Students can get access to a variety of useful digital platforms and resources which support their career development at different stages.

### **Experiential Learning**

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One defining characteristic of the NYU educational experience is the opportunity students have to apply their classroom learning to real-life experiences in a variety of professional and community service settings. Shanghai provides such opportunities in abundance, and NYU Shanghai takes full advantage of its location in one of the financial, cultural, scientific, and media capitals of the world.

Many different types of opportunities are available to students; some involve volunteerism on the part of a student and some may be paid positions. Depending on their professional goals, students may choose to pursue off-campus internships, community service positions, research projects, competitions, conferences, and many other opportunities. For the purpose of securing and making the most of such opportunities, students should consider the following guidance.

### **Internship Regulations**

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The visa requirements of the People's Republic of China do not allow international students to hold off-campus part-time jobs or paid internships. International students who wish to participate in off-campus internships must follow the Internship Registration Process to ensure that

the position meets legal criteria and is registered with the Chinese government. There are currently no restrictions on Chinese national students participating in paid positions.

### **Voluntary or Community Service**

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Certain organizations encourage students to work on a volunteer basis to gain experience and to provide needed assistance to the organization. This type of arrangement is common, for example, in government and not-for-profit organizations. Such internships are valued, sometimes even required, for admission to some professional schools, but NYU Shanghai awards no credit for them.

### **Community Engagement**

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NYU Shanghai supports community-engaged learning components in academic courses and offers service learning options. We encourage students to seek out opportunities during their college career to apply their academic learning to understanding real world needs and local communities in the city of Shanghai and in greater China. These include faculty-led immersive learning trips and experiential learning opportunities that enhance academic study and research.

### **Preprofessional, Accelerated & Specialized Programs**

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#### **Pre-Medical and Health Studies Program**

It is important to understand that health-related pre-professional training does not require students to major in science or math. Students may elect to major in any discipline and complete the courses needed to apply for health-related professional schools in parallel. They should choose a disciplinary major that they will enjoy and in which they will excel. If they enjoy the sciences, choosing a major in those areas may be the right decision for them. If, however, they have other interests or talents, they will demonstrate their versatility and increase their chances of excelling by pursuing a major in their area of interest along with completing the pre-medical and health curriculum.

NYU Shanghai, like many American colleges and universities, does not offer a pre-medical, pre-dental, or pre-health major. In fact, the best professional schools want, above all, students with a broad education who can think clearly, read critically, and write well.

Academic advisors and faculty mentors help students to explore their options, advise them about programs and appropriate course selection, and help them to present the best possible application to professional schools. Students should be aware that it is extremely difficult for applicants who are not U.S. citizens or permanent U.S. residents to gain admission to medical school in the U.S. Other health professional schools in the U.S. have more hospitable admissions policies, such as schools of dentistry and M.D./Ph.D. programs.

*The following NYU courses are equivalent to the basic set requirements most medical schools in the U.S. request. In general, most medical schools will expect applicants to have completed one year of biology, one year of physics, and two years of chemistry (through organic chemistry). However, specific medical schools may have additional requirements or modifications to those listed here. Students should carefully research the schools they are interested in for more information.*

### **SUGGESTED COURSES FOR APPLICATION TO MEDICAL SCHOOL**

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- Foundations of Physics I & II Honors/General Physics I & II
- FoS Physics I Lab & Physics II Lab
- Foundations of Chemistry I & II
- FoS Chemistry I Lab & Chemistry II Lab
- Foundations of Biology I & II
- FoS Biology Lab
- Organic Chemistry I & II
- Biochemistry I

*In addition, many schools expect students to have taken the following courses:*

- Calculus
- One statistics course (e.g. Probability and Statistics, Biostatistics)
- Introduction to Psychology
- Introductory sociology course
- Two writing courses. These courses cannot include Creative Writing and need to focus on writing or interpreting advanced texts

### **PRE-LAW PROGRAM**

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Prospective law students are free to choose from the wide variety of courses offered at NYU Shanghai. NYU endorses the position of the Association of American Law Schools that a single “best” preparation for law school cannot be recommended. As a result, there is no prescribed pre-law curriculum.

### **Purpose of Prelaw Study**

While NYU Shanghai considers the prescription of particular courses unwise, it does advise taking courses that require extensive reading, research, and writing. The Core Curriculum is an excellent beginning for pre-law students as it offers a rigorous and multidisciplinary foundation for advanced study in the humanities, social sciences, and natural sciences. No matter what one majors in, law schools value a well-rounded liberal arts education, so students should choose their electives wisely. For example, the precision of methodology and thought required of students in mathematics, computer science, logic, and the natural sciences will aid in the development of analytic skills, while a background in the behavioral sciences and the humanities (such as politics, economics, history, literature, philosophy, anthropology, and sociology) will offer a deeper understanding of human institutions and values, as well as opportunities for critical thinking and writing.

### **3+2 Dual Bachelor's Program (CS & Engineering/ IMA & Engineering)**

Students apply for admission to this program in their second year and complete their first three years at NYU Shanghai, pursuing a Computer Science (CS) or Interactive Media Arts (IMA) major. Coursework at NYU Shanghai will focus on CS or IMA major, core curriculum, and STEM requirements. The final two years are spent at NYU Tandon in Brooklyn, focusing on advanced engineering coursework. Students who complete this program will earn the following degrees: NYU Shanghai, NYU, Chinese degree, and B.S. in Computer Engineering from NYU Tandon. The fifth year of study will require an additional year of tuition; the NYU Shanghai financial aid package will be extended to cover the fifth year of study. Interested students should work with their advisors to plan degree progress. Students may contact Dean Keith Ross (keithross@nyu.edu) for more information.

### **Counseling**

#### **Student Health Center**

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The Student Health Center is available for all students and no appointment is necessary. Counseling services are free on a voluntary basis for any student enrolled in NYU Shanghai. When necessary, medication and outside referrals are available. All conversations are kept strictly confidential. Student Health Center wellness

counselors provide health-related advice and assistance in workshops, as well as in group and individual counseling.

The social and emotional conflicts that occur in a person's life occasionally prevents an individual from functioning optimally. Concerns about interpersonal relationships, poor grades or other academic problems, feelings of inadequacy, anxiety, loneliness, sexual problems, eating disorders, substance abuse, and family and/or marriage conflicts are difficulties any individual might encounter. Wellness counselors provide an atmosphere where personal concerns can be examined and discussed freely and confidentially.

The Student Health Center at NYU Shanghai is committed to promoting a safe, informed, healthy and happy university community, by providing an array of professional services tailored to support our student's needs during their university life at NYU Shanghai. The Student Health Center is located on the 6th floor of the academic building is open Monday to Friday 8:30 a.m. - 5:30 p.m. The Center is staffed by highly trained professionals who are focused on supporting the needs of students. The Student Health Center's programs addresses the issues impacting students from a physical, emotional and health knowledge perspective and provides activities and resources that empower the students to achieve their academic potential.

The transition to adulthood and the navigation of college life presents wonderful opportunities, but can sometimes cause stress and varying emotions. We are also mindful of the great opportunities and added challenges of being a student in a mega city like Shanghai.

The Student Health Center provides medical and counseling support and promotes health knowledge through skills focused training and learning workshops in a warm and welcoming environment. All health services are confidential and offered to students free of charge. Walking-in hours and professional counseling appointments are offered to all students.

The Wellness Exchange is a 24 hour counseling hotline - all students can call for support.  
Tel: 021 2059 9999

#### **Students with Disabilities**

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NYU is committed to providing equal educational opportunity and participation for students with disabilities. It is NYU Shanghai's policy that no qualified student with a qualified disability be excluded from participating in any NYU Shanghai program or activity, denied the benefits of any NYU Shanghai program or activity, or otherwise subjected to discrimination with regard to any NYU Shanghai program or activity.

The Moses Center for Student Accessibility in New York determines qualified disability status and assists students in obtaining appropriate accommodations and services. The Moses Center operates according to an Independent Living Philosophy and strives in its policies and practices to empower each student to become as independent as possible. Their services are designed to encourage independence, backed by a strong system of support.

Any student who needs a reasonable accommodation based on a qualified disability is required to register with the Moses Center for assistance. They should contact the Interim Assistant Director of the Academic Resource Center Tong Jin ([tongjin@nyu.edu](mailto:tongjin@nyu.edu)) with any questions about registering.

# *Degree Requirements*

NYU Shanghai confers the following degrees on candidates recommended by the faculty of the majors and approved by the trustees of New York University:

## **Bachelor of Arts (B.A.)**

- Global China Studies
- Economics
- Humanities
- Social Science

## **Bachelor of Science (B.S.)**

- Biology
- Business and Finance
- Business and Marketing
- Chemistry
- Computer Systems Engineering
- Computer Science
- Data Science
- Electrical and Systems Engineering
- Interactive Media Arts
- Interactive Media + Business
- Honors Mathematics
- Mathematics
- Neural Science
- Physics

The general degree requirements are the same for the B.A. and the B.S.

To be eligible for the bachelor's degree, students must complete 128 credits with a cumulative grade point average of at least 2.0. Within these, students must fulfill the requirements of both a major and the core curriculum.

The degree requirements to be fulfilled are those in effect during the term of the student's first registration in NYU Shanghai. Registration in another division of NYU does not constitute registration in NYU Shanghai. Students may petition to follow the graduation requirements of a later cohort but must abide by all of the graduation requirements of the later cohort and may lose requirements (but not credits) earned for courses which meet requirements for the earlier cohort but not for the later one.

Readmitted students must fulfill the requirements as listed in the Bulletin published during the year of their readmission, unless their readmission letter states otherwise.

In very exceptional cases, a student may petition the Academic Standards Committee for approval of a change in the requirements as stated in the Bulletin.

### **Conferring of Degrees**

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Degrees are conferred in September, January, and May. The NYU Shanghai graduation ceremony occurs in May and the formal conferring of degrees takes place annually at Commencement in May.

All graduated students receive: a New York University diploma (issued by New York University), a NYU Shanghai diploma (issued by Shanghai New York University), and a NYU Shanghai graduation certificate (from the Ministry of Education of the PRC).

### **The Major**

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Major requirements, varying from subject to subject, are specified in the sections devoted to the course listings of individual majors. Generally, one-third to one half of the total credits are earned in the major concentration.

Every student must complete a major with a

cumulative grade point average in the major of at least 2.0. At least one-half of the courses as well as one-half of the credits used to complete the major must be taken in the disciplinary area. A student may not register for courses in the major outside of NYU. The student must be approved as a major and must review his or her program with an academic advisor each term.

Course offerings are subject to the availability of faculty. Therefore, it is not possible to guarantee that any particular course listed will be offered in a particular academic year. If failure to offer a course in a student's approved minor will delay their graduation, they should consult with their advisor to consider available options.

### **Declaration**

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Students should discuss their major plans with their advisors. It is best to concentrate on completing breadth and general education requirements in the first two years since interest in majors may change as students take classes in different disciplines and changing majors may delay graduation for some students.

Students may declare a major prior to registration for the next semester if they are registered for enough credits in the current semester so that at the end of it they will have completed at least 32 credits (typically when registering for fall of their second year). They must have a final grade of C, or current semester midterm grade of B, or higher in a designated prerequisite course for that major.

Students must declare a major prior to registration for the next semester if they are registered for enough credits in the current semester so that at the end of it they will have completed 64 credits (typically registering for fall of their third year). They must have a final grade of C, or current semester midterm grade of B, or higher in a designated prerequisite course for that major.

### **Time Limit**

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All requirements for a degree at NYU Shanghai must be met within a period of eight years from the date of matriculation. For students who are re-admitted to NYU Shanghai, the length of time is proportionately reduced.

## **Residence Requirement**

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All coursework used to satisfy the 128-credit degree requirement must be completed in the NYU network. The courses used to complete the major or the minor must be taken in that disciplinary area.

## Prerequisite Courses for Declaring a Major

Major	Final grade of C or higher in:
Biology	Foundations of Biology I
Business and Finance	Statistics for Business and Economics
Business and Marketing	Statistics for Business and Economics
Chemistry	Foundations of Chemistry II
Computer Science	Introduction to Computer Programming OR Introduction to Computer Science
Computer Systems Engineering	Introduction to Computer Programming OR Introduction to Computer Science
Data Science	Introduction to Computer Programming OR Introduction to Computer Science + Calculus
Economics	Microeconomics
Electrical and Systems Engineering	Introduction to Computer Programming OR Introduction to Computer Science
Global China Studies	Any required Global China Studies course
Honors Mathematics	Analysis I + Honors Linear Algebra II + Cumulative GPA 3.65 or higher in all classes and in Math classes
Humanities	Global Perspective on Society
Interactive Media Arts	Interaction Lab OR Communications Lab OR Application Lab OR Creative Coding Lab
Interactive Media and Business	Application Lab OR Interaction Lab OR Communications Lab OR Creative Coding Lab OR Principles of Financial Accounting OR Economics of Global Business
Mathematics	Multivariable Calculus
Neural Science	Foundations of Biology I
Physics	Foundations of Physics II
Social Science	Social Science foundational course



## **Double Major**

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Students may attempt a double (second) major. The same requirements, including the maintenance of a minimum grade point average of 2.0 in the major, apply to the second major as to the first. In some cases, courses may be applicable to both majors but no more than two major courses may be approved for double counting unless otherwise specified in the major section of the Bulletin.

Students should consult with their advisor before attempting a double major as the requirements of the first major and the second limit the options for students to pursue varied intellectual interests. It is also difficult to complete two majors in the standard 128 credits. Requirements for completing a major as a double major are the same as detailed for the major requirements.

Core curriculum classes may be “double counted” to fill both a core requirement and a major or minor requirement but no single course may be used to meet more than two requirements.

The second major is declared the same way as the first but students do not receive priority in enrolling in second major classes before their last semester. In addition, courses of different majors which have time conflicts will not be rescheduled to remove conflicts for students pursuing a major as a second major. Therefore, the ability to satisfy the requirements for an additional major cannot be guaranteed for any student and will be based upon course availability and the time that the student is willing to invest to satisfy all of the requirements of the additional major. In some cases, pursuing a double major will require a delay in graduation and/or limit study away opportunities.

## **Requirements for Minors**

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Students may minor in subjects outside of their major. A minor in a secondary subject enables a student to acquire a useful understanding of concepts and analysis without the same degree of coverage as would be obtained in a major. A grade of C or better is required for a course to be counted toward a minor. If a student fails a course required for the minor, the course must be retaken at NYU. No course for the minor may be taken as pass/fail. Students may use Core Curriculum classes to fill minor requirements but at least 12 credits of the minor must be unique to the minor, meaning that it

is not double-counted with any other major, minor, or core requirement. Additionally, no single course may be used to meet more than two requirements.

## **Regulations Pertaining to both Major and Minor**

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The major and minor requirements to be followed are those stated in the major sections of the Bulletin in effect during the semester of the student's first registration in NYU Shanghai. A student may petition through their advisor to follow major graduation requirements as set out in a Bulletin from a subsequent year after their first semester of registration. If approved, they must meet those requirements as outlined in that edition of the Bulletin. Any courses they may have completed, or complete, which were required under the old major requirements but not under the new will be counted as general elective rather than major credit.

No credit toward the major or minor is granted for grades of C- or lower, although such grades will be computed into the grade point average of the major or the minor, as well as into the cumulative grade point average.

No course to be counted toward the major or minor may be taken on a Pass/Fail basis. (See “Pass/Fail Option” under Academic Policies in this Bulletin.)

In order to ensure that students do not have to compete for access to their required courses, registration priority is given to students who are registering for courses in their primary major. Although the university encourages the exploration of other disciplines, access to courses outside a student's primary major (including those courses that fulfill requirements for an additional major, minor, etc.) is on a space-available basis and is not guaranteed.

# { Part III }

## Standards and Policies

Everything you need to know about:

- Academic Policies
- Placement Examinations, Degree Progress, and Transcripts
- Academic Standards and Discipline
- University Policies and Campus Safety
- Honors and Awards

# *Academic Policies*

- Courses
- Credits
- Examinations
- Grades
- Leaves

## COURSES

The programs and courses offered at NYU Shanghai are designed for students who attend classes offered on a full-time basis. A full-time schedule normally consists of 16 credits per term, or 32 credits per year, which enables a student to complete the entire program of 128 credits in four years. Minimal full-time status entails completing at least 12 credits per term, or 24 credits per year. Such status will be granted only when there is good and sufficient reason for part-time study. Failure to complete a minimum of 24 credits per year jeopardizes a student's full-time status and his or her eligibility to receive financial aid. Students may enroll in fewer than 12 credits in their final semester but still maintain full-time status if they are enrolled in the course(s) that they need to graduate that semester and have applied for degree conferral that term.

Students in good academic standing may register for more than 18 credits per term after their freshman year with the clearance of their academic advisor and approval of the Assistant Dean for Academic Affairs.

There are additional per credit costs for each credit above 18 as well as an additional registration fee and added costs for textbooks and materials in a given semester.

### Availability of Courses

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In order to ensure that students do not have to compete for access to their required courses, registration priority is given to students who are registering for courses in their primary major. Registration priority is not given to students seeking to take a required major course earlier than the semester it is listed in the recommended course sequence.

Although the University encourages the exploration of other disciplines, access to courses outside a student's primary major (including those courses that fulfill requirements for an additional major, minor, etc.) is on a space-available basis and is not guaranteed.

### Change of Program

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To make any changes in their program, including dropping or adding courses given in other divisions of NYU, students must access the Albert Student

Center or file a Change Course Enrollment form available on the Registrar's Office website ([shanghai.nyu.edu/academics/registration](http://shanghai.nyu.edu/academics/registration)).

### Adding Courses

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The deadline for the adding of a course or a section is the end of the second week of the semester. The deadline applies to any course added by an NYU Shanghai student and to any NYU Shanghai course added by students from other divisions. The adding of any course or section after the end of the second week is generally allowed only when the student is changing levels within a discipline—for example, from a Chinese or mathematics course to a higher- or lower-level course in the same discipline. The changing of levels is permitted only with the written approval of the instructor, any other relevant administrators, and the student's advisor.

### Dropping or Withdrawing From Courses

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Students are expected to maintain a full-time program as described above and are unable to reduce their program to part-time status if enrolled full-time at the beginning of the semester. Occasionally, they may drop or withdraw from a course if, because of reasons beyond their control, they cannot continue. Withdrawing from a full semester course during the first two weeks of the term is treated as a drop and will not appear on the transcript. Those courses withdrawn from during the third week through the ninth week of the term will be recorded with a grade of W. After the ninth week, no one may withdraw from a course except in cases of full semester withdrawal as recommended by Health and Wellness and accompanied by medical documentation. Students who are ill or have other serious personal circumstances should contact their advisor.

### Complete Withdrawals

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Students who wish to withdraw from all of their courses must meet and discuss their plans with their advisor, complete the required form, and get the approval of the Associate Provost for Academic Affairs.

A student who withdraws officially from all courses in a term may register for the following term, subject to any limitations attached to their withdrawal approval. If the student is unable to

attend NYU Shanghai during the term following the withdrawal, he or she should request a leave of absence from their academic advisor. For more information, see next page under “Attendance.”

## **Auditing**

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Matriculated students in NYU Shanghai may audit (i.e., attend lectures without intending to receive credit) any course in NYU Shanghai with the consent of, and under the conditions established by, the instructor and the major. Auditors count against the enrollment cap for a course and may not preempt space required for students registering for a letter grade.

Courses cannot be audited as a means of satisfying requirements for an incomplete grade or as a means of changing a previous grade. Language classes may not be audited. Students may not audit classes during their first year of enrollment at NYU Shanghai.

Students seeking to audit a course must register as an auditor by the end of the add/drop period and audited courses will appear on the student’s official transcript. Special (nondegree) students may not audit courses. Once a course is declared as an audited course it may not be changed to a letter grade or pass/fail course. If the credit value of the audited course causes the total number of credits to exceed 18, an overload petition is required and overload charges apply.

Students that officially audit a course are expected to complete the work that is agreed upon by the instructor. There is no credit given for the course, though the course would appear on the student’s record with a mark of “R” for Registered Auditor. If the student does not comply with the stated expectations, then the instructor could issue a “F” grade and that mark would be calculated into the student’s overall GPA.

## **Attendance**

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Although the administration of NYU Shanghai does not supervise attendance of classes, it supports the standards imposed by instructors.

When students are ill, they are expected to notify professors in advance of class, if at all possible. If the instructor determines that it is an excused absence then the student should negotiate with

the professor the time and place for make-up of assignments, tests and/or examinations missed. Students who are seriously ill and/or will miss more than a week of classes due to medical reasons, should contact their academic advisor and the Office of Health and Wellness for assistance in excusing their absences from class.

Students who, in the judgment of the instructor, have not substantially met the requirements of the course or who have been excessively absent are not considered to have withdrawn from the course if they remain on the roster and may be given the final grade of F.

## **Religious Holidays and Attendance**

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NYU, as a nonsectarian institution, and NYU Shanghai, as a degree-granting campus of NYU, adhere to the general policy of including in its official calendar only certain legal holidays. However, it has also long been NYU policy that members of any religious group may, without penalty, absent themselves from classes when compliance with their religious obligations requires it. In 1988, the NYU University Senate affirmed this policy and passed a resolution that elaborated on it as follows:

1. Students who anticipate being absent because of any religious observance should, whenever possible, notify faculty in advance of such anticipated absence.
2. Whenever feasible, examinations and assignment deadlines should not be scheduled on religious holidays. Any student absent from class because of religious beliefs shall not be penalized for any class, examination, or assignment deadline missed on that day or days.
3. If examinations or assignment deadlines are scheduled, any student who is unable to attend class because of religious beliefs shall be given the opportunity to make up that day or days.
4. No adverse or prejudicial effects shall result to any student who avails himself or herself of the above provisions.

## **Policy on Class Conduct**

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Students are expected to attend all scheduled classes unless the instructor explicitly informs the class that other ways of doing the work are

acceptable. The action to be taken in regard to tardiness, absence from class or making up late work is the responsibility of the individual instructor; the instructor should consult with the student's academic advisor and the Assistant Dean for Academic Affairs if major action, such as dropping the student from the course, is being considered.

All classes will be held at their scheduled hour on days immediately before and after all holidays and recesses. Both faculty and students are expected to be present.

Students are permitted to be absent from classes to participate in authorized contests, conferences, and presentations, provided the following conditions are met:

- If excused, students must inform faculty of their absence in advance and establish a plan and timeline with faculty to make up missed work. All work missed must be made up to the satisfaction of the instructor(s) concerned;
- No trip shall involve an absence of more than two days, excluding days when classes are not scheduled;
- The total number of days of absence shall not exceed six per sport or per organization annually;
- Each student will obtain an absence authorization signed by the Assistant Dean for Academic Affairs. The student will present this authorization to the instructor. This is not an excuse for work missed.

Technology affords many students access to portable devices including cell phones, PDAs, and laptops. It is expected that students will respect the wishes of faculty with regard to the use of electronic devices within the academic environment.

No student shall leave a scheduled exercise because of the absence of the instructor until a reasonable time has passed. By tradition and as a matter of courtesy, a student should wait 10 minutes before leaving.

### **Authorized Contests, Conferences, and Presentations**

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Authorized contests, conferences, and presentations are those approved by the Assistant Provost for Academic Affairs. Authorized contests are limited

to athletic games and matches involving official NYU Shanghai sports teams and to students on the active team roster; and academic competitions sponsored by an NYU Shanghai Academic Dean and to students selected to represent NYU Shanghai at the competition. Authorized conferences are limited to conferences sponsored by an NYU Shanghai Academic Dean and to students selected by NYU Shanghai to attend the conference (this is in addition to any selection process that the conference might have). In some cases, limited funding may be available to students selected to attend a conference if students are presenting original research supported by an Academic Dean. Funding is not available to attend conferences to which all qualified NYU Shanghai students did not have an opportunity to apply for selection. Academic Affairs only provides funding for academic conferences. Non-academic conferences, including those focusing on leadership, are sponsored through Student Life and do not allow students approved absences from classes. Authorized presentations are limited to those at forums sponsored by an NYU Shanghai Academic Dean and presenters to those approved by NYU Shanghai. In some cases limited funding will be available to students selected for a presentation.

## CREDIT

### Credit for Advanced Placement Examinations

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NYU Shanghai does not assign credit for the Advanced Placement (AP) Program (College Entrance Examination Board), the International Baccalaureate (IB) Program, or the results of foreign maturity certificate examinations. In some cases students may be able to fulfill a core curriculum requirement based on their performance on one of these tests.

### Credit for Courses at NYU Shanghai

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To receive credit for a course, the student must register before attending, meet the requirements for attendance, and creditably complete all examinations and assignments prescribed by the instructor. Some majors also offer independent study for exceptional students.

Students receive credit for any course passed with at least a D or a P grade. Courses may not be used to meet major or minor requirements or as prerequisites for more advanced classes unless a grade of C or higher is earned. This means that grades of P or C- and lower may not be used to meet major or minor requirements or as a prerequisite for more advanced courses. Core courses must be taken graded on A-F scale and may satisfy the core requirement with grade of D or better.

### Restrictions on Receiving Credit (Including Course Repeat Policy)

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A student who has taken a course for credit or who has obtained a W in a course is permitted to repeat that course once. Students may not repeat more than two courses during their undergraduate careers. Students may not repeat courses in a designated sequence after taking more advanced courses. The majors determine the sequencing of courses. Students with questions regarding the repetition of courses or course sequences must consult their advisor. When a student repeats a course, no additional credit will be awarded. Both grades will be recorded and computed in the grade point average.

For Chinese national students, a repeated course will take space in their free extra 8-credits beyond 128 total credits.

### Credit for Courses at Other Schools and Divisions of New York University

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NYU graduate courses may be taken with approval of the respective graduate program and NYU Shanghai undergraduate major and following the practices of that bulletin. Enrollment is dependent on availability and completion of any required prerequisites. If graduate courses are applied toward the completion of requirements for the baccalaureate degree, no advanced credit is typically allowed for them in the University's graduate programs.

Students may take a total of 36 credits in other divisions of NYU, including any courses for particular minors approved by NYU Shanghai. Students seeking additional credits beyond the 36 credit limit must file a petition with the Office of Academic Affairs.

Please note that restrictions apply. For details, students must check with their advisor before registering for any courses in other divisions. If a course is not approved in advance, students will not receive credit for it. If such courses are taken at schools outside NYU, the credit will not transfer to NYU Shanghai.

Credits from any courses taken in NYU's School of Professional Studies will not be counted toward major requirements, the GPA, or the minimum 128 credits required for graduation.

Credit for Internet and online courses [from other divisions or schools of NYU] will not be counted toward the baccalaureate degree.

### Credit for Transfer Students

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NYU Shanghai does not presently accept transfer applicants.

### Credit for Non-NYU Study Abroad

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Once admitted to NYU Shanghai, all courses counted toward the degree must be taken on campus or during an approved study abroad semester at one of NYU's degree-granting campuses, Global Academic Centers or exchange

during the summer.

### **Summer Session**

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Students who elect to take summer courses for credits must take them on campus or at one of NYU's Global Academic Centers, NYU New York, or NYU Abu Dhabi. Students who plan to take summer courses within the NYU Global Network need to get their course plan approved by their academic advisor for summer registration clearance before the appointed time.



## EXAMINATIONS AND GRADES

### Policies on Examinations

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#### *Preamble*

The following policies represent an understanding between faculty and student concerning an important but often stressful period, especially at the conclusion of each academic semester and at mid-semester. There should be no expectation that the following points will cover every conceivable situation. The student should anticipate the demands of the exam schedule, plan accordingly and early, and be prepared. The faculty should recognize that the student is encumbered with many tightly orchestrated and intensive obligations during this period over which he or she has no control: expectations should be reasonably consistent with the number of course units and, of course, should be made known to the student well in advance of the final examination period, preferably as part of the course syllabus.

In order to help students plan their time and study optimally for examinations, this document lays out in some detail the policies regarding final and in-term examinations. Instructors are requested to provide notification of the major in-term examinations in the course syllabus. The final examination date is posted early in the semester. It is the responsibility of the student to give his or her instructor sufficient notice and to work with the instructor to reschedule examinations if this is needed.

#### *Definitions*

- NYU Shanghai's official final examination period begins on the reading day immediately following the last day of classes and continues through the last day of scheduled final examinations, with the exception of reading day(s).
- Scheduled final examinations are those scheduled by the Registrar. An instructor may choose not to fix a schedule for final examination, but instead allow each student to choose the examination time; such exams are called self-scheduled examinations.
- Final examinations can either be comprehensive, covering all course materials, or non-comprehensive, covering only a part of the course.

- Major examinations during the semester are referred to here as in-term examinations.

### In-term Examinations

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In-term exams may only occur during regularly scheduled class hours. This means that exams may not run longer than the regular class period for the course and that instructors may not schedule alternative exam times. It is possible to administer an exam that takes longer than scheduled class times if the instructor divides the test into two parts and students take them over different class dates.

The only exception to the in-term testing policy is for students with registered academic accommodations that cause them to need additional time for tests.

### Final Examinations

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1. All scheduled final examinations are held at the end of the semester during NYU Shanghai's official final examination period. The last day of a class is not normally used for a final examination. Comprehensive final examinations are not required for each course, but are given at the option of the instructor. The reading day and weekend preceding the examination days are not used for examination purposes of any kind, unless a student chooses (and the instructor agrees) to take a self-scheduled examination during this time. Non-comprehensive final examinations or final projects (but not both) are allowed during this final examination period only in courses that do not give a final comprehensive examination.
2. Instructors return all work assigned no later than the last regular day of classes in courses for which there is a final examination. In cases when this is not possible, an answer key, solution sets or equivalent feedback should be provided unless the final examination will not cover material in work that has not been returned.
3. No other coursework, including laboratory or studio work, will be due during the final examination period unless it is assigned in advance and in lieu of the course's final examination. Regardless of whether there is a final examination in the course, no classes

other than review sessions are held during the final examination period. Review sessions are scheduled for optimal attendance, and a serious effort should be made to accommodate students who cannot attend. In appreciation of the time required to prepare for final examinations, no other examinations, portfolio reviews, critiques or juries shall be scheduled for the last class day of a course with a final examination.

4. Instructors do not exert or submit to pressures to move an examination so that students can leave earlier nor pressure students to take an examination on a reading day or weekend preceding the final examinations period.
5. No student is required to take more than two scheduled final examinations during a 24-hour period. A student who has more than two final examinations scheduled during a 24-hour period or has two final examinations scheduled at the same time should first contact the instructors of the courses for assistance in resolving conflicts. If the problem cannot be resolved by that means, the student should contact the Assistant Dean for Academic Affairs.
6. Students are expected to present themselves at the place assigned at the start of the examination; late arrival will reduce the total time a student has to complete the examination, unless the instructor's course policy indicates otherwise. Instructors reserve the right to require attendance within a specific time period. Students who miss an examination with a reasonable excuse and wish to petition for a make-up final examination should check with the instructor.
7. Any student may review his or her corrected, graded final examination in the presence of an instructor or a teaching assistant. Any controversy arising from this review is dealt with in accordance with NYU Shanghai procedure for the appeal of grades and academic actions. A final examination that is not returned to a student will be kept available until the end of the next semester for review. In the event that the instructor or teaching assistant is not available for the review, the responsibility shall rest with the major leader of the instructor offering the course or his or her designee. Since instructors return all work

assigned before the final examinations, they are not responsible for retaining unclaimed coursework.

8. Concerns related to a final examination, complaints about violations of the final examination policy or alterations of the final examination schedule should be directed to the Assistant Dean for Academic Affairs.

### **NYU Shanghai Student Guidelines for Taking Exams**

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NYU Shanghai has developed the guidelines below for in-class tests worth 10% or more of the final grade in a class so that students will share a uniform test-taking experience that creates a quiet, less stressful, and fair test site.

1. Tests that are worth more than 10% of the final grade will be held in a room or rooms that provide at least twice as many seats as students enrolled in the class.
2. Students follow an assigned seating chart for the test that randomizes the classroom and seating assignments for students. Students are seated in every other seat so that they are not in close proximity to others taking the same exam.
3. The tests are pre-marked with each student's name and assigned seat.
4. Students should arrive at the classroom at least 5 minutes before the exam starts.
5. Students must leave their backpacks/purses/bags/laptops at the front of the room – taking with them to their seat only something to write with (no pencil cases are allowed). If other materials are permitted, the instructor will inform the proctors of specifically what is allowed.
6. Students must leave all hats, coats, and jackets at the front of the room as well. Students who normally wear scarfs for faith or cultural reasons may do so but must alter to expose ears.
7. An unlabeled bottle of water is permissible; food/gum/candy is not.
8. Any student who is NOT taking the exam should not be in the test room.

9. Proctors are not responsible for supplying any test-taking materials (pencils, calculators, etc.) to students who have arrived unprepared for the exam.

10. All mobile phones should be switched off and left at the front of the room, so that students do not have access to them during the exam. If a student is found with their mobile phone with them during the exam, this will be considered a violation of the exam guidelines.

11. A quiet test environment must be maintained. Students are not allowed to speak to each other (even to request to borrow a pencil from another student). If students need to speak, they should raise their hand and wait for the proctor to come over to them and help them with whatever question or problem they have.

12. The start time and finish time will be written on the board at the front of the room. The proctor should update the time remaining (in 15 minutes intervals) throughout the exam on the board so that students may gauge their progress and manage their time during the exam.

13. Any student arriving late will be permitted to take the exam, but they must finish at the pre-arranged time and will not be given any extra time.

14. Students must sit in their assigned seat with their named test. They have to show a proctor their NYU Shanghai University ID if asked.

15. Students in the wrong test room must go to the correct test room even if that means they start the test late.

16. Students cannot move their seat. There needs to be enough space between seats so that the purpose of the every other seat protocol is met.

17. Bathroom breaks are permitted only in what the proctor deems is an emergency. When permitted, the back-up/relief proctor will escort the student to and from the bathroom. When this is not possible, the proctor will note the time that the student left the exam room, and when they returned.

18. If a student finishes an exam early, they may leave the room once they have turned in their

exam papers. They will not be readmitted once this occurs.

19. In the last 15 minutes of the exam, the remaining time left will be updated in 5 minute intervals.

20. Once time is up, the exam is finished and students must stop working. The proctor will make a note of individuals who did not stop working when told to and report this to the instructor.

21. All exam materials (answer sheets, scratch paper, test question paper) are to be collected by the proctor. Students should not leave the room with any test materials.

### **Penalties for Students Violating the Protocols**

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- The penalty for the first violation of test protocols (sitting in wrong seat, in possession of non-approved test taking materials, talking, failure to show their NYU Shanghai University ID when requested, etc.) is a letter grade reduction on exam.
- Additional violations or refusal to comply with protocols will lead to additional penalties.
- Test protocol penalties are independent of, and in addition to, penalties for academic integrity violations. Both types of penalties are applied in as confidential a manner as circumstances permit.

### **Makeup Examinations**

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When final examinations are missed because of a serious illness, a doctor's note must be presented to the Health & Wellness Center, which can verify the medical situation and inform the instructor. After confirmation by Health & Wellness, the student must submit a request to the instructor to receive a grade of Incomplete. It is up to the instructor and Academic Affairs to decide if a request for a grade of Incomplete will be granted. The time and place of any makeup examinations are set by the instructor or the major leader.

Incomplete grades received because of a missed final examination must be replaced with a letter grade within the semester following the one in which the Incomplete was received. In the case of students who are out of attendance, such grades must be replaced within one year after the end of the course concerned. An Incomplete is a temporary grade; if it is not replaced within

the time limit by a grade submitted by the course instructor it becomes an F or the default grade indicated by the instructor, and is computed in the grade point average. (Regarding the removal of Incompletes received for missed work other than final examinations, see next page under “Grades” and “Incompletes.”)

partners, including those they need or wish to take

### Grades

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Students may obtain their final grades for each semester on Albert.

The following symbols indicating grades are used: A, B, C, D, P, F, and W. The following symbol indicates incomplete work: I. Only grades of A, B, C, D, or F earned in any NYU course while matriculated in NYU Shanghai, or earned in any of NYU Shanghai’s courses (courses suffixed by “-SHU”) while matriculated in another division of NYU, are computed in the average. The following grades may be awarded: A, A-, B+, B, B-, C+, C, C-, D+, D, F. In general, A indicates excellent work, B indicates good work, C indicates satisfactory work, and D indicates passable work and is the lowest passing grade. F indicates failure. The weights assigned in computing the grade point average are as follows:

A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
C-	1.7
D+	1.3
D	1.0
F	0.0

Courses for major, minor, or core requirements must be taken on an A-F grading scale. Courses may not be used to meet major or minor requirements or as prerequisites for more advanced classes unless a grade of C or higher is earned. This means that Grades of P, C- or lower may not be used to meet major or minor requirements or as a prerequisite for more advanced courses. (see “Pass/ Fail Option” for more details)

### Computing the Grade Point Average

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The grade point average can be obtained by determining the total of all grade points earned (quality points) and dividing that figure by the total number of credit hours completed (quality hours). For example: A student who has completed 8 points of A (4.0), 4 points of B (3.0), and 4 points of C (2.0) has a grade point average of 3.25. This is obtained by adding 8 (points of A) x 4.0 (point value of A), 4 (points of B) x 3.0 (point value of B), and 4 (points of C) x 2.0 (point value of C), which totals 52 (the total

of all grade points earned), and then by dividing 52 by 16 (the total number of credit hours completed). This gives the grade point average of 3.25.

### **Policies on Assigned Grades**

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Once a final grade has been submitted by the instructor and recorded on the transcript, the final grade cannot be changed by turning in additional coursework.

To appeal an assigned grade (only final semester grades are assigned grades, midterm and individual assignment and paper grades are not appealable) the student should first consult with the instructor who assigned the grade to discuss the grading requirements for the course and how the grade was determined. If the student is not satisfied with the outcome of the discussion, unable to reach the faculty member, and/or wishes to appeal the grade further, a formal written appeal should be submitted to the Assistant Dean for Academic Affairs within one month of the date the grade was posted. An independent review of the grade will be undertaken. All of the student's work will be eligible for review to clarify how the grade was determined and to ensure the grade is consistent with academic guidelines and policies. The result of the appeal may be that the grade is lowered, raised, or stays the same. The decision of Academic Affairs in matters related to a course grade is final.

In the case of a course that has been repeated, both grades are recorded on the transcript and averaged together to be computed in the grade point average.

The grades for courses taken abroad in one of NYU's programs or at one of the exchange sites are recorded on the transcript and are also included in the grade point average. The grades for graduate courses taken at other divisions in the University are included in the grade point average, provided that permission to enroll is obtained prior to registration for the courses.

Not included in the undergraduate grade point average are grades for work done at institutions outside NYU's global network.

### **Grade of P**

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The grade of P (Pass) indicates a passing grade (A, B, C, or D) in a course taken under the pass/fail option. It is also used to indicate non-graded courses. The

grade of P is not computed in the average. The grade of F under the pass/fail option is computed in the average. For more information and procedures to obtain the pass/fail option, see end of this section under "Pass/Fail Option."

### **Grade of W**

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The grade of W indicates an official withdrawal of the student from a course in good academic standing. Please see "Change of Program" and "Withdrawing from Courses" for information on the regulations and procedures for withdrawing officially from courses.

### **Grade of I**

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The grade of I (Incomplete) is a temporary grade that indicates that the student has, for good reason, completed all but a single requirement or a small amount of the course work, and that there is the possibility that the student will eventually pass the course when all of the requirements have been completed. A student must ask the instructor for a grade of I, present documented evidence of illness or the equivalent, clarify the remaining course requirements with the instructor, and receive approval from the Assistant Dean for Academic Affairs.

The Incomplete grade is not awarded automatically. It is not used when there is no possibility that the student will eventually pass the course. If the course work is not completed and a grade submitted by the course instructor before the statutory time for making up incompletes has elapsed, the temporary grade of I becomes an F or the default grade indicated by the instructor and is computed in the student's grade point average.

### **Incompletes**

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All work missed in the fall term or in a January term session must be made up by the end of the following spring term. All work missed in the spring term or in a summer session must be made up by the end of the following fall term. Students who are on a leave of absence in the semester following the one in which the course was taken have one year to complete the work. Students should contact their advisor for an Extension of Incomplete Form, which must be approved by the instructor. Extensions of these time limits are rarely granted.

NYU Shanghai follows the Office of Global Programs

policy regarding incomplete grades and study away admission. Incomplete (I) grades on students' transcript must be resolved before an admissions decision for study away can be made.

### **Independent Study**

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Some majors offer independent study courses for students with exceptional qualifications. In these courses, the work is planned specifically for each student. Independent studies should build on previous course work, not replace existing courses, and may not substitute for required major courses or required core curriculum requirements. With prior approval they may count for general elective, minor, or major elective requirements.

Independent study courses allow the student to work independently with faculty supervision and counsel. The courses typically carry variable credit of 2 or 4 credits each term. They are normally limited to upper-class majors but may be open to other well-qualified upper-class students. To register for an independent study, a student must complete an independent study form and obtain the approval of all relevant faculty and the Assistant Provost for Academic Affairs.

The result of the independent study course should be a paper or other objective, tangible evidence of completion of the work. In general, students are not permitted to take more than 12 credits of independent study during their four years, and no more than 8 credits may be taken in any one major. More specific information can be found by speaking with your academic advisor.

### **Pass/Fail Option**

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Students may elect one pass/fail option each term, including the summer sessions, for a total of not more than 32 credits during their college career. The choice must be made before the completion of the 9th week of the term (fourth week of a six-week summer session); after that time, the decision cannot be initiated or changed. No grade other than P or F will be recorded for those students choosing this option. P includes the grades of A, B, C, and D and is not counted in the grade point average. F is counted in the grade point average.

The pass/fail option is not acceptable in coursework in fulfillment of requirements toward a major, minor, prerequisites for more advanced coursework, or the Core Curriculum requirements. Students

considering the pass/fail option in their area of study or in required preprofessional courses should consult with their advisor about the effect of such grades on admission to graduate and professional schools. Students who change their majors may not be able to use courses taken under the pass/fail option to satisfy the requirements of their new majors. The form for declaring the pass/fail option may be obtained from the NYU Shanghai Advising or Registrar's website.

Chinese language and English for Academic Purposes courses cannot be taken P/F. Courses in other languages can be taken P/F but grades of C or higher must be earned for prerequisite to advance to higher level courses. Grades of P will not fulfill language course prerequisites.

### **Petitions**

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The NYU Shanghai Academic Standards Committee will consider petitions of students to waive graduation requirements or modify academic policies and regulations of NYU Shanghai. Students should be aware that only very exceptional cases, supported by valid and documented reasons, will be considered. After deliberation, the Committee's decisions on such matters are final. Petition instructions may be obtained from the Office of Academic Advising.

*Placement  
Examinations,  
Degree Progress and  
Transcripts*

## Placement Examination for Chinese Language

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### *Testing and Placement*

Entering students who are not native speakers of Mandarin take an online placement exam prior to their first registration in NYU Shanghai. Online tests result in placement into the appropriate-level course. The online placement exam is used for new incoming students only to assess their language proficiency for a preliminary placement into Chinese language courses. In the case a student would like to demonstrate proficiency beyond the intermediate two level, thereby fulfilling the language requirement, the student must take an in-person placement exam.

Placement into the intermediate two level or a lower level course means that the student must continue his or her studies of Chinese until successful completion of the intermediate two level of Chinese, either through successful completion of Intermediate Chinese II (CHIN-SHU 202), Intermediate Chinese II- Accelerated (CHIN-SHU 202A), or Intermediate for Advanced Beginners (CHIN-SHU 211). In order to progress to higher levels of Chinese, students must earn a grade of C or better in Intermediate Chinese II or equivalent. Students may demonstrate equivalent proficiency by applying to take, and scoring an 85 or higher on a place-out exam. In some cases, adjustments in course placement may be made during the first weeks of class under advice and/or consent of instructors.

After matriculation, if a student requests to be placed out of intermediate two in order to fulfill the language requirement, the student must take an in-person place-out exam. The place-out exam must be taken and completed prior to the student's final semester. The intermediate two place-out exam is offered during the add/drop period at the start of each semester. Requests for placeout/exemption exams at a different time must be submitted by email to the World Languages program (shanghai.worldlanguages@nyu.edu) at least thirty (30) days in advance of the proposed examination date/time.

Information on placement testing can be obtained from the Office of Academic Advising. Student may contact shanghai.worldlanguages@nyu.edu to request an in-person place-out exam. The in-person place-out exam are usually held at the beginning of each semester. More information can be found at

the website: <https://worldlanguages.shanghai.nyu.edu/en/languages/chinese>

## Placement Process for Writing as Inquiry

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Students will be evaluated for placement in two different first-year writing courses. Student standardized test scores, Candidate Weekend scores, and a writing sample may be considered as part of the evaluation. In some cases, adjustments in placement may be made during the first weeks of class. Information on placement testing will be communicated to matriculating students by their advisors.

## Quantitative Reasoning

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A student who wishes to place out of the Core Curriculum Mathematics requirement or to place into a higher level math class will have the opportunity to take a math placement exam, usually held at the beginning of each semester.

## Degree Progress

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All students have access to their Degree Progress Report, as generated by the Office of the NYU University Registrar, on Albert, NYU's online registration and information system. The Degree Progress Report is a Student Information System (SIS) accounting of completed and remaining degree requirements. In addition, students are encouraged to consult their unofficial transcript while reviewing degree requirements.

## Transcripts of Record

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Unofficial transcripts are available on Albert.

A sealed NYU Shanghai official paper transcript should be requested from the NYU Shanghai Office of the Registrar by either physically visiting the office in the Pudong Academic Campus Building, Suite 1049, or sending an email from your NYU email account to shanghai.registrar@nyu.edu. Alternatively, students can request an official electronic transcript from the Albert Student Center. The "Request official transcript" link can be found under the "My Academics" section of Albert Student Center. Transcripts cannot be produced for anyone whose record has been put on hold for an outstanding University obligation. See the NYU Shanghai Registration website for further information on transcript requests.



## Rank in Class

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NYU Shanghai neither records nor reports students' class, college, or department rank. In an institution where students' educational experiences are so varied, class rank is not a meaningful way to measure achievement. An explanatory note to that effect is attached to the official transcript.

## Requesting Enrollment Verification

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Students can request an official paper Enrollment Verification from the NYU Shanghai Office of the Registrar by either 1) physically visiting the office in the Pudong Academic Campus Building, Suite 1049; or 2) sending an email from their NYU email account to [shanghai.registrar@nyu.edu](mailto:shanghai.registrar@nyu.edu)

The following should be included in the request:

1. University ID Number
2. Current Name and any name under which you attended NYU
3. Date of Birth
4. School of the University attended
5. Dates of Attendance
6. Date of (Anticipated) Graduation

Seven business days should be allowed for processing from the time the Office of the Registrar is in receipt of a student's request.

For confirmation of a student's request, students should contact the Office of the Registrar at +86-21 2059 5750.

## Special Handling

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If a request requires special handling, students must request a paper Enrollment Verification from the NYU Shanghai Office of the Registrar. Specific special handling instructions should be sent in writing by contacting [shanghai.registrar@nyu.edu](mailto:shanghai.registrar@nyu.edu). Special handling includes:

1. Sending paper Enrollment Verification to the student in separate sealed envelopes addressed to admissions offices of other universities
2. Sending paper Enrollment Verification with additional documents to be sent along with the NYU Shanghai Enrollment Verification. Additional documents can be sent to the Office of the Registrar via mail or email, or

may be hand-delivered.

3. Specific requirements as part of the enrollment verification request (e.g. need passport number, dates outside of China, and countries being visited for visa purposes, etc.)
4. Requesting Enrollment Verification in Chinese/Bilingual form.
5. Express Delivery: The Office of the Registrar can assist students that are not on campus to deliver the paper Enrollment Verification via express mail. Please note that requesting documents to be sent via express service does not guarantee the processing time. All requests are processed in the order in which the requests are received.
  - For express delivery, send the request to [shanghai.registrar@nyu.edu](mailto:shanghai.registrar@nyu.edu) with detailed contact information of receiver(s) (i.e. name of school/institute/company, address, post code, contact person, telephone number).

*Note that all express-related expenses incurred shall be borne by the student requestor.*

## Arrears Policy

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NYU Shanghai reserves the right to deny registration and withhold all information regarding the record of any student who is in arrears in the payment of tuition, fees, loans, or other charges (including charges for housing, dining, or other activities or services) for as long as any arrears remain.

## Diploma Arrears Policy

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Diplomas of students in arrears will be held until their financial obligations to NYU Shanghai are fulfilled and they have been cleared by the Bursar. Graduates with a diploma hold may contact the Office of the Bursar to clear arrears or to discuss their financial status at NYU Shanghai.

## Diploma Application

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Students may officially graduate in September, January, or May. NYU Shanghai holds a baccalaureate ceremony in May. Students must apply for graduation on Albert, and they must be

enrolled for either course work, leave of absence, or maintenance of matriculation during their final semester.

To graduate in a specific semester, students must apply for graduation within the application deadline period indicated by the Office of the Registrar. It is recommended that students apply for graduation no later than the beginning of the semester in which they plan to complete all program requirements. Students who do not successfully complete all academic requirements by the end of that semester must reapply for graduation for the following cycle.

# *Academic Standards and Discipline*

The Academic Standards & Discipline policies of NYU Shanghai are summarized here. Unless otherwise noted, students should direct all questions or concerns regarding these policies to their Academic Advisor, who will liaise with the appropriate members of the university administration as needed.

## Academic Standards

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The NYU Shanghai Academic Standards Committee reviews student records throughout the academic year. All of its actions are based on the grades to date at the end of the term.

## Academic Warning

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Students with cumulative grade point averages of 2.0 to 2.25 will receive an academic warning letter with recommendations for achieving an appropriate standard for academic performance. Students who are on academic warning are invited and encouraged to participate in the Academic Support Program to support them in improving their GPA.

## Academic Probation

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Any student whose record is deemed unsatisfactory will be placed on academic probation and will be so informed by letter. A record will be deemed unsatisfactory if, in any semester, the student fails to meet standards for good academic standing, defined as cumulative and semester grade point average above 2.0 and maintaining steady and substantial progress toward the degree. Steady and substantial progress toward the degree entails the completion, with satisfactory grades, of more than half of the courses (and credits) for which a student registers in any semester. In addition, it entails satisfactory progress in the student's major.

Failure to satisfy the conditions of probation will result in further academic sanctions and possibly dismissal from NYU Shanghai. The conditions usually require that the student (a) achieve a grade point average of at least 2.0 during the probationary term, (b) not receive any grade below a C or any grade of I, and (c) not withdraw from any course without securing the permission of the NYU Shanghai Academic Standards Committee prior to the withdrawal. Students on academic probation are also required to have an additional probation interview with their advisor to receive registration clearance for the next semester. More specific requirements may be imposed.

Students on academic probation may engage in co-curricular activities but may not hold office in university clubs or organizations without the approval of the NYU Shanghai Academic Standards Committee.

NYU Shanghai follows the Office of Global Programs

policy regarding academic probation and study away admission. Students currently on academic probation are ineligible for study away.

Students on academic probation should be aware that they are usually ineligible for financial aid.

Students who are on academic probation are required to participate in the Academic Support Program.

## Suspension

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If a student fails to meet the minimal standards stated above at the end of the probation semester, the school will suspend them. Suspension is for a minimum of two semesters (Fall/Spring or Spring/Fall) and the student is required to follow NYU Shanghai procedures for departing from campus.

Suspended students may not:

- register for courses
- attend classes
- live in residence halls
- use campus facilities, such as athletic facilities, the library, and computer labs (and including all NYU facilities in other cities as well)
- participate in student activities
- be members of student organizations
- have student jobs

(Note: Students on academic suspension may appeal to complete a summer course or hold a summer campus job if they started the class or job before they were suspended).

At the end of the two semesters, the student may petition to return to NYU Shanghai by completing the following steps:

1. Ask the Associate Provost for Academic Affairs in writing for permission to resume their studies.
2. Provide transcripts for any courses taken at other colleges or universities during the suspension even though academic credits earned during a suspension do not transfer back to NYU Shanghai.

To get approval to resume their studies the student must demonstrate that they are better prepared to perform above the minimum standards for graduation than before they were suspended.

Students return from suspension on probation. They may only resume studies during a fall or spring semester and must study in Shanghai.

### **Academic Dismissal**

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A student who fails to meet minimum standards at any point after returning from a suspension is subject to a dismissal action. A dismissal action is a permanent severance; the student is required to follow NYU Shanghai procedures for departing from campus and may not enroll again in the future.

The typical progression of academic actions is Probation, Suspension, and then Dismissal but the intent of the academic actions are to take measures that are in the student's best interest and therefore the school may bypass one or more of these steps in an unusual case.

Students suspended or dismissed from NYU Shanghai for failing to meet academic performance standards will be informed via e-mail two to three weeks after their most recent grades are posted for the enrolled semester. Students who have paid tuition for the next term at the time of dismissal will receive a full refund of those tuition and fees.

### **ACADEMIC INTEGRITY**

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This policy sets forth core principles and standards with respect to academic integrity for students at NYU Shanghai.

NYU Shanghai is a "community of the mind." Its students, faculty, and staff all share the goal of pursuing truth through free and open inquiry, and we support one another's endeavors in this regard. As in any community, membership comes with certain rights and responsibilities. Foremost among these is academic integrity. Cheating on an exam, falsifying data, or having someone else write a paper undermines others who are "doing it on their own"; it makes it difficult or impossible to assess fairly a student's interest, aptitude, and achievement; and it diminishes the cheater, depriving him or her of an education. Most important, academic dishonesty is a violation of the very principles upon which the academy is founded. For this reason, violations of these principles are treated with the utmost seriousness.

At NYU Shanghai, a commitment to excellence, fairness, honesty, and respect within and outside the classroom is essential to maintaining the integrity of our community. By accepting membership in this community, students take responsibility for demonstrating these values in their own conduct and for recognizing and supporting these values in others. In turn, these values will create a campus climate that encourages the free exchange of ideas, promotes scholarly excellence through active and creative thought, and allows community members to achieve and be recognized for achieving their highest potential.

In pursuing these goals, NYU Shanghai expects and requires its students to adhere to the highest standards of scholarship, research and academic conduct. Essential to the process of teaching and learning is the periodic assessment of students' academic progress through measures such as papers, examinations, presentations, and other projects. Academic dishonesty compromises the validity of these assessments as well as the relationship of trust within the community. Students who engage in such behavior will be subject to review and the possible imposition of penalties in accordance with the standards, practices, and procedures of NYU and its colleges and schools. Violations may result in failure on a particular assignment, failure in a course, suspension or expulsion from NYU Shanghai, or other penalties.

Faculty are expected to guide students in understanding other people's ideas, in developing and clarifying their own thinking, and in using and conscientiously acknowledging resources - an increasingly complex endeavor given the current environment of widely available and continually emerging electronic resources. In addition, students come to NYU Shanghai from diverse educational contexts and may have understandings regarding academic expectations that differ from those at NYU Shanghai. NYU values and respects all academic traditions; however, while at NYU Shanghai, students are expected to adhere to the norms and standards of academic integrity espoused by the NYU Shanghai community and will be assessed in accordance with these standards. Students should ask their professors for guidance regarding these standards as well as style guide preferences for citation of sources for assignments in their courses.

Following are examples of behaviors that compromise the academic and intellectual community of NYU Shanghai and that are unacceptable.

1. Plagiarism: presenting others' work without adequate acknowledgement of its source, as though it were one's own. Plagiarism is a form of fraud. We all stand on the shoulders of others, and we must give credit to the creators of the works that we incorporate into products that we call our own. Some examples of plagiarism:
  - a sequence of words incorporated without quotation marks
  - an unacknowledged passage paraphrased from another's work
  - the use of ideas, sound recordings, computer data or images created by others as though it were one's own
2. Cheating: deceiving a faculty member or other individual who assess student performance into believing that one's mastery of a subject or discipline is greater than it is by a range of dishonest methods, including but not limited to:
  - bringing or accessing unauthorized materials during an examination (e.g., notes, books, or other information accessed via phones, computers, other technology or any other means)
3. Any behavior that violates the academic policies set forth by NYU Shanghai.
  - providing assistance to acts of academic misconduct/dishonesty (e.g., sharing copies of exams via phones, computers, other technology or any other means; allowing others to copy answers on an exam; providing a draft or completed paper or taking a test)
  - submitting the same or substantially similar work in multiple courses, either in the same semester or in a different semester, without the express approval of all instructors
  - submitting work (papers, homework assignments, computer programs, experimental results, artwork, etc.) that was created by another, substantially or in whole, as one's own
  - submitting answers on an exam that were obtained from the work of another person or providing answers or assistance to others during an exam when not explicitly permitted by the instructor
  - submitting evaluations of group members' work for an assigned group project which misrepresent the work that was performed by another group member
  - altering or forging academic documents, including but not limited to admissions materials, academic records, grade reports, add/drop forms, course registration forms, etc.

## **NYU Shanghai Honor Code (adopted from the CAS Honor Code)**

As a student in NYU Shanghai, you belong to a community of scholars who value free and open inquiry. Honest assessment of ideas and their sources is the foundation of what we do.

NYU Shanghai is a community of mutual trust and respect in which personal prejudice has no part in the critical evaluation of ideas. It is a place where differences of opinion can be subjected to deliberate and reasonable examination without animus.

As scholars, it is therefore as a matter of honor and good repute that we each commit ourselves to assuring the integrity of our academic community and of the educational pursuits we undertake together.

As a student in NYU Shanghai, I pledge that:

- I will perform honestly all my academic obligations. I will not represent the words, works, or ideas of others as my own; will not cheat; and will not seek to mislead faculty or other academic officers in their evaluation of my course work or in any other academic affairs.
- I will behave with decorum and civility, and with respectful regard for all members of the University—faculty, staff, and fellow students—our guests, and members of our wider communities.
- I will abide by NYU Shanghai and by NYU rules of conduct and policies on academic integrity and by the special requirements of any individual course of study or other academic activity.
- I will endeavor earnestly to uphold the values, standards, and ideals on which our university community depends and call on others to do so.

## **Procedures and Sanctions**

The penalty for academic dishonesty is severe. The following are the procedures followed at NYU Shanghai:

1. If a student cheats on an examination or in laboratory work or engages in plagiarism, appropriate disciplinary action should be taken. The following actions may be taken:
  - a. The faculty member, with the approval of the Assistant Dean for Academic

Affairs, may reduce the student's grade or give the student an F in the course.

- b. If after lowering the grade or assigning an "F", the faculty member or the Assistant Dean for Academic Affairs believes a more severe penalty (i.e., probation, suspension, or expulsion) is warranted, they can refer the case to the Associate Provost for Academic Affairs for further action.
2. In all cases of either (a) or (b), the Assistant Dean for Academic Affairs will inform the student of any action in writing and send a copy of this letter to the Associate Provost for Academic Affairs. The letter will include the nature of the offense, the penalty, and the right of the student to appeal such penalty. A copy of the letter will be kept in a confidential file. The Associate Provost for Academic Affairs' office copy will also be kept in a confidential file. (The faculty member and/or the Assistant Dean for Academic Affairs will meet with the student and discuss the nature of the offense and the action taken.)
  3. For cases involving a second offense, the Associate Provost for Academic Affairs will determine if a mediated outcome is possible or proceed as follows:
    - a. Convene a five-member ad hoc committee of three faculty members, one staff member, and one student to examine the evidence. This ad hoc committee will consider if there are reasonable grounds to believe that an academic integrity violation has occurred and if so, will affirm the penalty. If the committee affirms the penalty, the Associate Provost will send the student by e-mail a penalty letter. The letter will advise the student of his or her right to appeal. The student will have two business days from the letter's delivery to request an appeal. The penalty will ordinarily be stayed during the pendency of appeal.
    - b. If the committee does not affirm the penalty, the report will be kept on file for a one-year period.
  4. The student in all cases has the right to appeal to the Associate Provost for Academic Affairs.

## Community Standards

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Academic communities exist to facilitate the process of acquiring and exchanging knowledge and understanding, to enhance the personal and intellectual development of its members, and to advance the interests of society. In order to realize its purpose, the University and its members must be free from personal injury or harm; bias or harassment; intimidation or coercion; damage or loss of property; disruption of educational and social activities; unreasonable interference with the exchange of concepts and ideas; and unreasonable interference with the administrative and supporting services offered by the University. Accordingly, all student members of the University community are expected to conduct themselves in a manner that demonstrates mutual respect for the rights and personal/academic well-being of others, preserves the integrity of the social and academic environment, upholds the core values of the institution and supports the mission of the University. The University has an inherent right to address behavior that impedes, obstructs, or threatens the maintenance of order and attainment of the aforementioned goals by violating the standards of conduct set forth in the NYU Shanghai Student Conduct Policies and the Academic Standards set forth in this bulletin as well as other policies that may be established by the respective NYU Schools, Global Sites, and administrative offices of the University. Students are expected to familiarize themselves and comply with all University policies; the NYU Shanghai Student Conduct Policies and Process are available at <https://shanghai.nyu.edu/campuslife/community-standards/>.



# *University Policies*

- Privacy of Student Records
- Computing and Information Resources Code of Ethics
- Emergency Temporary Closing of the University
- Freedom of Expression
- Human Subjects in Research at NYU Shanghai

## A. Privacy of Student Records

NYU Shanghai is fully committed to the protection of the privacy of student records. To assist with the guarding of this privacy, NYU Shanghai complies with the U. S. Family Educational Rights and Privacy Act (FERPA). This specifically means that any education records maintained by NYU or NYU Shanghai and directly related to students — such as grades, transcripts, and test scores — will not be released to others, including parents or guardians, without the student's consent, except as provided by U. S. federal regulations.

Education records refers to any record or document containing information directly related to a student (including computerized and electronic files, audio and video tape, photographic images, film, email, etc.) and is not limited to hard-copy documents or to a file with a student's name on it.

### Family Educational Rights and Privacy Act (FERPA)

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FERPA was enacted by the U. S. Congress to protect the privacy of students' education records, to establish the rights of students to inspect and review their education records, and to provide students with an opportunity to have information in their records corrected which is inaccurate, misleading, or otherwise in violation of their rights of privacy. FERPA also permits the disclosure by an institution without a student's prior consent of so-called "directory information" (see definition below), and of other personally identifiable information under certain limited conditions. Students have the right to file complaints with the U. S. Department of Education's Family Policy Compliance Office concerning alleged failures by an institution to comply with FERPA.

NYU Shanghai and NYU have designated the following student information as "directory information:"

Name, dates of attendance, NYU school or college (i.e., NYU Shanghai), class, previous institution(s) attended, major field of study, full- or part-time status, degree(s) conferred (including dates), honors and awards (including dean's list), past and present participation in officially recognized activities (including positions held and official statistics related to such participation and performance), email address, and NetID. Important: See notes (1)

and (2) below.

1. Email address and NetID are directory information for internal purposes only and will not be made available to the general public except in specified directories from which students may opt out.
2. Under U. S. federal law, address information, telephone listings, and age are also considered directory information for military recruitment purposes. Address refers to "physical mailing address" but not email address.

FERPA governs the release of personally identifiable information to both external and internal parties, including other University employees, parents, and government agents. The NYU Guidelines for Compliance with FERPA (accessible as indicated below) describe the circumstances and procedures governing the release of information from a student's education records to such parties.

### Disclosure of Personally Identifiable Information

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Among other exceptions authorized by FERPA, prior consent of the student is not needed for disclosure of directory information or for disclosure to school officials with a legitimate educational interest in access to the student's educational record. School officials having a legitimate educational interest include any NYU Shanghai or NYU employee acting within the scope of her or his employment, and any duly appointed agent or representative of NYU Shanghai or NYU acting within the scope of her or his appointment. In addition, NYU or NYU Shanghai may, at its sole discretion, forward education records to the officials of another institution (a) in which a student seeks or intends to enroll if that institution requests such records, or (b) if the student is enrolled in or receiving services from that institution while she or he is attending NYU Shanghai or NYU. Other exceptions are listed in the NYU FERPA Guidelines.

### Additional Information for Students about Records Access

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Students may obtain additional information about access to their records from the NYU FERPA Guidelines. The NYU FERPA Guidelines may be viewed online, or by contacting the NYU Shanghai registrar. Students should also read the FERPA Annual Notice to Students.

## B. Computing and Information Resources Code of Ethics

The ethical principles which apply to everyday community life also apply to computing. Every member of NYU Shanghai has two basic rights: privacy and a fair share of resources. It is unethical for any other person to violate these rights.

### Privacy

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- \* On shared computer systems every user is assigned an ID. Nobody else should use an ID without explicit permission from the owner.
- \* All files belong to somebody. They should be assumed to be private and confidential unless the owner has explicitly made them available to others.
- \* Messages sent to other users should always identify the sender.
- \* Network traffic should be considered private.
- \* Obscenities should not be sent by computer.
- \* Records relating to the use of computing and information resources are confidential.
- \* Nobody should deliberately attempt to degrade or disrupt system performance or to interfere with the work of others.
- \* Loopholes in computer systems or knowledge of a special password should not be used to alter computer systems, obtain extra resources, or take resources from another person.
- \* Computing equipment owned by departments or individuals should be used only with the owner's permission.
- \* NYU Shanghai computing resources are provided for university purposes and are governed by the NYU Shanghai IT Guidelines. Any use of computing resources for commercial purposes or personal financial gain must be authorized in advance. Many of the agreements that the university has specifically forbid this kind of activity.
- \* Computing and information resources are community resources and may not be used to violate applicable law. Theft, mutilation, and abuse of these resources violate the nature and spirit of community and intellectual inquiry.

### System Administration

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- \* On rare occasions, computing staff may access others' files, but only when strictly necessary for the maintenance of a system.
- \* If a loophole is found in the security of any

computer system, it should be reported to the system administrator and not used for personal gain or to disrupt the work of others.

- \* The distribution and copying of programs, digital information and databases are controlled by the laws of copyright, licensing agreements, and trade secret laws. These must be observed.

This code of ethics lays down general guidelines for the use of computing and information resources, which are primarily governed by the NYU Shanghai IT Guidelines. Failure to observe the code may lead to disciplinary action. Offenses that involve academic dishonesty will be considered particularly serious.

## C. Emergency Temporary Closing of the University

NYU Shanghai has an important commitment to students, parents, sponsors, benefactors and the community. Accordingly, the university will make every attempt to operate normally during severe weather or other emergencies. This includes holding classes, conducting research programs, and operating facilities and services. The university will attempt to operate normally unless such operation represents a clear danger to students, staff or faculty.

There may be occasions when the university community is served best by suspending normal operations. In that event, only the Vice-Chancellor (or the Provost if the Vice-Chancellor is away) has the authority to close NYU Shanghai and to specify those persons or group of persons who are free to leave or refrain from coming to campus.

### Standard Operations

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Unless the Vice Chancellor announces that NYU Shanghai is closed, everyone is expected to be in attendance as usual. When the university is in session, faculty members are expected to meet their scheduled classes and other obligations. If a faculty member is unable to meet a scheduled class, he or she should notify the relevant Dean and arrange either for a qualified substitute or for a future make-up session.

## D. Freedom of Expression

NYU Shanghai values the freedoms of speech, thought, expression and assembly - in themselves and as part of our core educational and intellectual mission. If individuals are to cherish freedom, they must experience it. The very concept of freedom assumes that people usually choose wisely from a range of available ideas and that the range and implications of ideas cannot be fully understood unless we hold vital our rights to know, to express, and to choose. NYU Shanghai must be a place where all ideas may be expressed freely and where no alternative is withheld from consideration. The only limits on these freedoms are those dictated by law and those necessary to protect the rights of other members of the university community and to ensure the normal functioning of NYU Shanghai.

### Rights

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Within NYU Shanghai's campus buildings, any member of the NYU Shanghai community may distribute printed material, offer petitions for signature, make speeches, and hold protests or demonstrations. All such activities must be peaceful, avoiding acts or credible threats of violence and preserving the normal operation of NYU Shanghai. No event will infringe upon the rights or privileges of others, and no one will be permitted to cause significant harm to others, damage or deface property, block access to NYU Shanghai buildings or disrupt classes. The enforcement of these conditions will not depend in any way on the message or sponsorship of the act or event. When guests are invited by the university or by a recognized campus organization, they may express their ideas not because they have a right to do so, but because members of the campus community have a right to hear, see, and experience diverse intellectual and creative inquiry. Defending that right is a fundamental obligation of NYU Shanghai. Controversy cannot be permitted to abridge the freedoms of speech, thought, expression or assembly. They are not matters of convenience, but of necessity.

### Responsibilities

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Freedom of expression must be at once fiercely

guarded and genuinely embraced. Those who exercise it serve the NYU Shanghai community by accepting the responsibilities attendant to free expression. NYU Shanghai organizations that sponsor invited guests to campus are expected to uphold NYU Shanghai's educational mission by planning carefully to create safe and thoughtful experiences for those involved. Hosts are responsible for the behavior of their guests and should exercise due care to ensure that all participants abide by relevant laws and NYU Shanghai policies.

## **E. Human Subjects in Research at NYU Shanghai**

NYU Shanghai is committed to the protection of the rights and welfare of human subjects in research projects conducted by NYU Shanghai faculty, staff and students. All research involving human subjects must be reviewed and approved by the NYU Shanghai's Institutional Review Board (IRB) prior to being conducted. Our policies and procedures manual, "NYU Shanghai Institutional Review Board Procedures for Human Subjects Research Protection", details not only the policies and regulations governing research with human subjects, but also the procedures for submitting research proposals for review.

The IRB is responsible for ensuring compliance with all applicable regulations (US and Chinese), local laws and customs and institutional policies. All human subjects research at NYU Shanghai is conducted in accordance with the US policy and regulations found in 45CFR46, as well as in accordance with Chinese policy and regulations found in Measures for the Examination of Ethics for Biomedical Research Involving Humans. In the event of conflict between applicable standards of protection, NYU Shanghai follows the standard that provides greater protection to human subjects.

The Principal Investigator (PI) is ultimately responsible for assuring compliance with applicable University IRB policies and procedures, and for the oversight of the research study. The IRB recognizes one PI for each study. The PI is expected to abide by the highest ethical standards and to develop a protocol that incorporates the principles of the Belmont Report. He/she is expected to conduct research in accordance with the approved research protocol and to oversee all aspects of the research by providing supervision of support staff, including oversight of the informed consent process. The PI is responsible for obtaining prior IRB review and approval for any proposed changes to research methodology, recruitment, consent procedures, etc. to a previously approved protocol, except where an immediate change in protocol is warranted to protect the health and welfare of subject(s).

Information about and policies applicable to human subjects in research at NYU Shanghai are available at <https://research.shanghai.nyu.edu/resources/human-subjects>.

# *Honors and Awards*

Matriculated students with superior academic records are honored in various ways, such as by placement on the Dean's Honors List, election to honor societies, and admission to major honors programs

Additional information may be obtained from a student's advisor and from the Academic Affairs Office.

## Honors

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### *Dean's Honors List*

A Dean's Honors List is compiled at the end of each academic year, in June. This is an honors roll of matriculated students who have achieved an average of 3.65 or higher for that academic year (September to May) in at least 28 graded credits. To be listed, a student must not have any grades of Incomplete or N at the time when the list is compiled. Note that grade point averages are carried to two decimal places (but are not rounded off).

### *Eligibility for Graduation With Latin Honors*

All graded courses taken before a student's final semester while enrolled either in NYU Shanghai [or in another school of NYU] will be used in computing the grade point average on which Latin honors are based. Pass grades are not counted; grades received in courses taken at other institutions are also not counted. The student must also have a clean record of conduct.

The GPA cutoffs for each category are determined by the combined GPA distribution from all graded courses taken through the J-term before the graduating cohort's final spring semester. This means that final spring semester grades are not used for determining Latin Honors and no adjustments are made to a student's status regarding Latin Honors based on final spring grades. Latin Honors are calculated once a year and only students who have at least 110 earned credits before the spring semester and have their degree conferred that spring or earlier are eligible for consideration. Students who complete their graduation requirements before the beginning of the final spring semester have all grades counted toward calculating Latin Honors.

The GPA cutoff for summa cum laude is the GPA included within the top 5 percent of the graduating class. The cut off for magna cum laude is the GPA included within the next 10 percent of the class. The cutoff for cum laude is the GPA included within the next 15 percent of the class.

### *Major Honors*

Students may be awarded degrees with major honors if they complete the designated honors sequence in the major, maintain the requisite grade point average, and are selected by their major faculty. No more than 10 percent of students in a

major may graduate with major honors.

Students seeking admission to and graduation with major honors are expected to have a minimum grade point average of 3.65, both overall and in the major. Majors may exercise some flexibility in admissions, as follows. In rare cases where a candidate for admission to a major honors program falls short of the expected minimum GPA, the major leader may petition the Associate Provost for Academic Affairs for an exception. In all cases, once admitted, students are expected to maintain the GPA at the stipulated level in order to graduate with major honors. Should there be an exceptional circumstance in which the stipulated GPA is not maintained, the Assistant Provost for Academic Affairs may be petitioned for an exception. If the case is compelling, the latter will inform the Registrar's office of the waiver.

All students completing departmental honors must make public presentations of their work, preferably at the NYU Shanghai Undergraduate Research Symposium held at the end of the academic year, or in a major forum (e.g., oral defenses or presentations) held in conjunction with the Undergraduate Research Symposium.

## **Provost's Award for Scholarship and/or Service**

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Presented by the Provost of NYU Shanghai to a graduating senior for outstanding accomplishment in either or both of these areas.

## **Dean's Award in Arts and Sciences**

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Awarded to the graduating senior who has excelled in arts and sciences, and who has contributed in a noteworthy way to the life of the campus during four years.

## **Dean's Award in Business**

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Awarded to the graduating senior who has excelled in business and who has contributed in a noteworthy way to the life of the campus during four years.

## **Dean's Award in Engineering and Computer Science**

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Awarded to the graduating senior who has excelled in engineering and computer science and who has contributed in a noteworthy way to the life of the campus during four years.



# {Part IV}

## Academic Overview

## Liberal Arts

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Ever since Cicero, the Roman statesman, invented the phrase “artes liberales,” the liberal arts and sciences have been the touchstone of excellence in education for all individuals, regardless of their professional aspirations. This is because these studies liberate an individual from narrowly vocational concerns and have been shown to free the mind to be creative. Today, this educational approach focuses on direct and critical engagement with the great ideas of the past and the present, on the development of the essential skills of analysis and communication, and on in-depth knowledge of one or more disciplines. A shared background in the liberal arts and sciences also has the power to transform a diverse group of students into a real community organized around the life of the mind.

Our aim is to give NYU Shanghai students a strong, globally-oriented foundation in the liberal arts and sciences. This curriculum will help students develop the ability to think analytically, read critically, and write effectively. It will also cultivate their creativity in solving problems, their tolerance for ambiguity, and their respect for diversity of opinion and the exchange of ideas. Finally, through the core curriculum, the majors, and international experiences in the NYU global network, students will learn to recognize themselves as part of a global community. The crucial role that China plays in that global community will be emphasized throughout the curriculum.

## Academic Program

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Three unique features define the NYU Shanghai approach and set it apart from most other undergraduate programs:

- » A core curriculum for the 21st century, with globally-oriented as well as China-focused social and cultural courses, writing and language courses which develop students’ communication skills in both English and Chinese, and courses which introduce or strengthen a student’s understanding of Mathematics, science, and algorithmic thinking;
- » A carefully selected set of majors (or specializations) that capitalize on the world-class strengths of NYU’s research faculty,

departments, and programs, as well as on the limitless opportunities that Shanghai presents;

- » Access to the NYU global network through an unparalleled array of study-abroad opportunities, which are available at NYU sites around the world and which are easily integrated into students’ programs of study.

## Program of Study

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NYU Shanghai students will take 128 credits of coursework to graduate; these courses will be distributed among core curriculum requirements, major requirements, and general electives. Students will typically complete the core curriculum during their first two years and the bulk of their major requirements during their second two years. Students considering some of the STEM majors (Science, Technology, Engineering, and Mathematics), however, may take longer to complete the core courses since they must begin taking required courses in their intended major as early as the first semester.

## Orientation

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Orientation will be held in Shanghai in the week prior to the start of the fall semester. The primary goals of this program are: to help new students smoothly transition to college life by introducing students to NYU Shanghai’s liberal arts and sciences curriculum; provide information and resources to help students settle down in a new living and learning environment; help students get to know their peers; and foster an understanding and appreciation of the diverse community at NYU Shanghai. In addition to lectures and panels on academic and university resources, students will also benefit from a series of fun events, dialogues and tours during the orientation week.

## Study Away

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Students are required to spend at least one semester studying at one of NYU’s global academic centers or degree-granting campuses or at an approved International Exchange Programs (IEPs).

The earliest a student may study away and maximum semesters they may study away:

Students may choose to study away for up to two semesters within the 4-semester window of second

semester sophomore year through first semester senior year, but study away during spring of sophomore year may not be NY or AD.

Students are required to have completed Elementary Chinese II or 8 credits of English for Academic Purposes (EAP) before they are eligible to study away. Students should develop a study away plan in consultation with their academic advisor.

Students must be in attendance in Shanghai in their final semester. NYU's global network recommends students to have a 3.00 cumulative grade point average to study away. Students with a GPA below 3.00 should discuss their options with their advisor.

Courses that students need for their major are offered at the NYU global academic centers and degree-granting campuses allowing students to continue to fulfill many of their major requirements and make normal progress toward graduation. Students can reference global course options at NYU's degree-granting campuses and study away sites through the spreadsheet Courses Satisfying Shanghai Degree Requirements. Cost of attendance varies between the Global Academic Centers and degree-granting campuses. Students can reference the cost estimator to get an estimate of their expected cost of attendance per semester. Through the application process, students agree to the Study Away Standard.

## Majors and Minors

NYU Shanghai offers its students an array of majors and minors. Our majors and minors showcase NYU's world-class faculty, major research strengths, and international distinction. These include:

NYU Shanghai majors are organized into three divisions each overseen by a Dean.

### Arts & Sciences

**Dean Maria Montoya (Olivier Marin is Interim Dean during Dean Montoya's fall 2021 sabbatical)**

- Biology
- Chemistry
- Economics
- Global China Studies
- Humanities
- Interactive Media Arts
- Interactive Media and Business
- Mathematics
- Honors Mathematics
- Neural Science
- Physics
- Social Science

### Business

**Dean Yuxin Chen**

- Business and Finance
- Business and Marketing

### Computer Science and Engineering

**Dean Keith Ross**

- Computer Science
- Computer Systems Engineering
- Electrical and Systems Engineering
- Data Science

### Self-Designed Honors Major

### Minors

#### Shanghai Minors

- Biology
  - Molecular and Cell Biology
  - Genomics and Bioinformatics
- Business
- Chemistry
- Chinese
- Computer Science
- Computer Systems Engineering
- Creative Writing
- Data Science
- Economics
- Electrical and Systems Engineering

- Global China Studies
- Humanities
- History
- Literature
- Philosophy
- Interactive Media Arts
- Interactive Media and Business
- Mathematics
- Neural Science
- Physics
- Social Science

### Global Network Minors

For the list of Global Network Minors, see <https://shanghai.nyu.edu/academics/minors>

### NYU cross-school minors

For the list of cross-school minors, see <http://www.nyu.edu/students/undergraduates/academic-services/undergraduate-advisement/unique-academic-opportunities/cross-school-minors/cross-school-minors-by-school.html>

# { Part V }

## Core Curriculum Overview

The Core Curriculum forms the center of NYU Shanghai's globally-oriented liberal arts and sciences education. Through Core courses, students deepen their intellectual engagement with diverse perspectives from the past and present; they gain increased awareness of distinct disciplinary approaches to problem-posing and analysis; and they develop skills to ethically and effectively respond to global challenges.

<b>Core Component</b>	<b>Required Courses</b>
<b>Social and Cultural Foundations</b>	<p>Global Perspectives on Society (4 credits)</p> <p>Perspectives on the Humanities (4 credits) (also fulfills Writing)</p> <p>Interdisciplinary Perspectives on China (2 courses/8 credits total)</p>
<b>Writing</b>	<p>Writing as Inquiry (4 credits)</p> <p>Perspectives on the Humanities (4 credits) (also fulfills Social and Cultural Foundations)</p>
<b>Mathematics</b>	Precalculus or Great Ideas in Mathematics (4 credits) or placement out of PreCalculus
<b>Science</b>	<p>Experimental Discovery in the Natural World course (4 credits)</p> <p>Science, Technology and Society course (4 credits)</p>
<b>Algorithmic Thinking</b>	Algorithmic Thinking course (4 credits)
<b>Language</b>	<p>Chinese (through Intermediate II or equivalent competency)</p> <p>OR</p> <p>English for Academic Purposes (8 credits in a two-semester course sequence or equivalent competency)</p>

Courses in the Social and Cultural Foundations sequence will provide students with a thematic framework within which to study influential works of diverse cultures, from the beginnings of history to the present, and from global and interdisciplinary perspectives. Students will reflect on fundamental and enduring questions about what it means to be human and how we as individuals live in society. These courses will teach students to take a global perspective as they read and interpret great works and ideas of the past and present; to ask critical questions, find unstated assumptions, and assess evidence presented in empirical and theoretical scholarship; to deepen their understanding of the history and development of contemporary China; and to communicate complex ideas with clarity.

# Social and Cultural Foundations

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The Social and Cultural Foundations component includes four required courses:

- A survey course called **Global Perspectives on Society**
- A writing course called **Perspectives on the Humanities**
- Two courses from the category **Interdisciplinary Perspectives on China**

## **Global Perspectives on Society (GPS)**

In the survey course *Global Perspectives on Society*, students will engage in the comparative study of primary works of social thought from across the globe. The course addresses ways that writers in different times and cultures have sought to situate humans within the universe, and to promote ideal standards for human behavior. Each week, students will be expected to engage one or more central texts by an important thinker on a given topic. The expectation is that *Global Perspectives on Society* will be taken in the first semester of students' first year at NYU Shanghai.

## **Perspectives on the Humanities (PoH)**

*Perspectives on the Humanities* is a content-based writing seminar, which introduces students to the questions asked and methods used by a variety of disciplines in the humanities, including philosophy, history, and literature. In the fall of their second year at NYU Shanghai, students choose from a variety of *Perspectives on the Humanities* topics. *Perspectives on the Humanities* is also designed to reinforce and advance the writing and thinking skills learned in the first-year *Writing as Inquiry* workshop. In addition to satisfying one Social and Cultural Foundations requirement, this course satisfies one of two writing requirements (see Writing).

## **Interdisciplinary Perspectives on China (IPC)**

By completing two *Interdisciplinary Perspectives on China* courses, students will be able to identify basic dimensions of China's current and historical contexts, and they will be able to combine this knowledge with disciplinary theory to analyze past and present issues confronting Chinese society. Through their ability to identify important dimensions of Chinese culture and society and their familiarity with relevant theoretical approaches, students will develop an analytically engaged perspective on their own immediate context in Shanghai and China, in all of its cultural richness, social diversity, and political and economic complexity.

*Interdisciplinary Perspectives on China* courses cover a wide range of disciplinary and interdisciplinary approaches. They include history, philosophy, culture, art, and literature disciplines that use critical methods and primarily take a comparative and historical approach. They may also engage in both qualitative and quantitative analyses, using a range of analytical, interpretive, and experimental tools from anthropology, economics, sociology, political science, and psychology. *Interdisciplinary Perspectives on China* courses may be taken at any point in a student's undergraduate experience.

## 2 Writing

NYU Shanghai writing courses serve as an introduction to academic writing and inquiry at the university level. Students learn how to closely read academic, argumentative, and narrative texts; how to provide an interpretation supported by evidence; how to build logical arguments and develop research questions; and how to adapt their writing to different genres and audiences. In these courses, students come to see writing as a process, one that sharpens their thinking and allows them to pursue the questions that feel most urgent to them. The

habits, dispositions, and skills taught in these classes may be transferred to communication in a variety of channels--academic, civic, business, personal, and creative. The capacities for critical analysis and nuanced self-expression developed in Writing Program classes will prove useful whatever a student's future endeavors.

Required courses: Students must complete two writing courses. Students take *Writing as Inquiry*, the first-year writing workshop, in the spring of their first year. Students are placed in either Writing I or Writing II; in Writing I, students spend additional time focused on areas of rhetoric, grammar, and style that are relevant to second language learners. Students must complete *Writing as Inquiry* (receiving a C or higher) before advancing to *Perspectives on the Humanities*, which is offered in the fall of the sophomore year (*Perspectives on the Humanities* also satisfies one Social and Cultural Foundations requirement; see "Social and Cultural Foundations").



Math core courses are an initiation to the use of mathematics to model and understand natural phenomena. Students are expected to acquire basic computational skills and the understanding of foundational mathematical notions. In addition, students are exposed to proofs and logical operations in mathematics.

# Mathematics 3

Students may fulfill their math requirement by taking *Precalculus* or *Great Ideas in Mathematics*, by taking other courses designated as fulfilling the Mathematics component, or by placing out of the requirement. The relevant exam scores which may be used to fulfilling the core curriculum mathematics requirement are listed below. No corresponding credit as awarded and test scores cannot be used to fulfill a prerequisite for an upper-level course in that area.

- AP Calculus AB or BC: Score of 4 or higher
- IB Mathematics: Score of 6 or higher
- A Level Mathematics: Score of B or higher
- NYU Shanghai Placement into Calculus

# 4 Science

Scientific knowledge and inquiry are central to human society, and science and technology play an increasingly important role in our lives. At the heart of the natural sciences is a quest to understand the universe, the biosphere, and who we humans are. The special feature of science is that its hypotheses can be tested under controlled conditions by appealing to evidence external to the inquirer. Thus, science provides a consistent framework for proposing

ideas and testing potential answers to these questions. NYU Shanghai students will become conversant with the fundamental concepts and applications, intellectual methods and analytical techniques that define modern science.

Science has two components:

- *Experimental Discovery in the Natural World*, which is composed of laboratory-based courses.
- *Science, Technology, and Society*, which is composed of non-laboratory-based courses that explore the impact of scientific thinking and innovations on our lives.

Students who are pursuing degrees in science disciplines—or who are taking the pre-health curriculum—will complete the Science core requirements through the Foundations of Biology, Chemistry, and Physics courses.

Students pursuing a Math or Honors Math major should refer to the major descriptions for specific science requirements.

The relevant exam scores which may be used to wholly or partially fulfill the Core Curriculum Science requirement are listed below. No corresponding credit is awarded and otherwise specified below test scores cannot be used to fulfill prerequisite for upper-level courses in that area.

# 5 Algorithmic Thinking

Algorithmic Thinking courses cover the thought processes involved in formulating a problem, designing a solution for that problem within given specifications, and expressing the solution in an ordered series of predefined instructions. Students acquire and hone skills that allow them to organize and analyze data logically, to represent problems in terms of abstractions and patterns, to break these

problems down into smaller parts, and to generalize problem-solving processes to wide scopes of application. All of these courses have a hands-on programming component.

Students must complete one 4-credit Algorithmic Thinking course.

The relevant exam scores which may be used to fulfill the Core Curriculum Algorithmic Thinking requirement are listed below. No corresponding credit is awarded.

- AP Computer Science A: Score of 4 or higher
- IB Computer Science: Score of 6 or higher
- NYU Shanghai Placement into Introduction to Computer Science

Core Curriculum Category	Can be fulfilled by these exams (though no credit is given)
Science, Technology, and Society (STS)	<ul style="list-style-type: none"> <li>• AP Environmental Science: Score of 4 or higher</li> </ul>
Experimental Discovery (ED)	<ul style="list-style-type: none"> <li>• AP Psychology: Score of 4 or higher fulfills core; score of 5 fulfills core and course equivalency for PSYCH-SHU 101</li> <li>• IB Psychology HL (Higher Level): Score of 6 or higher fulfills core; score of 7 fulfills core and course equivalency for PSYCH-SHU 101</li> <li>• A Level Psychology: Score of B or higher fulfills core; score of A fulfills core and course equivalency for PSYCH-SHU 101</li> <li>• AP Physics C- Mech OR AP Physics C – E&amp;M: Score of 4 or higher</li> </ul>
<p>Satisfies two components and completes the entire Science Core Requirement:</p> <p>Experimental Discovery (ED) AND Science, Technology and Society (STS)</p>	<ul style="list-style-type: none"> <li>• AP Physics 1 &amp; 2, Chemistry, OR Biology: Score of 4 or higher</li> <li>• AP Physics C- Mech and AP Physics C – E&amp;M: Score of 4 or higher</li> <li>• IB Biology HL, Chemistry HL, OR Physics HL: Score of 6 or higher</li> <li>• A Level Biology, Chemistry, OR Physics: Score of B or higher</li> </ul>
Algorithmic Thinking (AT)	<ul style="list-style-type: none"> <li>• AP Computer Science A: Score of 4 or higher</li> <li>• IB Computer Science HL: Score of 6 or higher</li> <li>• NYU Shanghai Placement into Introduction to Computer Science</li> </ul>

Language study is central to NYU's educational mission to develop well-rounded global citizens. Through language study, students gain the ability to operate effectively in multilingual and multicultural contexts. All NYU Shanghai students will be able to use English and Chinese for a range of communicative aims.

# Language 6

## **Chinese Language**

Core Chinese language courses prepare students to develop the communicative skills and competencies that allow them to engage in interpersonal and intercultural exchanges in the target language. Students will develop a greater cultural awareness of the context in which they study.

**Required courses or proficiencies for Chinese:** Students are required to successfully complete the intermediate two level of Chinese, or to demonstrate an equivalent competency through a placement exam. They are encouraged to develop as much proficiency in Chinese as their major course of study allows. In the summer before the first year, students who did not attend a Chinese-medium high school will have their Chinese language level assessed and will be placed into the appropriate level courses.

Engineering and Foundations of Science students are unable to take 4-credit courses in Chinese in their first year because of the course requirements of their major. Therefore, they will be able to complete the Elementary and Intermediate Chinese course requirements by completing two-credit Chinese classes throughout their fall and spring semesters. These two-credit Chinese classes are not open to other major or study-away students.

The Chinese language program offers multiple modalities of instruction, including formal intensive coursework during Summer Sessions, online self-study, and co-curricular language coaching with immersion experiences.

In order to study away, students must successfully complete Elementary Chinese II with a grade of C or better. To satisfy the language requirement, students must earn a grade of C or better in Intermediate Chinese II or equivalent. In addition, students may demonstrate equivalent proficiency by applying to take and scoring an 80 or higher on a placement exam.

## **English for Academic Purposes**

*Core English for Academic Purposes (EAP)* courses prepare students who did not attend an English-medium high school to engage communicatively at the high level demanded by the university's liberal arts context.

**Required courses or proficiencies for English:** Chinese speakers who did not attend an English-medium high school are required to complete up to 8 credits of EAP in the first two years, following a two-semester course sequence from EAP 100 to EAP 101. EAP 100 must be completed in the first year. Most students will complete a four-credit EAP seminar in the fall term and an EAP 101 seminar in the spring term. A small number of students taking courses sequences in the sciences will be eligible to take two two-credit EAP 100 seminars in the first year and to complete EAP 101 in the following year. Academic advisors will notify students if they are eligible for the two-credit seminar. Students must successfully complete EAP 101 before the end of their second year and before they study away. Students who demonstrate exceptionally strong competence on all learning outcomes as they complete EAP 100 may be recommended by faculty for exemption from EAP 101. Exemptions are rare and most students should expect to complete the full eight credits of EAP.

# {Part VI}

## Overview of Majors

# Arts and Sciences

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BIOLOGY

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CHEMISTRY

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ECONOMICS

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GLOBAL CHINA STUDIES

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HUMANITIES

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INTERACTIVE MEDIA ARTS

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INTERACTIVE MEDIA + BUSINESS

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MATHEMATICS

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HONORS MATHEMATICS

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NEURAL SCIENCE

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PHYSICS

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SOCIAL SCIENCE

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Biology is concerned with the workings of life in all its varied forms. Over the past few decades, the life sciences have been revolutionized by the development of molecular, cellular, genomic, and bioinformatics techniques that are now being utilized to study fundamental processes in organisms as well as applying this information to improve human health, enhance rational management of our environment, develop forensic science, and augment the production of renewable energy with the concomitant sequestering of pollutants, as well as approach ethical and legal issues that impinge on biological discoveries and their applications. The Biology curriculum aims to produce scientists with inquisitive minds who are self-reliant and who seek high quality of information about how the natural world works.

Building on the foundational science courses in chemistry, physics, biology, students in the Biology major learn to use the contemporary tools and approaches that are available to solve problems in areas of the current life sciences. In developing the major, we are first focusing on covering the essential “pillars of biological concepts”: molecular and cellular biology, genetics, and evolution. We also ensure that students are trained in modern methods of quantitative and computational analysis. The major is structured that students can take a diversity of upper-level courses upon completion of the core courses. These intermediate and advanced courses provide a broad and intensive background in modern biology for those interested in careers in research, health-related fields, biotechnology, and education, among others. The biology major allows students to pursue independent research that could lead to an undergraduate thesis.

The Biology program at NYU Shanghai has strong interactive ties with the Department of Biology and the Center for Genomics and Systems Biology at NYU in New York, and the Biology program at NYU Abu Dhabi, as well as with other laboratories across NYU's global network.



## REQUIREMENTS FOR THE MAJOR

**Note:** Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement. Requirements may be met through equivalent courses in NYU's global network with prior approval. Students may not double-major in Biology and Neural Science.

### Foundational Courses

- BIOL-SHU 21 Foundations of Biology I
- BIOL-SHU 22 Foundations of Biology II
- BIOL-SHU 123 Foundations of Biology Lab
- CHEM-SHU 125 Foundations of Chemistry I
- CHEM-SHU 126 Foundations of Chemistry II
- CHEM-SHU 127 Foundations of Chemistry I Lab **OR**
- CHEM-SHU 128 Foundations of Chemistry II Lab
- PHYS-SHU 11 General Physics I **OR**
- PHYS-SHU 91 Foundations of Physics I Honors
- PHYS-SHU 12 General Physics II **OR**
- PHYS-SHU 93 Foundations of Physics II Honors
- PHYS-SHU 71 Foundations of Physics Lab I
- PHYS-SHU 94 Foundations of Physics Lab II

### Note:

- 1) Biology majors are encouraged to complete the above classes in their first 2 years.
- 2) Biology majors are not required to take Foundations of Physics III Honors and may substitute General Physics I & II for Foundations of Physics I & II Honors courses.
- 3) Relationship between General Physics and Foundations of Physics Honors : General Physics I & II is a calculus-based course for pre-meds, engineers and others who want a broad introduction and survey of basic physics including classical mechanics, electricity and magnetism, optics and waves, and thermal and statistical physics. Foundations of Physics I-IV Honors covers a similar set of topics in considerably greater depth, plus special relativity and an introduction to quantum mechanics, over four semesters. Please note that Foundations of Physics I & II Honors alone do not include some important topics, such as optics, thermal and statistical physics, which are included in Foundations of Physics III Honors, and introduction to mechanics and condensed matter physics in Foundations of Physics IV Honors. Therefore, students electing to take the Honors Physics track are highly recommended to take Foundations of Physics III Honors and Foundations of Physics IV Honors. Students with a strong high-school background in physics and maths are also highly recommended to take Foundations of Physics I-IV Honors.

### Required Courses

- NEUR-SHU 100 Math Tools for Life Sciences or Biostatistics
- BIOL-SHU 250 Organismal Systems
- CHEM-SHU 225 Organic Chemistry I
- CHEM-SHU 225L Organic Chemistry I Lab
- BIOL-SHU 998 Integrated Science Capstone (This course must be taken in the last semester before graduation)

### Biology Electives - Choose Five

Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement. Requirements may be met through equivalent courses in the NYU's global network with prior approval.

Students are strongly encouraged (but not required) to take Organic Chemistry II as a general elective.

### Sample Courses:

- BIOL-SHU 30 Genetics
- BIOL-SHU 31 Genetics Laboratory
- BIOL-SHU 271 Cell Biology: Body's Battle with Cancer
- BIOL-SHU 261 Genomics and Bioinformatics
- BIOL-SHU 263 Developmental Biology
- BIOL-SHU 314 Advanced Cell Biology Lab

- BIOL-SHU 997 Independent Research (*Note that one 4-credit Independent Study is allowed to count towards the Biology major elective*)
- CHEM-SHU 881 Biochemistry I
- CHEM-SHU 882 Biochemistry II
- MATH-SHU 160 Networks and Dynamics
- NEUR-SHU 201 Introduction to Neuroscience

**Note:** Pre-health students may wish to take Introduction to Psychology or another relevant social sciences course, as required or recommended by some medical schools. Students interested in pursuing careers in the health sciences should meet with advising staff early on to ensure adequate course planning.

## Biology Minor

### A. Molecular and Cell Biology Minor

- BIOL-SHU 21 Foundations of Biology I
  - BIOL-SHU 22 Foundations of Biology II
  - BIOL-SHU 123 FoS Biology Laboratory
  - BIOL-SHU 30 Genetics **OR**
  - BIOL-SHU 263 Developmental Biology
  - BIOL-UA 36 At the Bench: Applied Molecular Biology DNA Techniques **OR**
  - BIOL-UA 37 At the Bench: Applied Cell Biology **OR**
- One approved class to count towards this minor

### B. Genomics and Bioinformatics Minor

- BIOL-SHU 21 Foundations of Biology I
- BIOL-SHU 22 Foundations of Biology II
- BIOL-SHU 123 FoS Biology Laboratory
- BIOL-SHU 261 Genomics and Bioinformatics
- BIOL-SHU 267 Microbiology and Microbial Genomics **OR**
- BIOL-GA 1128 Systems Biology **OR**
- BIOL-UA 58 Evolution

# BIOLOGY

## SAMPLE SCHEDULE 1

This is just one example of how a student could organize their courses if pursuing a Biology major. It assumes a student begins taking Biology major courses in the first semester of their first year. Sample Schedule 2 offers an alternate plan that involves beginning to pursue a Biology major in the spring semester of the first year. Students may propose alternative schedules to their advisors as well.

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class (Calculus)	8 credits: General Physics I/Foundations of Physics I Honors, Foundations of Chemistry I, and FoS Physics Laboratory	2 credits: English or Chinese
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#### Spring Semester

Writing as Inquiry	Core Class	8 credits: Foundations of Biology I, Foundations of Chemistry II, and Chemistry II Lab	2 credits: English or Chinese
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### Year 2

#### Fall Semester

Perspectives on the Humanities	5 credits: Organic Chemistry I + Organic Chemistry I Lab	5 credits: Foundations of Biology II and FoS Biology Laboratory	Chinese, or General Elective
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#### Spring Semester

5 credits: General Physics II/ Foundations of Physics II Honors, and Physics II Lab	Organismal Systems	Math Tools for Life Sciences	Chinese, English, or General Elective (Organic Chemistry II for pre-med students)
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### Year 3

#### Fall Semester

Biology Elective	Biology Elective	Chinese, or General Elective	General Elective
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#### Spring Semester

Biology Elective	General Elective	General Elective	General Elective
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### Year 4

#### Fall Semester

Biology Elective	General Elective	General Elective	General Elective
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#### Spring Semester

Integrated Science Capstone	Biology Elective	General Elective	General Elective
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# BIOLOGY

## SAMPLE SCHEDULE 2

### Year 1

#### Fall Semester

Global Perspectives on Society

Core Class  
(Calculus)

Core Class

English, Chinese,  
or General Elective

#### Spring Semester

Writing as Inquiry

Core Class

3 credits: Foundations of  
Biology I

English, Chinese,  
or General Elective

### Year 2

#### Fall Semester

Perspectives on  
the Humanities

10 credits: Foundations  
of Biology II,  
Foundations of  
Chemistry I, FoS Biology  
Laboratory, and FoS  
Chemistry Laboratory

Chinese, or General  
Elective

No Class

#### Spring Semester

Math Tools for Life  
Sciences

Organismal Systems

3 credits: Foundations of  
Chemistry II

Biology Elective, Chinese,  
or General Elective

### Year 3

#### Fall Semester

5 credits:  
Organic Chemistry I +  
Organic Chemistry I Lab

Biology Elective

Biology Elective

General Elective

#### Spring Semester

Biology Elective

Biology Elective

General Elective  
(Could be Organic  
Chemistry II for pre-med  
students)

General Elective

### Year 4

#### Fall Semester

5 credits: General Physics  
I/Foundations of Physics  
I Honors, and FoS Physics  
Laboratory

General Elective

General Elective

General Elective

#### Spring Semester

5 credits: General Physics  
II/Foundations of Physics  
II Honors, and Physics  
II Lab

Integrated Science  
Capstone

General Elective

General Elective

# CHEMISTRY

Chemistry is the study of the world of molecules: how they are created from atoms, how their structures affect their chemical and physical properties, and how they unite or assemble to form the matter that makes up the physical world. Knowledge of chemistry is fundamental to an in-depth understanding of the structural properties and biochemical reactions that define all living systems. Chemistry is therefore the central science that bridges physics and the life sciences, and is a foundation to many other fields, such as materials science, earth science, and forensic science. The challenges that society faces in the twenty-first century, such as managing climate change, sourcing clean energy, and ensuring food security, are at their root chemical problems. With a global perspective and a broad science curriculum at its core, our chemistry major program gives students a comprehensive outlook necessary to tackle these challenges.

A key characteristic of the chemistry major at NYU Shanghai is a good balance between depth and breadth of study: following the foundational science courses in chemistry and physics, students take the essential “canon” of organic chemistry and physical chemistry lectures and labs. Students then have flexibility in choosing three or more chemistry electives in areas of specialization that interest them, including Inorganic Chemistry, Analytical Chemistry, Computational Chemistry, and Biochemistry courses. A distinguishing feature of chemistry is the importance of creativity, whether it be in synthesizing new molecules, discovering novel reactions and materials, or developing new theories of matter. All chemistry students undertake a research or literature review project during their last semester in an Integrate Science Capstone course. Advanced students are encouraged to undertake two or more semesters of research with faculty, potentially culminating in an undergraduate thesis and chemistry honors.

Majoring in chemistry provides good preparation for graduate study in chemistry and related fields, such as biochemistry, biomedicine, and materials science. Chemistry major students are also well prepared for professional school, including medical, pharmacy, dental, optometry, veterinary, forensic, and law school. Students who, instead, decide to enter industry after graduation are well-served by the combination of creative and quantitative skills developed in the chemistry major that transfer to diverse sectors from data science to biotechnology to finance.

## REQUIREMENTS FOR THE MAJOR

**Note: Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement. Requirements may be met through equivalent courses in NYU's global network with prior approval.**

### GPA minimum requirement

Physics, Chemistry and Electrical Engineering majors' students must achieve and maintain a minimum 3.0 cumulative and major GPA in order to declare the major. Since they are required to study away in NY or AD for their junior year in order to complete major coursework offered at those campuses, they must complete all of the prerequisite courses at NYU Shanghai for the junior year major classes they need to take in New York or AD before they will be admitted to study away. If declared majors fail to maintain a 3.0 GPA or do not complete the required courses during study away, they may be required to declare a different major to be able to graduate.

### Foundational Courses

- |                |                                  |
|----------------|----------------------------------|
| • CHEM-SHU 125 | Foundations of Chemistry I       |
| • CHEM-SHU 126 | Foundations of Chemistry II      |
| • CHEM-SHU 127 | Foundations of Chemistry I Lab   |
| • CHEM-SHU 128 | Foundations of Chemistry II Lab  |
| • PHYS-SHU 11  | General Physics I <b>OR</b>      |
| • PHYS-SHU 91  | Foundations of Physics I Honors  |
| • PHYS-SHU 12  | General Physics II <b>OR</b>     |
| • PHYS-SHU 93  | Foundations of Physics II Honors |
| • PHYS-SHU 71  | Foundations of Physics Lab I     |
| • PHYS-SHU 94  | Foundations of Physics Lab II    |

### Note:

- 1) Chemistry majors are strongly encouraged to complete the above classes in their first 2 years.
- 2) Chemistry majors are not required to take Foundations of Physics III Honors and may substitute Foundations of Physics I & II Honors for General Physics I & II.
- 3) Relationship between General Physics and Foundations of Physics Honors: General Physics I & II is a calculus-based course for pre-meds, engineers and others who want a broad introduction and survey of basic physics including classical mechanics, electricity and magnetism, optics and waves, and thermal and statistical physics. Foundations of Physics I- IV Honors covers a similar set of topics in considerably greater depth, plus special relativity and an introduction to quantum mechanics, over four semesters. Please note that Foundations of Physics I & II Honors alone do not include some important topics, such as optics, thermal and statistical physics, which are included in Foundations of Physics III Honors, and introduction to mechanics and condensed matter physics in Foundations of Physics IV Honors. Therefore, students electing to take the Honors Physics track are recommended to take Foundations of Physics III Honors and Foundations of Physics IV Honors. Students with a strong high-school background in physics and mathematics are also recommended to take Foundations of Physics I- IV Honors.

### Required Courses

- |                                      |  |
|--------------------------------------|--|
| • CHEM-SHU 225                       | Organic Chemistry I +Organic Chemistry I Lab                       |
| • CHEM-SHU 226                       | Organic Chemistry II + Organic Chemistry II Lab                    |
| • CHEM-SHU 651<br>taken in Shanghai) | Physical Chemistry: Quantum Mechanics and Spectroscopy ( must be   |
| • CHEM-SHU 652<br>Shanghai)          | Physical Chemistry: Thermodynamics and Kinetics ( must be taken in |
| • CHEM-SHU 661                       | Physical Chemistry Laboratory                                      |
| • MATH-SHU 151                       | Multivariable Calculus   |
| • CHEM-SHU 998                       | Integrated Science Capstone  |

### Chemistry Electives - Choose Three

- |                |                           |
|----------------|---------------------------|
| • CHEM-SHU 285 | Experimental Biochemistry |
| • CHEM-SHU 310 | Biophysical Chemistry     |
| • CHEM-SHU 312 | Analytical Chemistry      |

- CHEM-SHU 711 Inorganic Chemistry
- CHEM-SHU 752 Computational Chemistry
- CHEM-SHU 881 Biochemistry I
- CHEM-SHU 882 Biochemistry II
- CHEM-SHU 997 Independent Study

**Note:**

- 1) The Integrated Science Capstone must be taken in the last semester before graduation.
- 2) Students interested in pursuing graduate study in Chemistry are strongly encouraged to take Inorganic Chemistry.
- 3) Additional advanced chemistry courses in NYU's global network can also meet the Chemistry Electives requirement. Students should consult with their Academic Advisor for further details.

**General Electives**

Students may take any courses in NYU's global network to satisfy the general elective requirements, but are strongly encouraged to take the following mathematics and computer science courses.

**Recommended Mathematics General Electives:**

- MATH-SHU 235 Probability and Statistics
- MATH-SHU 265 Linear Algebra and Differential Equations

**Recommended Computer Science General Elective:**

- CSCI-SHU 11 Introduction to Computer Programming
- CSCI-SHU 101 Introduction to Computer Science

**Chemistry Minor**

- CHEM-SHU 125 Foundations of Chemistry I
- CHEM-SHU 126 Foundations of Chemistry II
- CHEM-SHU 127 FoS Chemistry Laboratory
- CHEM-SHU 128 Chemistry II Lab
- CHEM-SHU 225 Organic Chemistry I + Organic Chemistry I Lab
- CHEM-SHU 226 Organic Chemistry II + Organic Chemistry II Lab

# CHEMISTRY

## SAMPLE SCHEDULE 1

This is just one example of how a student could organize their courses if pursuing a chemistry major. It assumes a student begins taking chemistry courses in the first semester of their first year. Sample Schedule 2 offers an alternate plan that pursues a chemistry major beginning in the fall semester of the second year. Students may propose alternative schedules to their advisors as well.

### Year 1

#### Fall Semester

Global Perspectives on Society I

Core Class  
(Calculus)

8 credits: Foundations of Chemistry I, FoS Chemistry Laboratory, and General Physics I/Foundations of Physics I Honors

2 credits:  
English or Chinese

#### Spring Semester

Writing as Inquiry

Multivariable Calculus

8 credits: Foundations of Chemistry II, Chemistry II Lab, General Physics II/Foundations of Physics II Honors

2 credits:  
English or Chinese

### Year 2

#### Fall Semester

Perspectives on the Humanities

5 credits: Organic Chemistry I + Lab

2 credits: FoS Physics I Laboratory

Core, Chinese or General Elective

#### Spring Semester

Core Class

5 credits: Organic Chemistry II + Lab

2 credits: Physics II Lab

Chinese, English or General Elective

### Year 3

#### Fall Semester

Physical Chemistry: Quantum Mechanics and Spectroscopy

Physical Chemistry: Thermodynamics and Kinetics

Chinese or General Elective

General Elective

#### Spring Semester

Physical Chemistry Laboratory

Chemistry Elective

Chemistry Elective, e.g. Inorganic Chemistry

Chinese or General Elective

### Year 4

#### Fall Semester

Chemistry Elective

General Elective

General Elective

General Elective

#### Spring Semester

Integrated Science Capstone

General Elective

General Elective

General Elective



# CHEMISTRY

## SAMPLE SCHEDULE 2

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class	Core or General Elective	English, Chinese, or General Elective
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#### Spring Semester

Writing as Inquiry	Core Class (Calculus)	Core or General Elective	English, Chinese, General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	10 credits: Foundations of Chemistry I, FoS Chemistry Laboratory, General Physics I/Foundations of Physics I Honors, and FoS Physics Laboratory	No Class	English, Chinese, General Elective
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#### Spring Semester

Multivariable Calculus	10 credits: Foundations of Chemistry II, Chemistry II Lab, General Physics II/Foundations of Physics II Honors, and Physics II Lab	No Class	English, Chinese, General Elective
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### Year 3

#### Fall Semester

5 credits: Organic Chemistry I + Lab	Physical Chemistry	Chemistry Elective	Chinese or General Elective
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#### Spring Semester

5 credits: Organic Chemistry II + Lab	Laboratory	No Class	General Elective
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### Year 4

#### Fall Semester

Physical Chemistry: Thermodynamics and Kinetics	Chemistry Elective	General Elective	General Elective
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#### Spring Semester

Integrated Science Capstone	General Elective	General Elective	General Elective
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The best way to understand the world you live in is arguably to understand the economics that drive it. The world is constantly and increasingly confronted with public policy issues that are essentially economic in character. Economic analysis provides a coherent and logical ordered framework for examining these issues and understanding the tradeoffs involved in attempting to solve social and business problems.

The economics curriculum at NYU Shanghai is designed to introduce students to these fundamental dynamics of human life and, in doing so, is grounded in three basic pedagogical principles:

- Undergraduate students must be exposed to the “big ideas” and pressing social issues of our world and given economic frameworks for thinking about them.
- Meaningful study of economics requires being able to think about problems from local, regional, and global perspectives. Understanding how individuals make decisions also requires incorporating insights from neuroscience and psychology.
- Effective economic analysis increasingly involves both conducting and effectively communicating the results from quantitative analyses of data using econometric methods.

Building on these principles, the Economics major is designed to foster rigorous analytical abilities both in neoclassical and behavioral economics, critical writing and communication skills, and the capacity to interpret and use statistical data—all in the service of developing sound economic reasoning and problem-solving skills. These transferable strengths are of value in a broad array of academic and professional paths, from economics, business, or law, to public service or graduate studies.

## REQUIREMENTS FOR THE MAJOR

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**Note:** Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement. Requirements may be met through equivalent courses in NYU's global network with prior approval. 3-credit versions of courses can generally substitute for a 4-credit required course but note that a 2-credit course with a similar title or content will not by itself meet the requirement of the named required course.

Economics major students must either take Calculus (MATH-SHU 131), place out of Calculus, or take Honors Calculus, in order to satisfy the Mathematics requirement in the core curriculum.

### Required Courses

- ECON-SHU 1 Principles of Macroeconomics **OR**  
ECON-SHU 251 Economics of Global Business
- ECON-SHU 3 Microeconomics **OR**  
ECON-SHU 2 Principles of Microeconomics
- ECON-SHU 10 Intermediate Microeconomics
- ECON-SHU 202 Intermediate Macroeconomics
- ECON-SHU 301 Econometrics
- MATH-SHU 235 Probability and Statistics **OR**  
BUSF-SHU 101 Statistics for Business and Economics

### Economics Electives - 24 Credits, at least 8 credits must be from "Advanced Economics Electives" and at least one course must be from "Economics Capstone Electives"

The courses listed below are not an exhaustive list. If you would like to see if a course not listed below can count as an Economics Elective, please contact your advisor to have the course reviewed.

#### Advanced Economics Electives

- ECON-SHU 201 Mathematics for Economists (*substituted by taking both Linear Algebra AND Multivariable Calculus*)
- ECON-SHU 210 Market Design
- ECON-SHU 225 Advanced Economic Theory
- ECON-SHU 315 Competitive Analysis
- ECON-SHU 402 Advanced Econometrics
- ECON-SHU 409 Advanced Topics in Macroeconomics
- ECON-SHU 416 Game Theory: Advanced Applications
- ECON-SHU 423 Econometrics for High Dimensional and Financial Data

#### Economics Electives

- BPEP-SHU 9042 The Political Economy of East Asia (formerly ECON-SHU 211)
- BPEP-SHU 238 International Economics
- ECON-SHU 5 Math for Econ 1: Optimization
- ECON-SHU 207 Urban and Real Estate Economics
- ECON-SHU 208 Money and Banking
- ECON-SHU 213 Causal Inference in the Social Sciences
- ECON-SHU 215 Economic History
- ECON-SHU 216 Introduction to Game Theory
- ECON-SHU 218 International Trade and Chinese Economy
- ECON-SHU 238 History of Modern Economic Growth: Exploring China From a Comparative Perspective
- ECON-SHU 232 Blockchain, Cryptocurrency, and Money
- ECON-SHU 238 History of Modern Economic Growth: Exploring China From a Comparative Perspective
- ECON-SHU 239 Topics in Economics in Transition: Exploring China
- ECON-SHU 260 International Trade
- ECON-SHU 306 Economics of Education
- ECON-SHU 316 Industrial Organization
- ECON-SHU 317 Quantitative Methods for the Economics of Gender
- ECON-SHU 332 Monetary Economics

- ECON-SHU 335 Development Economics
- ECON-SHU 338 International Economics
- ECON-SHU 342 Behavioral Economics
- ECON-SHU 349 Health Economics
- ECON-SHU 351 Labor Economics
- ECON-SHU 353 Public Economics
- ECON-SHU 355 Law and Economics
- ECON-SHU 360 Experimental Economics
- ECON-SHU 368 Financial Economics
- ECON-SHU 997 Economics Independent Study

#### **Economics Capstone Electives**

- ECON-SHU 400 Economics Capstone Research
- ECON-SHU 453 Economics Honors Program (same as BUSF-SHU 3 Business Honors Program)

#### **Economics Minor**

- BUSF-SHU 101 Statistics for Business and Economics **OR**
- MATH-SHU 235 Probability and Statistics **OR**
- MATH-SHU 233 Theory of Probability **OR**
- MATH-SHU 234 Mathematical Statistics
- ECON-SHU 1 Principles of Macroeconomics **OR**
- ECON-SHU 251 Economics of Global Business
- ECON-SHU 3 Microeconomics **OR**
- ECON-SHU 2 Principles of Microeconomics
- ECON-SHU 202 Intermediate Macroeconomics **OR**
- ECON-SHU 10 Intermediate Microeconomics
- 8 credits from the Economics elective list

# ECONOMICS

## SAMPLE SCHEDULE 1

This is just one example of how a student could organize their courses if pursuing a Economics major. It assumes a student begins taking Economics major courses in the first year. Sample Schedule 2 offers an alternate plan that begins in the second year. Students may propose alternative schedules to their advisors as well.

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class (Calculus)	Core or Principles of Macroeconomics	English or Chinese
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#### Spring Semester

Writing as Inquiry	Microeconomics	Probability and Statistics or alternate courses	English or Chinese
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### Year 2

#### Fall Semester

Perspectives on the Humanities	Intermediate Macroeconomics	Principles of Macroeconomics or Econometrics	Chinese or Core
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#### Spring Semester

Intermediate Macroeconomics	Econometrics or Multivariate Calculus or Mathematics for Economists	Economics Elective or Core	Chinese or Core
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### Year 3

#### Fall Semester

Core Class	Economics Elective	General Elective	General Elective
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#### Spring Semester

Core Class	Economics Elective	Advanced Economics Elective	General Elective
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### Year 4

#### Fall Semester

Core Class	Advanced Economics Elective	General Elective	General Elective
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#### Spring Semester

Core Class	Economics Capstone Research	General Elective	General Elective
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# ECONOMICS

## SAMPLE SCHEDULE 2

### Year 1

#### Fall Semester

Global Perspectives on Society

Core Class  
(Pre-Calculus or Calculus)

Core or General Elective

English or Chinese

#### Spring Semester

Writing as Inquiry

Calculus or Core Class

Core or General Elective

English or Chinese

### Year 2

#### Fall Semester

Perspectives on the Humanities

Microeconomics

Probability and Statistics  
or alternate courses

Core or General Elective

#### Spring Semester

Principles of Macroeconomics

Econometrics

Mathematics for Economists or  
Multivariate Calculus or  
General Elective

Core or General Elective

### Year 3

#### Fall Semester

Intermediate Microeconomics

Intermediate Macroeconomics

Core or General Elective

General Elective

#### Spring Semester

Core or General Elective

Economics Elective

Economics Elective

General Elective

### Year 4

#### Fall Semester

Core or General Elective

Economics Elective

Advanced Economics Elective

Economics Capstone Elective

#### Spring Semester

Core or General Elective

Advanced Economics Elective

Economics Capstone Elective

General Elective

# Global China Studies

China is once again a major force in the world. Beyond the scope of conventional area studies, the innovative interdisciplinary major in Global China Studies allows students to cultivate up-to-date knowledge and critical skills about China. It aims at deepening their understanding of China's interactions with the wider world as well as comprehending the trends within China, at individual, societal, state, and global levels, and in the context of socio-economic, religious, cultural, and political transformations.

The Global China Studies major offers two options. Students may opt to take the track that requires an extensive study of China in a global setting through the completion of an interdisciplinary curriculum without the need for additional Chinese language courses. They could also choose the advanced track option, which trains students to acquire a higher level of Chinese proficiency in addition to developing focused research skills needed for postgraduate professional and academic pursuits. In either case, majors in Global China Studies will graduate with the capacity to become qualified practitioners and thinkers of a changing China in the world.

## REQUIREMENTS FOR THE MAJOR

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### **GCS Major - Total Major Credits: 36**

This track is for students interested in developing in-depth knowledge about China through the study of Chinese history, society, literature, arts, and politics in a global setting with an emphasis on innovative research methods. Students must take a wide range of courses on China and are encouraged to complete a minor of their choosing. This track is recommended for students who plan to seek employment in the private sector, research institutions, or admission into graduate school.

### **Required Courses: 20 credits**

#### **GCHN-SHU 110 The Concept of China (4 credits)**

#### **China and the World: Choose Two (8 credits)**

Courses in this category focus on China in a broader global setting, concentrating on its contacts, historical and/or contemporary, with the outside world. The aim is to examine the dynamics of Chinese history, politics, economy, and culture as interconnected and integrated with various regions of the world. Select two of the following:

- GCHN-SHU 164                      The History of the Silk Road(s) (Originally: The Stuff of Legends: The Many Meanings of the Early Silk Road(s))
- GCHN-SHU 264                      Chinese Migrant and Diasporic Network
- HIST-SHU 250                      Tianxia: Traditional China and the World (Originally: China at the Center? An Exploration of Chinese Foreign Relations)
- HIST-SHU 312                      China Encounters the World
- GCHN-SHU 165                      China and the Islamic World
- SCA-SHU 9634                      Global Connections: Shanghai
- SOCS-SHU 341                      Cross-Strait Relations

#### **Two-semester capstone course (8 credits)**

Fall Semester: Methodologies in China Studies; Spring Semester: Research Project Seminar.

The first semester of this two-semester capstone course will focus on the methodologies of China-related research, examining the importance and shortcomings of Chinese primary sources and data, familiarizing with and learning how to access and use key archives, museums, libraries, research tools, databases, and digital websites, and analyzing some of the pivotal books and articles on China. Students will also draft a research proposal, with a preliminary bibliography, and identify a faculty mentor for the second semester of the capstone course. During the second semester, students will work primarily with their respective mentors, but are required to also participate and make presentations at a weekly research seminar. Those opting for GCS major do not have to demonstrate competency in reading and analyzing Chinese language sources.

#### **Global China Studies Electives (16 Credits)**

Choose four courses from the list, with at least one course from each of the following three categories:

##### **1.Chinese History, Society, and Culture**

Courses in this category focus on the examination of aspects and periods of Chinese history, social values and conditions, and cultural traditions and practices.

Sample courses:

- GCHN-SHU 224                      Chinese Maritime History
- GCHN-SHU 231                      Social and Cultural Debates in 20th Century China
- GCHN-SHU 236                      Immersive Narrative of Chinese Monuments
- GCHN-SHU 255                      Eat, Pray, Ponder: Chinese Intellectual Culture Through Ages
- GCHN-SHU 267                      The Cultivated City
- GCHN-SHU 275                      Memory Politics in China
- GCHN-SHU 351                      Buddhism, Nature and Technology in the Chinese World



- HIST-SHU 145 Food and Drugs in Chinese History
- HIST-SHU 153 History of Modern China
- PHIL-SHU 105 Introduction to Chinese Philosophy
- RELS-SHU 9270 Religion and Society in China
- SOCS-SHU 236 The Chinese Family
- SOCS-SHU 254 Ethnographies of Change in China

## **2.Chinese Media, Arts, and Literature**

Courses in this category examine the artistic and literary productions by the Chinese in and outside China, as well as the trends in print, audio-visual, digital and social media.

Sample courses:

- GCHN-SHU 116 Traditional Chinese Literature from the Beginning to 1911
- GCHN-SHU 156 History of Chinese Art
- GCHN-SHU 211 Chinese Architecture
- JOUR-SHU 203 Journalism and Society in China
- LIT-SHU 226 History of Chinese Cinema
- GCHN-SHU 263 Voices from the Margin: Modern Chinese and Sinophone Studies
- ART-SHU 9077 Contemporary Art & New Media in China
- HUMN-SHU 229 Masters of Asian Cinema
- HUMN-SHU 366 (266) Shanghai Stories
- MCC-SHU 9451 The Media in China

## **3.The Politics, Economy, and Environment of China**

Courses in this category examine the contemporary political, economic, legal, and environmental theories, policies, and practices in the People's Republic of China.

Sample courses:

- BUSF-SHU 288 Doing Business in China
- CCSF-SHU 123 Contemporary Chinese Political Thought
- ECON-SHU 238 History of Modern Economic Growth: Exploring China From a Comparative Perspective
- GCHN-SHU 240 Modern Chinese Governance
- GCHN-SHU 243 Chinese Environmental Studies
- GCHN-SHU 250 Geographies of China
- GCHN-SHU 265 Women in China: From May 4th to Me Too & Beyond
- SOCS-SHU 133 Urbanization in China

**Study Abroad: Students enrolled in this track may study abroad for a maximum of two semesters.**

## **Global China Studies minor**

Four classes in Global China Studies, one of which should be either the Concept of China course or a course listed under the "China and the World" category. Students may take up to two advanced or post-advanced language in fulfillment of this minor.

# Global China Studies

## SAMPLE SCHEDULE 1

### Year 1

Fall Semester	Global Perspectives on Society	Core Class	Core Class	English, Chinese, Core, or General Elective
Spring Semester	Writing as Inquiry	Core Class	The Concept of China	English, Chinese, Core, or General Elective

### Year 2

Fall Semester	Perspectives on the Humanities	China and the World	GCS Elective	Core, Chinese or General Elective
Spring Semester	China and the World	GCS Elective	Core Class	Core, Chinese or General Elective

### Year 3

Fall Semester	GCS Elective	General Elective	General Elective	General Elective
Spring Semester	GCS Elective	General Elective	General Elective	General Elective

### Year 4

Fall Semester	General Elective	GCS Capstone	Core Class	General Elective
Spring Semester	General Elective	GCS Capstone	General Elective	General Elective

# Global China Studies

## SAMPLE SCHEDULE 2

### Year 1

#### Fall Semester

Global Perspectives on Society	Core class	Core class	English, Chinese, Core or General Elective
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#### Spring Semester

Writing as Inquiry	Core Class	Core or General Elective	English, Chinese, Core or General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	The Concept of China	China and the World	Core or Chinese
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#### Spring Semester

China and the World	GCS Elective	Core Class	Core or Chinese
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### Year 3

#### Fall Semester

GCS Elective	GCS Elective	General Elective	General Elective
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#### Spring Semester

GCS Elective	General Elective	General Elective	General Elective
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### Year 4

#### Fall Semester

General Elective	GCS Capstone	Core Class	General Elective
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#### Spring Semester

General Elective	GCS Capstone	General Elective	General Elective
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## REQUIREMENTS FOR THE MAJOR

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### Advanced GCS Track - Total Major Credits: 40

This advanced track is for students interested in combining advanced training in the Chinese language with a deep knowledge of Chinese history, society, literature, arts, and politics in a global setting, as well as with an exploration of innovative research methodologies. It is recommended for students who plan to seek admission into graduate school, or employment in research institutions, governmental and non-governmental organizations in China or elsewhere that focus on China-related issues.

### Required Courses: 28 Credits

#### GCHN-SHU 110 The Concept of China (4 credits)

#### China and the World (4 Credits)

Courses in this category focus on China in a broader global setting, focusing on its contacts (historical and/or contemporary) with the outside world. The aim is to examine the dynamics of Chinese history, politics, economy, and culture as interconnected and integrated with various regions of the world. Select one of the following:

- GCHN-SHU 164 The History of the Silk Road(s) (Originally: The Stuff of Legends: The Many Meanings of the Early Silk Road(s))
- GCHN-SHU 264 Chinese Migrant and Diasporic Networks
- HIST-SHU 250 Tianxia: Traditional China and the World (Originally: China at the Center? An Exploration of Chinese Foreign Relations)
- HIST-SHU 312 China Encounters the World
- GCHN-SHU 165 China and the Islamic World
- SCA-SHU 9634 Global Connections: Shanghai
- SOCS-SHU 341 Cross-Strait Relations

#### Language courses (8 Credits)

**Non-Native Chinese Speakers:** Any two Chinese language courses on or beyond the level of Advanced I (e.g., Advanced I & II; or Advanced II & one post-advanced course; or two post-advanced courses)

**Native Chinese speakers** are required to further develop their academic reading and writing skills as well as Classical Chinese reading abilities through two of the following classes

- GCHN-SHU 283 Reading and Viewing Modern China
- GCHN-SHU 233 Foreign Societies in Classical Chinese Writing
- GCHM-SHU 255 Eat, Pray, Ponder: Chinese Intellectual Culture Through Ages *with special requirements*
- Other courses with special requirements (ask GCS Area Leader)

#### Chinese for Advanced Undergraduate Research (4 Credits)

This aim of these courses is to expand Chinese language research skills. Students will read, analyze, and use Chinese language sources to write, in English, response reports and research paper(s). The courses under this category will be taught in English. Select one of the following:

- GCHN-SHU 283 Reading and Viewing Modern China
- GCHN-SHU 200 Topics in Global China Studies: Introduction to Classical Chinese
- GCHN-SHU 233 Foreign Societies in Classical Chinese Writing
- GCHN-SHU 316 Chinese Art and Architecture in Cross- cultural Contexts

#### Two-semester capstone course (8 Credits)

Fall Semester: Methodologies in China Studies; Spring Semester: Research Project Seminar.

The first semester of this two-semester capstone course will focus on the methodologies of China-related research, examining the importance and shortcomings of Chinese primary sources and data, familiarizing with and learning how to access and use key archives, museums, libraries, research tools, databases, and digital websites, and analyzing some of the pivotal books and articles on China. Students will also draft a research proposal, with a preliminary bibliography, and identify a faculty mentor for the second semester of

the capstone course. During the second semester, students will work primarily with their respective mentors, but are required to also participate and make presentations at a weekly research seminar. Those opting for Advanced GCS major must demonstrate competency in reading and analyzing Chinese language sources.

**Global China Studies Electives (12 Credits):** Take one course each from the following three categories:

### 1. Chinese History, Society, and Culture

Courses in this category focus on the examination of aspects and periods of Chinese history, social values and conditions, and cultural traditions and practices.

Sample courses:

- |                 |  |
|-----------------|--|
| • GCHN-SHU 224  | Chinese Maritime History                                     |
| • GCHN-SHU 231  | Social and Cultural Debates in 20th Century China            |
| • GCHN-SHU 236  | Immersive Narrative of Chinese Monuments                     |
| • GCHN-SHU 255  | Eat, Pray, Ponder: Chinese Intellectual Culture Through Ages |
| • GCHN-SHU 267  | The Cultivated City  |
| • GCHN-SHU 275  | Memory Politics in China                                     |
| • GCHN-SHU 351  | Buddhism, Nature and Technology in the Chinese World         |
| • HIST-SHU 145  | Food and Drugs in Chinese History                            |
| • HIST-SHU 153  | History of Modern China                                      |
| • PHIL-SHU 105  | Introduction to Chinese Philosophy                           |
| • RELS-SHU 9270 | Religion and Society in China                                |
| • SOCS-SHU 236  | The Chinese Family   |
| • SOCS-SHU 254  | Ethnographies of Change in China                             |

### 2. Chinese Media, Arts, and Literature

Courses in this category examine the artistic and literary productions by the Chinese in and outside China, as well as the trends in print, audio-visual, digital and social media.

Sample courses:

- |                 |  |
|-----------------|--|
| • GCHN-SHU 116  | Traditional Chinese Literature from the Beginning to 1911    |
| • GCHN-SHU 156  | History of Chinese Art                                       |
| • GCHN-SHU 211  | Chinese Architecture   |
| • JOUR-SHU 203  | Journalism and Society in China                              |
| • LIT-SHU 226   | History of Chinese Cinemas                                   |
| • GCHN-SHU 263  | Voices from the Margin: Modern Chinese and Sinophone Studies |
| • ART-SHU 9077  | Contemporary Art & New Media in China                        |
| • HUMN-SHU 229  | Masters of Asian Cinema                                      |
| • HUMN-366(266) | Shanghai Stories   |
| • INTM-SHU 268  | Acoustic Ethnography of the Yangtze River Delta              |
| • MCC-SHU 9451  | Global Media Seminar: China                                  |

### 3. The Politics, Economy, and Environment of China

Courses in this category examine the contemporary political, economic, legal, and environmental theories, policies, and practices in the People's Republic of China.

Sample courses:

- |                |   |
|----------------|---|
| • BUSF-SHU 288 | Doing Business in China   |
| • CCSF-SHU 123 | Contemporary Chinese Political Thought  |
| • ECON-SHU 238 | History of Modern Economic Growth: Exploring China From a Comparative Perspective |
| • GCHN-SHU 240 | Modern Chinese Governance   |
| • GCHN-SHU 243 | Chinese Environmental Studies   |
| • GCHN-SHU 250 | Geographies in China  |
| • GCHN-SHU 265 | Women in China : From May 4th to Me Too & Beyond                                  |
| • SOCS-SHU 133 | Urbanization in China   |

**Study Abroad: Students enrolled in this track may study abroad only for one semester.**

# Advanced Global China Studies

## SAMPLE SCHEDULE 1

For students who have advanced Chinese language skills and start to take Advanced Chinese I course in their first semester of second year.

Students enrolled in the Advanced Global China Studies track may only spend no more than one semester abroad

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class	Core Class	English, Chinese, Core or General Elective
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#### Spring Semester

Writing as Inquiry	Core Class	The Concept of China	English, Chinese, Core or General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	China and the World	Advanced Chinese Course 1	Core or General Elective
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#### Spring Semester

GCS Elective	Advanced Chinese course 2	Core Class	Core, Chinese or General Elective
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### Year 3

#### Fall Semester

GCS Elective	General Elective	General Elective	General Elective
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#### Spring Semester

GCS Elective	Chinese for Advanced Undergraduate Research	General Elective	General Elective
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### Year 4

#### Fall Semester

General Elective	GCS Capstone	Core Class	General Elective
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#### Spring Semester

GCS Capstone	General Elective	General Elective	General Elective
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# Advanced Global China Studies

## SAMPLE SCHEDULE 2

For students who start to take Advanced Chinese I in their first semester of third year

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class	Core Class	English, Chinese, Core, or General Elective
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#### Spring Semester

Writing as Inquiry	Core Class	Core or General Elective	English, Chinese, Core, or General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	The Concept of China	Core or General Elective	Core or Chinese
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#### Spring Semester

China and the World	GCS Elective	Core Class	Core or Chinese
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### Year 3

#### Fall Semester

General Elective	Advanced Chinese Language Course 1	GCS Elective	General Elective
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#### Spring Semester

GCS Elective	Advanced Chinese Language Course 2	General Elective	General Elective
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### Year 4

#### Fall Semester

GCS Capstone	Chinese for Advanced Undergraduate Research	Core Class	General Elective
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#### Spring Semester

GCS Capstone	General Elective	General Elective	General Elective
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Do you love reading and thinking? Do you feel empowered when deconstructing why we do things and what it means? Do you interpret the world through making? Then the Humanities Major is for you! Use history, interdisciplinary arts, visual arts, literary studies, and philosophy to unpack how humans have shaped the world, and gain the ability to shape how we understand the world.

The Humanities major combines a rigorous general education in the humanities with a concentrated focus on a particular discipline or theme. The requirements for the major are designed to allow students to construct a program of study that fits their own intellectual interests.

The curriculum is cross-cultural in foundation and reflects the interdisciplinary strength of our faculty in areas including art history, history, philosophy, literature, religion, film and media, visual arts (formerly part of the arts), and cultural studies. The Humanities faculty teach courses that span the globe, covering the histories and contemporary cultures of Asia, Africa, Europe and the Americas. In these courses, students learn to employ multiple disciplinary perspective and to engage with a wide range of different sources, from literary fiction to courtroom trial transcripts, from classical paintings to contemporary political cartoons and posters.

The Humanities major provides students with advanced skills in critical reading, academic writing, visual arts creation, interpretation, analysis and argument that are highly valuable and readily transferable to a spectrum of careers: law, visual culture producers, contemporary art curation, journalism, non-fiction writing. While some Humanities majors pursue post-graduate opportunities in academia with the goal of contributing to the scholarly conversation, many others successfully use the skills they develop in their Humanities studies - including their advanced research skills and their capacity to critically engage with our globalizing world - to pursue a wide range of career paths.

In the Humanities introductory and foundation courses, students acquire a set of methods for humanistic inquiry. Students then develop an area of thematic or disciplinary focus by taking courses in Shanghai and other NYU sites in consultation with advisors. In the senior year, they take the Capstone Course and produce a final thesis to showcase their intellectual development.



## REQUIREMENTS FOR THE MAJOR

### Humanities Major Requirements - 46 credits

With advisement and guided planning from the student's academic advisor and Humanities faculty, a student must take the following courses in order to meet the requirements for the Humanities major:

#### Introductory courses - 16 credits (at least 8 credits of which must be Foundations courses)

**Foundations Courses** - Choose at least 8 credits from this category

These are a sub-species of Introductory Courses that provide students with a reflective introduction to the methods and/or fundamental theories in a particular discipline. Appropriate introductory courses offered by faculty from other majors may also be classified as Foundations courses for purposes of the Humanities major, for example a methodologically oriented introduction to anthropology.

Courses that satisfy this requirement include but are not limited to:

- PHIL-SHU 101 Foundations: What is Philosophy?
- LIT-SHU-101 Foundations: What is Literature?
- HIST-SHU 101 Foundations: What is History?
- ART-SHU 101 What is Art?

#### Other Introductory Courses

If you take more than two Foundations courses, the first two count towards the Foundations requirement outlined above, and the remaining count towards the general Introductory course requirement. Additional courses that satisfy the general Introductory course requirement include but are not limited to:

- ART-SHU 610 Art is a Hammer
- HIST-SHU 110 U.S. History Through Literature and Film
- HIST-SHU 130 Western Culture is not I, II, III: Arab-Islamic Influences on the West
- HIST-SHU 153 History of Modern China since 1840
- HIST-SHU 155 Global Chinese (fulfills IPC requirement)
- HIST-SHU 156 Europe since 1945
- HIST-SHU 208 Europe's Long Twentieth Century
- HIST-SHU 210 History of Death, Dying & Grief
- HIST-SHU 302 History of Water (fulfills STS requirement)
- HUMN-SHU 168 Penning the Self(ie): Writing the Human Condition
- HUMN-SHU 180 Korean Culture and Society through K-pop
- HUMN-SHU 231 Contemporary Art History and Theory in North America and Europe
- LIT-SHU 125 Literature in La Belle Epoque
- LIT-SHU 190 Transnational Feminisms of the Long 19th Century
- PHIL-SHU 40 Ethics
- PHIL-SHU 70 Logic (fulfills AT requirement)
- PHIL-SHU 80 Philosophy of Mind
- PHIL-SHU 105 Introduction to Chinese Philosophy (fulfills IPC requirement)
- PHIL-SHU 107 Great Works in Philosophy
- CRWR-SHU 159 Introduction to Creative Writing
- (WRIT-SHU 159)

#### Visual Arts Praxis Foundational and Introductory Level Courses

Foundational and Introductory level Visual Arts Praxis Courses do not satisfy the general Humanities requirements but fulfill elective requirements and are a requirement for a Creative Capstone in the Visual Arts:

- ART-SHU 211 Foundations in Painting
- ART-SHU 255 Printmaking in an Expanded Field
- ART-SHU 259 Installation Art
- ART-SHU 275 Mark Making

- ART-SHU 301                      Photography I
- ART-SHU 306                      Moving Images I
- ART-SHU 310                      Introduction to Studio Art

**Advanced Courses (24 credits total, at least 4 credits of which must be an Interdisciplinary Course, and at least 12 credits total must fit together thematically in a way that can serve as a basis for a capstone project).**

#### **Advanced Interdisciplinary Courses - Choose at least 4 credits from this category**

These are a sub-species of advanced courses that are explicitly interdisciplinary in orientation. For example, they may involve both historical and literary approaches to a topic, or philosophical and historical approaches to a topic, or literary and philosophical approaches to a topic.

Courses that satisfy this requirement include but are not limited to the following courses. Classes designated as an Advanced Interdisciplinary Course can be used either to fulfill the Advanced Interdisciplinary course requirement or the broader Advanced Course requirement:

- HIST-SHU 303                      Histories and Politics of Noise
- HUMN-SHU 366                      Shanghai Stories
- HUMN-SHU 300                      Representation, Language, and Power
- SOCS-SHU 229                      Capitalism, Socialism, Communism: Theory and Practice
- SOCS-SHU 272                      The U.S. Constitution: Is It Relevant to China?
- PHIL-SHU 90                      Philosophy of Science (fulfills STS requirement)
- PHIL-SHU 91                      Philosophy of Biology (fulfills STS requirement)
- PHIL-SHU 130                      Philosophy of Technology (fulfills STS requirement)

#### **Other Advanced Courses**

In addition to those courses listed above as Advanced Interdisciplinary courses, additional courses that satisfy this requirement include but are not limited to:

- ART-SHU 629                      The Villian
- HIST-SHU 232                      Moments of Europe
- HIST-SHU 303                      Histories and Politics of Noise
- HIST-SHU 239                      New York: History of the City
- HUMN-SHU 200                      French Cinema: The Birth of the Seventh Art
- HIST-SHU 225                      Global Space Age
- HIST-SHU 209                      Witches, Magic and the Witch Hunts in the Atlantic World, 1400-1700
- HIST-SHU 313                      China Goes Global: How China and the World Transformed Each Other
- HUMN-SHU 366                      Shanghai Stories
- LIT-SHU 280                      Empire and Literature in the 19th Century Britain
- WRIT-SHU 219                      Intermediate Fiction Workshop

#### **Visual Arts Praxis Advanced Level Courses**

- ART-SHU 250                      Visual Culture and Social Art Practice
- ART-SHU 302                      Photography II
- ART-SHU 307                      Moving Images II
- ART-SHU 1911                      Projects in Studio Art

Note: At least 12 credits (usually three 4-credit courses) of your Advanced Courses must fit together thematically in a way that can serve as a basis for a capstone project. The aim of this requirement is to allow students to select a set of courses that builds towards a capstone project. Students should consult with student advisor and with Humanities professors to discuss how best to fulfill this requirement.

One example of a thematically linked sequence of courses (in this case a multidisciplinary sequence, linked by the topic of gender):

- HUMN-SHU 240                      Gender, Sexuality, and Culture
- LIT-SHU 190                      Transnational Feminisms of the Long 19th Century
- HIST-SHU 209                      Witches, Magic and the Witch Hunts in the Atlantic World, 1400-1700

Another example of a thematically linked sequence of courses (in this case a disciplinary sequence, linked by the methodology of philosophy):

- PHIL-SHU 80                      Philosophy of Mind
- PHIL-SHU 90                      Philosophy of Science
- PHIL-SHU 91                      Philosophy of Biology

### **Capstone Sequence - 6 credits**

In their final year of course work, Humanities majors are required to complete a substantial research project during a two-semester sequence of capstone courses. The credits for the capstone courses will be distributed across the Fall and Spring semesters as follows:

In the Fall semester, students earn 2 credits for enrolling in the Humanities Capstone Seminar (HUMN-SHU 400A) and completing the required sequence of preparatory assignments for their research project. In the Spring semester, they may choose one of the following two options:

Option 1: Continue their research projects with the capstone instructor and turn in the capstone thesis with all other required work for the course (HUMN-SHU 400, 4 credits).

Option 2: Continue in an Advanced 4-credit course, and complete the capstone thesis as part of the course with approval and advisement from the instructor of the course. Students selecting Option 2 should inform their academic advisor and the Humanities Area Leader of their decision before the end of Fall semester.

In total, the Capstone sequence accounts for 6 credits total in two courses, the 2-credit Capstone Seminar in the Fall semester and a 4-credit research based course in the Spring semester.

Qualifying students may elect to complete a Creative Capstone in the Visual Arts, the artistic project is **in addition** to the research-based Humanities Capstone thesis.

The Creative Capstone in Visual Arts is comprised of an artistic project, the research-based Humanities Capstone thesis, and an artist statement. These three elements should be established as a unified project, with the expectation that the research paper is still the primary focus of the capstone - the artistic project is in addition to, not a replacement for, that component. Members of the faculty committee will assess both the artistic and written work.

The pathway to the Creative Capstone in Visual Arts include taking ART-SHU 101 What is Art?, three Visual Arts Praxis courses of any level and ART-SHU 1911 Projects in Studio Art.

# HUMANITIES

## SAMPLE SCHEDULE 1

This is just one example of how a student could organize their courses if pursuing a Humanities major. It assumes a student begins taking Humanities major courses in the first year. Sample Schedule 2 offers an alternate plan that begins in the second year. Students may propose alternative schedules to their advisors as well.

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class	Core Class	English, Chinese, Core or General Elective
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#### Spring Semester

Writing as Inquiry	Humanities Introductory Course (Foundations)	Core Class or General Elective	English, Chinese, Core or General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	Humanities Introductory Course	Humanities Introductory Course (Foundations)	Core, General Elective or Chinese
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#### Spring Semester

Core Class	Humanities Introductory Course	Core Class	Core, General Elective or Chinese
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### Year 3

#### Fall Semester

Core or General Elective	Humanities Advanced course (Interdisciplinary course)	Humanities Advanced course	General Elective
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#### Spring Semester

Humanities Advanced course	Humanities Advanced course	General Elective	General Elective
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### Year 4

#### Fall Semester

Humanities Advanced course	Humanities Advanced course	2-credit Humanities Capstone Seminar	General Elective
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#### Spring Semester

4-credit Humanities Capstone	General Elective	General Elective	General Elective
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# HUMANITIES

## SAMPLE SCHEDULE 2

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class	Core Class	English, Chinese, or General Elective
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#### Spring Semester

Writing as Inquiry	Core Class	Core Class or General Elective	English, Chinese, or General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	Humanities Introductory Course (Foundations)	Humanities Introductory Course	Core Class, General Elective, or Chinese
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#### Spring Semester

Core Class	Humanities Introductory Course (Foundations)	Humanities Introductory Course	Core Class, General Elective, or Chinese
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### Year 3

#### Fall Semester

Humanities Advanced courses (Interdisciplinary course)	Humanities Advanced courses	Core Class	Core class or General Elective
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#### Spring Semester

Humanities Advanced courses	Humanities Advanced courses	General Elective	General Elective
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### Year 4

#### Fall Semester

Humanities Advanced courses	Humanities Advanced courses	2-credit Humanities Capstone Seminar	General Elective
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#### Spring Semester

4-credit Humanities Capstone	General Elective	General Elective	General Elective
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Interactive Media Arts (IMA) encourages students to explore the expressive possibilities of emerging media. Our students are challenged to combine practice and theory, connecting technical skills with historical knowledge, cultural understanding, and conceptual thinking. Areas of expertise include the development of software, the manipulation of digital media, the fabrication of material objects, the production of electronic devices, the construction of virtual and physical spaces, media theory, interactive installation, and the philosophy of technology. Our curriculum, community, and active learning environment facilitate student acquisition of both conceptual insights and practical skills, encouraging our students to explore their personal interests whilst engaging both critically and creatively with new technologies.

All IMA majors take a required foundation course, What is New Media? A course designed to give students a strong theoretical and historical background in new media arts. They may then choose between 4 other foundation courses. Interaction Lab, Communications Lab, Application Lab, and Creative Coding Lab. Interaction Lab introduces students to the fields of interaction design, physical computing and digital fabrication, and provides students with foundational skills in electronics prototyping and an introduction to basic computer programming. Communications Lab introduces students to concepts and tools in order to produce multimedia content for print, photography, audio, and video. Application Lab introduces modern rapid software prototyping, theories of innovation, early-stage business concepts, and user experience design. Creative Coding Lab introduces students to the fundamentals of computation, software design, and web technologies.

Students then choose from a range of electives across the disciplines of art & design, humanities, science, and computation, with great freedom to make selection based on their personal interest and future career goals. Starting from their sophomore year, students are introduced to advanced labs and seminars where they can sharpen their technical skills, learn about professional environments and develop richer and more complex conceptual frameworks. Every student will receive guidance in their choices and in - in their Junior and Senior years - to be encouraged to specialize in a particular area of concentration. All majors finish with a two semester Capstone Studio course based on a topic of their own choosing. The IMA capstone synthesizes theoretical research and practice to produce an emerging media project that is critically informed by a related research essay.

## REQUIREMENTS FOR THE MAJOR

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**Note:** Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill a particular requirement. Requirements may be met through equivalent courses in the global network with prior approval.

### Foundations - 12 credits

This foundation is required.

- INTM-SHU 205                      What is New Media?

Students may choose any two of the following courses:

- INTM-SHU 101                      Interaction Lab
- INTM-SHU 103                      Creative Coding Lab
- INTM-SHU 110                      Application Lab
- INTM-SHU 120                      Communications Lab

### Electives - 20 credits

Sample Courses

- INTM-SHU 151                      Learning with Turtles
- INTM-SHU 196T                      After Earth: Technology & Ecology
- INTM-SHU 197T                      Seminar in Media Studies
- INTM-SHU 201T-B                      Expanded Web
- INTM-SHU 202                      Media Architecture
- INTM-SHU 204                      Critical Data and Visualization
- INTM-SHU 214                      User Experience Design
- INTM-SHU 217                      Make Believe
- INTM-SHU 222                      Introduction to Robotics
- INTM-SHU 226                      Artificial Intelligence Arts
- INTM-SHU 227                      ABC Browser Circus
- INTM-SHU 238                      Toy Design and Prototyping
- INTM-SHU 239                      Digital Fabrication
- INTM-SHU 243                      Introduction to Animation
- INTM-SHU 247                      Creative Game Design and Development
- INTM-SHU 254                      Nature of Code
- INTM-SHU 257T                      VFX In the Age of Virtual Production
- INTM-SHU 266                      Digital Heritage
- INTM-SHU 267                      Cultivated City
- INTM-SHU 271                      (Re)made in China
- INTM-SHU 280C                      VR/AR Fundamentals
- INTM-SHU 286                      Theories and Practices of Transmedia Storytelling
- INTM-SHU 287                      NIME: New Interfaces for Muscial Expression
- INTM-SHU 292T                      Web Page to Web Space
- INTM-SHU 296                      The Planetary: Computation in the Anthropocene
- INTM-SHU 297T                      The Speculative Philosophy of Artificial Intelligence

### Advanced Electives - 8 credits

Sample Courses

- INTM-SHU 301                      Advanced Lab: Open Project
- INTM-SHU 303T                      Advanced Lab: Shaders
- INTM-SHU 305T                      Advanced Seminar: Hello Metaverse

### Capstone - 8 credits

- INTM-SHU 400                      Capstone Studio I
- INTM-SHU 401                      Capstone Studio II

## REQUIREMENTS FOR THE MINOR

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**Foundations - 8 credits**

Students may choose any two of the following courses:

- INTM-SHU 101                      Interaction Lab
- INTM-SHU 103                      Creative Coding Lab
- INTM-SHU 110                      Application Lab
- INTM-SHU 120                      Communications Lab
- INTM-SHU 205                      What is New Media?

**Electives - 8 credits**

Students may take any 8 credits worth of electives from the Interactive Media Arts elective list.



# INTERACTIVE MEDIA ARTS

## SAMPLE SCHEDULE 1

This is just one example of how a student could organize their courses if pursuing a IMA major. It assumes a student begins taking IMA major courses in the first year. Sample Schedule 2 offers an alternate plan that begins in the second year. Students may propose alternative schedules to their advisors as well.

### Year 1

#### Fall Semester

Global Perspectives on Society

Core Class

Interaction Lab or Application Lab or Communications Lab or Creative Coding Lab

English, Chinese, Core or General Elective

#### Spring Semester

Writing as Inquiry

Core Class

What is New Media? or Interaction Lab or Application Lab or Communications Lab or Creative Coding

English, Chinese, Core or General Elective

### Year 2

#### Fall Semester

Perspectives on the Humanities

What is New Media? or Interaction Lab or Application Lab or Communications Lab or Creative Coding Lab

IMA Elective

Core, Chinese or General Elective

#### Spring Semester

Core Class

IMA Elective

IMA Elective

Core, Chinese or General Elective

### Year 3

#### Fall Semester

IMA Elective

Core Class

IMA Elective

General Elective

#### Spring Semester

Advanced IMA Elective

General Elective

General Elective

General Elective

### Year 4

#### Fall Semester

Capstone I

Advanced IMA Elective

General Elective

General Elective

#### Spring Semester

Capstone II

General Elective

General Elective

General Elective

# INTERACTIVE MEDIA ARTS

## SAMPLE SCHEDULE 2

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class	Core Class or General Elective	English, Chinese, Core or General Elective
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#### Spring Semester

Writing as Inquiry	Core Class or General Elective	Core Class	English, Chinese, core or General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	What is New Media? or Interaction Lab or Application Lab or Communications Lab or Creative Coding Lab	IMA Elective	Core, Chinese or General Elective
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#### Spring Semester

Core Class	What is New Media? or Interaction Lab or Application Lab or Communications Lab or Creative Coding Lab	What is New Media? or Interaction Lab or Application Lab or Communications Lab or Creative Coding Lab	Core, Chinese or General Elective
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### Year 3

#### Fall Semester

IMA Elective	IMA Elective	Core Class	General Elective
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#### Spring Semester

Advanced IMA Elective	IMA Elective	General Elective	General Elective
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### Year 4

#### Fall Semester

Capstone I	Interactive Media Elective	General Elective	General Elective
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#### Spring Semester

Capstone II	General Elective	General Elective	General Elective
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# INTERACTIVE MEDIA + BUSINESS

The Interactive Media + Business (IMB) major is where innovation + business meet through emerging media technology. It teaches how innovative ideas combine with technology, creativity and business principles to yield viable products, services and experiences. Students of Interactive Media + Business (IMB), will be challenged to imagine and implement interactive products and services that fearlessly investigate the recently possible in media, technology, and communication. IMB majors are also expected to think holistically about the impact of their work in society as well as the business value, whether it involves software or hardware, virtual or physical, product or experiment. The IMB major welcomes interest in entrepreneurship in all forms — large organizations or startups, for-profit or not-for-profit — that bring about disruptive changes and create positive social impact. Students of IMB will acquire a design-and-build mindset and gain experience by implementing creative solutions to real business problems in order to graduate well prepared for stimulating careers or future learning journeys in diverse organizations across the globe.

IMB majors and minors will take a unique blend of interactive media and business foundation courses, including Application Lab, which introduces modern rapid software prototyping, theories of innovation, early-stage business concepts, creative coding and user experience design. For their second emerging media foundation, IMB students will choose between one of 4 courses: *Interaction Lab*, which covers interaction design, electronics, computation, and digital fabrication, *Communications Lab*, which covers digital media production methods, including imaging, audio, video, and Web development, or *What is New Media?* A course designed to give students a strong theoretical and historical background in new media arts and *Creative Coding Lab*, which introduces students to the fundamentals of computation, software design, and web technologies.

Business foundations include Economics of Global Business and Principles of Financial Accounting.

Students also choose from a range of flexible core and elective categories across the disciplines of business, emerging media, art and design, the humanities, social and physical sciences, as well as computation and data. Majors finish with a year-long Capstone Studio course by synthesizing methods of research and practice to produce an interactive project and business plan.

## REQUIREMENTS FOR THE MAJOR

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**Note:** Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill a particular requirement. Requirements may be met through equivalent courses in the global network with prior approval

### Emerging Media Foundation Courses (pick 2 of 5): 8 credits

- INTM-SHU 110 Application Lab
- INTM-SHU 103 Creative Coding Lab
- INTM-SHU 101 Interaction Lab
- INTM-SHU 120 Communications Lab
- INTM-SHU 205 What is New Media?

### Required Business Foundation Course: 8 credits

- ECON-SHU 251 Economics of Global Business
- BUSF-SHU 250 Principles of Financial Accounting

### Business Flexible Core Courses: 8 credits

Choose 2 from the following (sophomore standing required):

- BUSF-SHU 210 Business Analytics
- BUSF-SHU 351 Operations Management
- MGKT-SHU 301 Management and Organizations
- MKTG-SHU 1 Introduction to Marketing
- BUSF-SHU 142 Information Technology in Business and Society
- BUSF-SHU 202 Foundations of Finance

### Business Elective Courses: 12 credits

Any Business core or elective

Sample Courses:

- BUSF-SHU 311 New Venture Strategy
- MKTG-SHU 57 Digital Marketing
- MKTG-SHU 110 Branding and Innovation

### Interactive Media Arts/Business Elective Courses: 20 credits

Sample Courses:

- INTM-SHU 226 Artificial Intelligence Arts
- INTM-SHU 232 Critical Data and Visualization
- IMBX-SHU 211 Design Thinking
- IMBX-SHU 101 Life Design
- IMBX-SHU 102 Global Experience Design
- IMBX-SHU 103 Understanding Financial Technology
- CCST-SHU 132 Creativity Considered

A complete and current list of courses is available at: [ima.shanghai.nyu.edu/curriculum/](http://ima.shanghai.nyu.edu/curriculum/)

### Capstone Studio: 8 credits

#### Important Notes:

- IMB majors are subject to the general degree requirements of NYU Shanghai. They must complete 128 total credits with a cumulative grade point average of at least 2.0.
- IMB majors are not able to double major in either Business & Finance, Business & Marketing, or Interactive Media Arts.
- The required Business & Finance and Business & Marketing course, Foundations of Finance, is optional for IMB majors. Students wishing to take Foundations of Finance must fulfill these prerequisites: Calculus, Microeconomics, and Statistics for Business and Economics.
- IMB students can take Economics of Global Business at other locations only if they meet the prerequisites (Microeconomics and Calculus)
- Microeconomics and Statistics for Business and Economics can be counted as Business electives for IMB majors

- Students who began NYU Shanghai before the 2018-2019 academic year who have already taken Communications Lab and Interaction Lab may substitute one of them for Application Lab.

**Interactive Media Arts + Business Minor**

- BUSF-SHU 250 Principles of Financial Accounting
- ECON-SHU 251 Economics of Global Business

**Interactive Media Foundation Courses: 8 credits**

- INTM-SHU 110 Application Lab **OR**
- INTM-SHU 120 Communications Lab **OR**
- INTM-SHU 101 Interaction Lab
- INTM-SHU 205 What is New Media?
- INTM-SHU 103 Creative Coding Lab

**Business Elective Course(s): 4 credits**

Any business core, elective or IMA Business or Emerging Media course(s)

**Interactive Media Elective Course(s): 4 credits**

Any IMA elective(s)

# INTERACTIVE MEDIA + BUSINESS

## SAMPLE SCHEDULE 1

This is just one example of how a student could organize their courses if pursuing a IMB major. It assumes a student begins taking IMB major courses in the first year. Sample Schedule 2 offers an alternate plan that begins in the second year. Students may propose alternative schedules to their advisors as well.

### Year 1

#### Fall Semester

Global Perspectives on Society

Core Class

Core Class

English, Chinese, core or General Elective

#### Spring Semester

Writing as Inquiry

Core Class

Emerging Media Foundation Course

English, Chinese, core or General Elective

### Year 2

#### Fall Semester

Perspectives on the Humanities

Emerging Media Foundation Course

Interactive Media Elective

Core, Chinese or General Elective

#### Spring Semester

Economics of Global Business

Principles of Financial Accounting

Interactive Media Elective

Core, Chinese or General Elective

### Year 3

#### Fall Semester

Interactive Media Elective

Core Class

Business Flexible Core

Core or General Elective

#### Spring Semester

Interactive Media Elective

Business Flexible Core

Business Elective

Business Elective

### Year 4

#### Fall Semester

Capstone Seminar (IMB)

Core Class or General Elective

Business Elective

General Elective

#### Spring Semester

Capstone Seminar (IMB)

Interactive Media Elective

General Elective

General Elective

# INTERACTIVE MEDIA + BUSINESS

## SAMPLE SCHEDULE 2

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class	Core Class	English, Chinese, Core or General Elective
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#### Spring Semester

Writing as Inquiry	Core Class or General Elective	Core Class	English, Chinese, core or General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	Emerging Media Foundation Course	Interactive Media Elective	Core, Chinese or General Elective
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#### Spring Semester

Economics of Global Business	Emerging Media Foundation Course	Principles of Financial Accounting	Core, Chinese or General Elective
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### Year 3

#### Fall Semester

Interactive Media Elective	Interactive Media Elective	Core Class	Business Flexible Core
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#### Spring Semester

Interactive Media Elective	Business Flexible Core	Business Elective	Interactive Media Elective
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### Year 4

#### Fall Semester

Capstone Seminar (IMB)	Business Elective	Core Class or General Elective	General Elective
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#### Spring Semester

Capstone Seminar (IMB)	Business Elective	General Elective	General Elective
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Mathematics is the cornerstone of science. It provides both the language and framework for scientific thought, incorporating logical rigor and the power of abstraction. These attributes allow human ingenuity to extract deep scientific understanding from relatively simple experiments and physical observations. Mathematics plays a double role: On the one hand, it is a scientific field of its own that has yielded powerful and surprisingly beautiful theoretical constructions. On the other hand, mathematics provides the toolbox needed to solve problems and to model phenomena observed in nature or of interest in industry and technology. As such, mathematics allows humans to model the physical universe, to build efficient algorithms in computing, to develop powerful artificial intelligence methods, to analyze financial markets, to produce predictions for climate science, to map and study the human genome, to analyze the structure of the human brain, and a long list of etcetera's.

NYU Shanghai offers two tracks for a degree in Mathematics: Mathematics and Honors Mathematics. Both tracks develop the pure and applied aspects of the discipline. Math majors acquire a solid grasp of the main areas of mathematics while being invited, through a number of electives courses, to apply this knowledge in a wide range of areas, including computer science, physics, chemistry, engineering, data science, operations research, finance, etc. Graduates are qualified either to continue with further graduate education, or to start a career in industry, financial institutions, logistics, statistical consulting, or any activity requiring abstraction capability, mathematical modeling skills or relying on intensive computational or quantitative techniques.

The Honors Math track requires students to take the Honors version of the mandatory Math courses and to keep both a general and a Math GAP higher or equal to 3.65. Honors courses have a broader scope and breadth than the regular courses, exposing students to general definitions and complete proofs. The Honors program is very demanding, as the combination of distinguished professors and a homogeneous selected audience results in fast moving courses that often become undistinguishable from graduate courses.



## REQUIREMENTS FOR THE MAJOR

The program is formed by three components: (1) Core courses, (2) Required Math courses (3) Math electives

**Math requirements: MATH-SHU 131 Calculus, or place out of Calculus or take MATH-SHU 201 Honors Calculus, in order to satisfy the Mathematics requirement in the core curriculum**

**Science requirements: Students must choose two lectures plus one lab of the following list**

Lecture sections (choose two):

- Foundations of Biology I (BIOL-SHU 21), Foundations of Biology II (BIOL-SHU 22)
- General Physics (PHYS-SHU 11) or Foundations of Physics Honors (PHYS-SHU 91), General Physics II (PHYS-SHU 12) or Foundations of Physics II Honors (PHYS-SHU 93)
- Foundations of Chemistry I (CHEM-SHU 125), Foundations of Chemistry II (CHEM-SHU 126)

Lab sections (choose one associated to one of the lecture sections chosen above):

- FoS Biology Laboratory (BIOL-SHU 123)
- FoS Physics Laboratory (PHYS-SHU 71), Physics II Lab (PHYS-SHU 94)
- FoS Chemistry Laboratory (CHEM-SHU 127)

Alternative courses may be accepted upon prior approval by the program leader. These courses must make a substantial use of Mathematics and mathematical modeling. Not every course listed is taught every semester, and in any given semester other courses may be offered as a replacement. Requirements may be met through equivalent courses in the global network with prior approval. 3-credit versions of courses can generally substitute for a full 4-credit course requirement. A 2-credit course with a similar title or content will not by itself meet the requirement of the named course.

### Required Mathematics Courses

Students wishing to major in Mathematics are strongly advised to take the course MATH-SHU 140 Linear Algebra in their first year, as it is a prerequisite for most advanced math courses. Note that this course can be taken at the same time as MATH-SHU 131 Calculus

- |                |   |
|----------------|---|
| • MATH-SHU 140 | Linear Algebra  |
| • MATH-SHU 143 | Foundations of Mathematical Methods or MATH-SHU 201 Honors Calculus <b>OR</b> |
| • MATH-SHU 201 | Honors Calculus   |
| • MATH-SHU 151 | Multivariable Calculus  |
| • MATH-SHU 235 | Probability and Statistics <b>OR</b>  |
| • MATH-SHU 233 | Honors Theory of Probability  |
| • MATH-SHU 262 | Ordinary Differential Equations <b>OR</b>                                     |
| • MATH-SHU 362 | Honors Ordinary Differential Equations  |

### Math Electives

Additionally to Calculus and the five required mathematics course, students are required to choose eight Math Electives. At least two must be from the category "Constrained Math Electives". Note that most elective courses require either the course MATH-SHU 143 Foundations of Mathematical Methods or the course MATH-SHU 201 Honors Calculus. Courses with a \* can be used to complete the senior thesis projects in the senior year (see below).

### Constrained Math Electives

This list is not exhaustive; other courses may be added if approved.

- |                |   |
|----------------|---|
| • MATH-SHU 141 | Honors Linear Algebra I                           |
| • MATH-SHU 142 | Honors Linear Algebra II*                         |
| • MATH-SHU 236 | Mathematics of Data Science and Machine Learning* |

- MATH-SHU 282 Functions of a Complex Variable
- MATH-SHU 328 Honors Analysis I
- MATH-SHU 329 Honors Analysis II\*
- MATH-SHU 339 Real Variables\*
- MATH-SHU 348 Abstract Algebra I\*
- MATH-SHU 349 Abstract Algebra II\*
- MATH-SHU 350 Probability Limit Theorems\*
- MATH-SHU 375 Topology\*
- MATH-SHU 377 Differential Geometry\*
- MATH-SHU-G 2550 Functional Analysis\*

### **Additional Mathematics Electives**

This list is not exhaustive; other courses may be added if approved.

- CSCI-SHU 2314 Discrete Mathematics
- MATH-SHU 160 Networks and Dynamics
- MATH-SHU 226 Functional Analysis
- MATH-SHU 234 Mathematics of Statistics and Data Science I
- MATH-SHU 236 Mathematics of Statistics and Data Science II\*
- MATH-SHU 250 Mathematics of Finance\*
- MATH-SHU 251 Introduction to Math Modeling\*
- MATH-SHU 252 Numerical Analysis
- MATH-SHU 263 Partial Differential Equations\*
- MATH-SHU 345 Introduction to Stochastic Processes\*
- MATH-SHU 997 Math Independent Study\*
- PHYS-SHU 201 Introduction to Quantum Information
- PHYS-SHU 135 Solid State Physics

### **Senior Thesis**

In their senior year, each Mathematics student is additionally required to complete a Senior Thesis, ending with a written report and an oral presentation. This thesis can be completed as part of any of your senior courses if indicated in the above list by an \*.

### **MATHEMATICS MINOR**

Students wishing to minor in Mathematics are required to take four 4-credit mathematics courses at the Calculus level or higher.

# MATHEMATICS

## SAMPLE SCHEDULE 1

This is one example of how a student could organize their courses if pursuing a Mathematics major. All the required courses are taken in the first two years, which opens the doors to most mathematics electives. It is strongly advised to take Linear algebra in the first year as it is a prerequisite for most of the other Mathematics courses.

### Year 1

#### Fall Semester

Global Perspectives on Society I	Calculus (Core Class)	Linear algebra	English, Chinese, Core or General Elective
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#### Spring Semester

Writing as Inquiry	Multivariate Calculus	Foundations of Mathematical Methods	English, Chinese, Core or General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	Probability and Statistics	Math or General elective	Chinese, Core or General Elective
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#### Spring Semester

Core Class	Ordinary Differential Equations	Math or General elective	Chinese, Core or General Elective
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### Year 3

#### Fall Semester

Core class or General Elective	Math Elective	Math Elective	General Elective
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#### Spring Semester

Math or General Elective	Math Elective	Math Elective	General Elective
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### Year 4

#### Fall Semester

General Elective	Math Elective*/ Math Elective	Math or General Elective	General Elective
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#### Spring Semester

General Elective	Math Elective*/ Math Elective	Math or General Elective	General Elective
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# MATHEMATICS

## SAMPLE SCHEDULE 2

This schedule is an example for students who want to explore topics in computer science in the course of their studies. These could be replaced for instance by courses in physics, chemistry, economics, or finance.

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class (Calculus)	Core/ General Elective	English, Chinese, Core or General Elective
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#### Spring Semester

Writing as Inquiry	Linear algebra	Core/ General Elective	English, Chinese, Core or General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	Probability and Statistics	Multivariate Calculus	Core, General Elective or Chinese
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#### Spring Semester

Core Class	Ordinary Differential Equations	Foundations of Mathematical Methods	Core, General Elective or Chinese
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### Year 3

#### Fall Semester

Core Class or General Elective	Math Elective	Math Elective	Math or General Elective
--------------------------------	---------------	---------------	--------------------------

#### Spring Semester

Math or General Elective	Math Elective	Math Elective	General Elective
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### Year 4

#### Fall Semester

General Elective	Math Elective	Math Elective	General Elective
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#### Spring Semester

General Elective	Math Elective	Math Elective	General Elective
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## REQUIREMENTS FOR THE MAJOR

Students wishing to major in Honors Mathematics must have achieved a general GPA of 3.65 or higher, and a GPA of 3.65 or higher in the major sequence. The earliest students are able to declare the major is after completion of Honors Analysis I and Honors Linear Algebra II and posting of their spring semester freshman year grades. If the GPA requirements are not met, the students may graduate as Mathematics majors but retain the Honors designation of the individual courses they took on their transcripts.

The program is formed by three components: (1) core courses, (2) required Math courses and (3) Math electives.

### Core Requirements

**Math requirements:** They are satisfied by approving either MATH-SHU 201 Honors Calculus or the combination of Calculus plus Foundations of Mathematical Methods. Acceptance in MATH-SHU 328 Honors Analysis I automatically entails the satisfaction of the core math requirements.

**Science requirements:** Students must choose two lectures plus one lab of the following list. Please note prerequisite courses for planning and course selection.

Lecture sections (choose two):

- Foundations of Biology I (BIOL-SHU 21), Foundations of Biology II (BIOL-SHU 21)
- General Physics (PHYS-SHU 11) or Foundations of Physics Honors (PHYS-SHU 91), General Physics II (PHYS-SHU 12 or Foundations of Physics II Honors (PHYS-SHU 93)
- Foundations of Chemistry I (CHEM-SHU 125), Foundations of Chemistry II (CHEM-SHU 126)

Lab sections (choose one associated to one of the lecture sections chosen above):

- FoS Biology Laboratory (BIOL-SHU 123)
- FoS Physics Laboratory (PHYS-SHU 71), Physics II Lab (PHYS-SHU 94)
- FoS Chemistry Laboratory (CHEM-SHU 127)

Alternative courses may be accepted upon prior approval by the program leader. These courses must make a substantial use of Mathematics and mathematical modeling. Not every course listed is taught every semester, and in any given semester other courses may be offered as a replacement. Requirements may be met through equivalent courses in the global network with prior approval. 3-credit versions of courses can generally substitute for a full 4-credit course requirement. A 2-credit course with a similar title or content will not by itself meet the requirement of the named course.

### Required Mathematics Courses

- |                |  |
|----------------|--|
| • MATH-SHU 141 | Honors Linear Algebra I                |
| • MATH-SHU 142 | Honors Linear Algebra II               |
| • MATH-SHU 233 | Theory of Probability                  |
| • MATH-SHU 282 | Functions of a Complex Variable        |
| • MATH-SHU 328 | Honors Analysis I                      |
| • MATH-SHU 329 | Honors Analysis II*                    |
| • MATH-SHU 348 | Abstract Algebra I                     |
| • MATH-SHU 362 | Honors Ordinary Differential Equations |

### Math Electives

Honors students are required to choose five Math Electives. It is strongly encouraged to take the required mathematics courses first. This list is not inclusive; other courses may be added if approved. Courses with a \* can be used to complete the Senior Thesis in the senior year (see below)

- |                |   |
|----------------|---|
| • MATH-SHU 160 | Networks and Dynamics                             |
| • MATH-SHU 226 | Functional Analysis                               |
| • MATH-SHU 234 | Mathematics of Statistics                         |
| • MATH-SHU 236 | Mathematics of Data Science and Machine Learning* |
| • MATH-SHU 250 | Mathematics of Finance*                           |

• MATH-SHU 251	Introduction to Math Modeling
• MATH-SHU 252	Numerical Analysis*
• MATH-SHU 263	Partial Differential Equations*
• MATH-SHU 329	Honors Analysis II*
• MATH-SHU 339	Real Variables*
• MATH-SHU 345	Introduction to Stochastic Processes*
• MATH-SHU 349	Abstract Algebra II*
• MATH-SHU 350	Probability Limit Theorems*
• MATH-SHU 375	Topology*
• MATH-SHU 377	Differential Geometry
• MATH-SHU 997	Math Independent Study*
• MATH-SHU-G 2550	Functional Analysis
• PHYS-SHU 201	Introduction to Quantum Information
• PHYS-SHU 135	Solid State Physics

### Senior Thesis

In their senior year, each Mathematics student is additionally required to complete a Senior Thesis, ending with a written report and an oral presentation. This special project can be completed as part of any of your senior courses if indicated in the above list by an \*.

# HONORS MATHEMATICS

## SAMPLE SCHEDULE 1

This is just one example of how a student could organize their courses if pursuing an Honors Mathematics major. Taking all required courses in the first two years allows access to most honors math electives.

### Year 1

Fall Semester	Global Perspectives on Society	Honors Calculus (Core Class)	Honors Linear Algebra I	English, Chinese, Core or General Elective
Spring Semester	Writing as Inquiry	Honors Analysis I	Honors Linear Algebra II	English, Chinese, Core or General Elective

### Year 2

Fall Semester	Perspectives on the Humanities	Honors Analysis II	Honors Ordinary Differential Equations	Core, General Elective, or Chinese
Spring Semester	Core Class	Functions of a Complex Variable	Honors Theory of Probability	Core, General Elective, or Chinese

### Year 3

Fall Semester	Core Class	Math Elective	Math or General Elective	Core class or General Elective
Spring Semester	Core Class	Math Elective	Math or General Elective	General Elective

### Year 4

Fall Semester	General Elective	Honors Algebra	Math or General Elective	General Elective
Spring Semester	General Elective	Math Elective	Math or General Elective	General Elective

# HONORS MATHEMATICS

## SAMPLE SCHEDULE 2

This is an alternative schedule for students who decide to enroll in the Honors Mathematics track at a later time.

### Year 1

#### Fall Semester

Global Perspectives on Society

Calculus (Core Class)

English, Chinese, Core or General Elective

General Elective

#### Spring Semester

Writing as Inquiry

Multivariable Calculus

English, Chinese, Core or General Elective

General Elective

### Year 2

#### Fall Semester

Perspectives on the Humanities

Honors Calculus

Honors Linear Algebra I

Honors Ordinary Differential Equations

#### Spring Semester

Core, Chinese, or General Elective

Honors Analysis I

Honors Linear Algebra II

Honors Theory of Probability

### Year 3

#### Fall Semester

Core Class

Math Elective

Math Elective

Core class or General Elective

#### Spring Semester

Core Class

Math Elective

Math Elective

General Elective

### Year 4

#### Fall Semester

Core, General Elective, or Chinese

Honors Analysis II

Honors Algebra I

General Elective

#### Spring Semester

Core, General Elective, or Chinese

Functions of a Complex Variable

Math Elective

General Elective



# Neural Science

Neural science (NS) is a collection of disciplines unified by a concern for the function of the brain. Experimental approaches in neural science vary from analyses of molecular and cellular mechanisms in nerve cells and groups of nerve cells to behavioral and psychological studies of whole organisms. Theoretical tools include mathematical and computational modeling approaches that have proved useful in other areas of science. We attract students who are interested in understanding the brain's command of all its diverse functions including but not limited to the following questions: How do cell circuits enable us to read and speak? How and why do we form relationships? How do we think, remember, despair, or motivate? What are possible causes of devastating disorders of the brain and body, as well as ways to prevent or cure them?

The NS major studies the brain and its impact on behavior and cognitive functions, the understanding of which is regarded as the Holy Grail of the current century. Increasing understanding of the brain will enable scientists to develop treatments for neurodegenerative diseases (such as Parkinson's disease & Alzheimer's disease) and mental illnesses. NS research will also help us find out more about normal human behavior and mental wellbeing, and can thus help develop artificial intelligence as well as treating illnesses. NS research could also lead to better understanding of how we learn, allowing us to optimize our intelligence. These developments are likely to provide significant benefits for society and have implications for a diverse range of public policy areas such as health, education, law, and security.

The undergraduate NS curriculum blends courses from many of the basic sciences (such as mathematics, biology, physics, & chemistry) as a foundation for higher level work in NS. NS major requirement contains 6 required courses including one capstone course and 2 elective courses. In addition, students who demonstrate a genuine interest in research and achieve a grade point average of 3.65 or higher in all courses required for the major and over all courses taken for credit can apply to be on Honors Track.

## REQUIREMENTS FOR THE MAJOR

Not every course listed below is taught in every semester. In any given semester, other courses may be offered that fulfill the requirement. Requirements may be met through taking equivalent courses in the Global Network with the prior approval from the Director of Undergraduate Studies (DUS) for Neural Science. Students may not double major in Neural Science and Biology.

### Foundational Courses

- BIOL-SHU 21 Foundations of Biology I
- BIOL-SHU 22 Foundations of Biology II
- BIOL-SHU 123 FoS Biology Laboratory
- CHEM-SHU 125 Foundations of Chemistry I
- CHEM-SHU 126 Foundations of Chemistry II
- CHEM-SHU 127 FoS Chemistry Laboratory **OR**
- CHEM-SHU 128 Chemistry II Lab
- PHYS-SHU 11 General Physics I **OR**
- PHYS-SHU 91 Foundations of Physics I Honors
- PHYS-SHU 12 General Physics II **OR**
- PHYS-SHU 93 Foundations of Physics II Honors
- PHYS-SHU 71 FoS Physics Laboratory
- PHYS-SHU 94 Physics II Lab

### Note:

1. NS majors are encouraged to complete the above classes in their first 2 years.
2. NS majors are not required to take Foundations of Physics III Honors and may substitute General Physics I & II for Foundations of Physics I & II Honors.
3. Relationship between General Physics and Foundations of Physics Honors: General Physics I & II is a calculus-based course for pre-meds, engineers and others who want a broad introduction and survey of basic physics including classical mechanics, electricity and magnetism, optics and waves, and thermal and statistical physics. Foundations of Physics I- IV Honors covers a similar set of topics in considerably greater depth, plus special relativity and an introduction to quantum mechanics, over four semesters. Please note that Foundations of Physics I & II Honors alone do not include some important topics, such as optics, thermal and statistical physics, which are included in Foundations of Physics III Honors, and introduction to mechanics and condensed matter physics in Foundations of Physics IV Honors. Therefore, students electing to take the Honors Physics track are highly recommended to take Foundations of Physics III Honors and Foundations of Physics IV Honors as well. Students with a strong high-school background in physics and mathematics are also highly recommended to take Foundations of Physics Honors I- IV.

### Required Major Courses (All Six)

- NEUR-SHU 100 Math Tools for Life Sciences(Spring)
- NEUR-SHU 201 Introduction to Neural Science (Fall)
- NEUR-SHU 251 Behavioral and Integrative Neuroscience (Spring)
- NEUR-SHU 210 Cellular and Molecular Neuroscience (Fall)

### One approved upper-level course in either Psychology or Biology:

#### Approved upper-level Psychology courses:

- NEUR-SHU 222 Perception
- NEUR-SHU 265 Neural Bases of Speech and Language

\*The following courses will not be offered at NYU Shanghai but students may take one of them at New York to fulfill the requirement.

- PSYCH-UA 29 Cognition
- PSYCH-UA 44 Lab in Perception
- PSYCH-UA 46 Lab in Human Cognition
- PSYCH-UA 55 Psychology, Neuropsychology, and Medicine
- PSYCH-UA 300 From Illusions to Inference

**Approved upper-level Biology courses:**

- BIOL-SHU 30 Genetics
- BIOL-SHU 50 Immunology
- BIOL-SHU 263 Developmental Biology
- CHEM-SHU 881 Biochemistry I
- CHEM-SHU 882 Biochemistry II

\*The following courses will not be offered at NYU Shanghai but students may take one of them at New York to fulfill the requirement.

- BIOL-UA 25 Principles of Animal Physiology
- BIOL-GA 1501 Mathematics in Medicine and Biology
- BIOL-GA 1502 Computers in Medicine and Biology

**Major Capstone Course:** NEUR-SHU 997/998 Independent Study in Neural Science (2-4 credits, can be repeated once): Open to senior neural science majors with permission of DUS.

Independent Study must have a combined total of at least 4 credits but no more than 8 credits to fulfill the major capstone course requirement. The 4-credit requirement can be fulfilled in 1 semester with a 4-credit load or over 2 semesters with a 2-credit load in each semester.

**Major Electives (Choose Two)**

- MATH-SHU 160 Networks and Dynamics (Spring)
- NEUR-SHU 10 Free Will and the Brain (Spring)
- NEUR-SHU 222 Perception (Spring, can count as an approved upper-level Psychology course)
- NEUR-SHU 261 Neurobiology of Decision Making (Spring)
- NEUR-SHU 265 Neural Bases of Speech and Language (Fall, can count as an approved upper-level Psychology course)
- NEUR-SHU 270 Introduction to Theoretical Neuroscience (Fall)
- NEUR-SHU 303 Introduction to Linguistics: The Science of Human Language (Fall)

\*The following courses will not be offered at NYU Shanghai but students may take one of them at New York to fulfill the requirement.

- NEURL-UA 302 Special Topics in Neural Science
- NEURL-UA 305 Development and Dysfunction of the Nervous System

**General Electives**

Students may take any courses in the NYU system to meet the general elective requirements. They are strongly encouraged (but not required) to take Introduction to Programming and choose from the following listed courses to develop research skills.

**Recommended Computer Science General Electives:**

- CSCI-SHU 101 Introduction to Computer Science
- CSCI-SHU 220 Algorithms
- CSCI-SHU 358 Theory of Computation
- CSCI-SHU 360 Machine Learning
- CSCI-SHU 372 Artificial Intelligence
- CSCI-SHU 402 Advanced Algorithms
- EENG-SHU 2054 Signals and Systems
- EENG-SHU 251 Circuits
- EENG-SHU 352 Control Systems
- EENG-SHU 375 Robotic Systems

**Recommended Mathematics General Electives:**

- MATH-SHU 151                      Multivariable Calculus
- MATH-SHU 140                      Linear Algebra
- MATH-SHU 233                      Theory of Probability
- MATH-SHU 235                      Probability and Statistics
- MATH-SHU 263                      Partial Differential Equations

**Neural Science Minor**

- BIOL-SHU 21                      Foundations of Biology I
- BIOL-SHU 22                      Foundations of Biology II
- BIOL-SHU 123                      FoS Biology Laboratory
- NEUR-SHU 201                      Introduction to Neural Science
- NEUR-SHU 251                      Behavioral and Integrative Neuroscience **OR**
- (NEUR-SHU 210)                      Cellular and Molecular Neuroscience

# NEURAL SCIENCE

## SAMPLE SCHEDULE 1

This is just one example of how a student could organize their courses if pursuing a NS major. It assumes a student begins taking NS major courses in the first semester of their first year. Sample Schedule 2 offers an alternate plan that involves beginning to pursue a NS major in the spring semester of the first year. Students may propose alternative schedules to their advisors as well.

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class (Calculus)	8 credits: General Physics I/ Foundations of Physics I Honors/, Foundations of Chemistry I, and FoS Physics Laboratory	2 credits: English or Chinese
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#### Spring Semester

Writing as Inquiry	Core Class or NS Elective	8 credits: Foundations of Biology I, Foundations of Chemistry II, and FoS Chemistry Laboratory	2 credits: English or Chinese
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### Year 2

#### Fall Semester

Perspectives on the Humanities	Introduction to Neural Science	5 credits: Foundations of Biology II and FoS Biology Laboratory	NS elective, Core, Chinese, or General Elective
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#### Spring Semester

Behavioral and Integrative Neuroscience	Math Tools for Life Sciences	Core Class, NS elective, Chinese, English, or General Elective	5 credits: General Physics II/Foundations of Physics II Honors, and Physics II Lab
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### Year 3

#### Fall Semester

Cellular and Molecular Neuroscience	NS Elective	General Elective	General Elective
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#### Spring Semester

Approved upper-level course in either Psychology or Biology	NS Elective	General Elective	General Elective
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### Year 4

#### Fall Semester

General Elective	Major Capstone or General Elective	General Elective	General Elective
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#### Spring Semester

Major Capstone or General Elective	General Elective	General Elective	General Elective
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# NEURAL SCIENCE

## SAMPLE SCHEDULE 2

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class (Calculus)	Core Class	English, Chinese or General Elective
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#### Spring Semester

Writing as Inquiry	Core Class	3 credits: Foundations of Biology I	English, Chinese or General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	Intro to Neural Science	8 credits: Foundations of Chemistry I, Foundations of Biology II, and FoS Biology Laboratory	No class
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#### Spring Semester

Math Tools for Life Sciences	Behavioral and Integrative Neuroscience	5 credits: Foundations of Chemistry II and FoS Chemistry Laboratory	Chinese or General Elective
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### Year 3

#### Fall Semester

Cellular and Molecular Neuroscience	NS Elective	General Elective	Chinese or General Elective
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#### Spring Semester

Approved upper-level course in either Psychology or Biology	NS Elective	General Elective	General Elective
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### Year 4

#### Fall Semester

5 credits: General Physics I/Foundations of Physics I Honors and FoS Physics Laboratory	Major Capstone or General Elective	General Elective	General Elective
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#### Spring Semester

5 credits: General Physics II/Foundations of Physics II Honors and Physics II Lab	Major Capstone or General Elective	General Elective	General Elective
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# PHYSICS

Physics is a broad discipline, ranging from fundamental scientific questions to sophisticated technological applications. At its most basic, it is the study of matter and energy and their manifold interactions. Physicists study topics as wide-ranging as the underlying nature of space and time; the origins, large-scale structure, and future evolution of the universe; the behavior of stars and galaxies; the fundamental constituents of matter; the many different patterns in which matter is organized, including superconductivity, liquid crystals, or the various forms of magnetism in solids; the workings of biological matter, whether in molecules such as DNA, or cellular structures, or the transport of matter and energy in and across cells; and many others. Basic physics research has led to myriad technological advances, which have transformed society in the 20th century through the present day; a small list includes: radio and television; computers; lasers; X-rays; magnetic resonance imaging and CAT scans; and the World Wide Web.

Physics is a hands-on discipline, and our students gain expertise not only in the classroom but also in the laboratory. They may participate in activities ranging from the writing of realistic computer modeling of fundamental physical principles to the modeling of financial activities, as well as the more traditional activities of physicists and mathematicians. Those trained in physics are found in many occupations, such as various fields of engineering, computer technology, health, environmental and earth sciences, communications, finance, and science writing. A higher degree opens the possibility of creative research in industry, or teaching and research in colleges and universities. Outstanding and highly motivated students are offered special opportunities for honors work, independent study, summer laboratory research, internships, and other enhancements. Our interdisciplinary approach and experimental work is geared to meet the current demand for scientists with well-integrated backgrounds who became the leaders in modern scientific scholarship and who pursue careers in research, education, industry, health care, business, and publishing.

## REQUIREMENTS FOR THE MAJOR

**Note:** Not every course listed below is taught in every semester. In any given semester, other courses may be offered that fulfill the requirement. Requirements may be met through taking equivalent courses in NYU's global network with the prior approval.

### GPA minimum requirement

Physics, Chemistry and Electrical Engineering majors' students must achieve and maintain a minimum 3.0 cumulative and major GPA in order to declare the major. Since they are required to study away in NY or AD for their junior year, they must complete all of the prerequisite courses at NYU Shanghai for the junior year major classes they need to take in New York or AD before they will be admitted to study away. If declared majors fail to maintain a 3.0 GPA or do not complete the required courses during study away, they may be required to declare a different major to be able to graduate.

### Foundational Courses

- |                |   |
|----------------|---|
| • BIOL-SHU 21  | Foundations of Biology I                      |
| • BIOL-SHU 123 | Foundations of Biology Lab                    |
| • CHEM-SHU 125 | Foundations of Chemistry I                    |
| • CHEM-SHU 126 | Foundations of Chemistry II                   |
| • CHEM-SHU 128 | Chemistry II Lab <b>OR</b>                    |
| • CHEM-SHU 127 | Foundations of Chemistry II Lab               |
| • PHYS-SHU 91  | Foundations of Physics I Honors <b>OR</b>     |
| • PHYS-SHU 11  | General Physics I (with a B+ or better grade) |
| • PHYS-SHU 93  | Foundations of Physics II Honors              |
| • PHYS-SHU 95  | Foundations of Physics III Honors             |
| • PHYS-SHU 96  | Foundations of Physics IV Honors              |
| • PHYS-SHU 71  | Foundations of Physics Lab I                  |
| • PHYS-SHU 94  | Foundations of Physics Lab II                 |

### Note:

- 1) Relationship between General Physics and Foundations of Physics Honors: General Physics I & II is a calculus-based course for pre-meds, engineers and others who want a broad introduction and survey of basic physics including classical mechanics, electricity and magnetism, optics and waves, and thermal and statistical physics. Foundations of Physics I-IV Honors covers a similar set of topics in considerably greater depth, plus special relativity and an introduction to quantum mechanics, over four semesters. It should be emphasized that Foundations of Physics I & II Honors alone do not include some important topics, such as optics, thermal and statistical physics, which are included in Foundations of Physics III Honors, and introduction to quantum mechanics and condensed matter physics in Foundations of Physics IV Honors. Therefore, students electing to take the Honors Physics track are highly recommended to take Foundations of Physics III Honors and Foundations of Physics IV Honors as well.
- 2) Students who have taken General Physics I and received a B+ or better grade also satisfy the prerequisite to take Foundations of Physics II Honors. Such students may also become Physics Majors and do not have to retake Foundations of Physics I Honors. However, students who already are interested in majoring in Physics, as well as those interested in the honors track, or those with a strong high-school background in physics and mathematics are strongly recommended to take Foundations of Physics I-IV Honors.
- 3) Physics majors are not required to take Foundations of Biology II.
- 4) Physics majors are required to take Linear Algebra and Differential Equations. They should not take Linear Algebra.

### Required Courses

- |                |   |
|----------------|---|
| • MATH-SHU 151 | Multivariable Calculus                    |
| • MATH-SHU 235 | Probability and Statistics                |
| • MATH-SHU 265 | Linear Algebra and Differential Equations |
| • PHYS-SHU 106 | Mathematical Physics                      |
| • PHYS-SHU 251 | Electricity and Magnetism                 |



- PHYS-SHU 301 Quantum Mechanics
- PHYS-SHU 302 Statistical Mechanics and Thermodynamics
- PHYS-SHU 303 Advanced Physics Laboratory
- PHYS-SHU 998 Integrated Science Capstone (This course must be taken in the last semester before graduation)

#### Physics Electives - Choose Two

- PHYS-SHU 135 Solid State Physics
- PHYS-SHU 201 Introduction to Quantum Information
- PHYS-SHU 210 Computational Physics
- PHYS-SHU 255 Biophysics
- PHYS-SHU 314 Astrophysics
- PHYS-SHU 315 Nuclear and Particle Physics

#### Physics Minor

- PHYS-SHU 91 Foundations of Physics I Honors **OR**
- PHYS-SHU 11 General Physics I
- PHYS-SHU 93 Foundations of Physics II Honors **OR**
- PHYS-SHU 12 General Physics II
- PHYS-SHU 71 FoS Physics Laboratory
- PHYS-SHU 94 Physics II Laboratory
- Two Physics Elective Courses (Must bring total credits of the minor courses to 16 or more)

# PHYSICS

## SAMPLE SCHEDULE 1

This is just one example of how a student could organize their courses if pursuing a Physics major. It assumes a student begins taking Physics major courses in the first semester of their first year. Sample Schedule 2 offers an alternate plan that involves beginning to pursue a Physics major in the spring semester of the first year. Students may propose alternative schedules to their advisors as well.

### Year 1

#### Fall Semester

Global Perspectives on Society

Core Class (Calculus)

8 credits: Foundations of Physics I Honors, Foundations of Chemistry I, and FoS Physics Laboratory

2 credits: English or Chinese

#### Spring Semester

Writing as Inquiry

Multivariable Calculus

8 credits: Foundations of Physics II Honors, Physics II Lab and Foundations of Biology I

2 credits: English or Chinese

### Year 2

#### Fall Semester

Perspectives on the Humanities

Linear Algebra and Differential Equations

5 credits: Foundations of Physics III Honors and FoS Biology Laboratory

Probability and Statistics

#### Spring Semester

8 credits: Foundations of Physics IV Honors, Foundations of Chemistry II, and FoS Chemistry Laboratory

Mathematical Physics

Core or General Elective

English or Chinese

### Year 3 (These classes are only offered in NY or AD)

#### Fall Semester

Electricity and Magnetism

Quantum Mechanics

Physics Elective

Chinese or General Elective

#### Spring Semester

Statistical Mechanics and Thermodynamics

Physics Elective

General Elective

Chinese or General Elective

### Year 4

#### Fall Semester

Advanced Physics Lab

General Elective

General Elective

Chinese or General Elective

#### Spring Semester

Integrated Science Capstone

General Elective

General Elective

Chinese or General Elective

# PHYSICS

## SAMPLE SCHEDULE 2

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class (Calculus)	Core Class	English, Chinese, or General Elective
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#### Spring Semester

Writing as Inquiry	Core Class	Multivariable Calculus	English, Chinese, or General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	8 credits: Foundations of Physics I Honors, Foundations of Chemistry I, and FoS Physics Laboratory	Linear Algebra and Differential Equations	No Class
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#### Spring Semester

Probability and Statistics	8 credits: Foundations of Physics II Honors, Physics II Lab, Foundations of Biology I	General Elective	No Class
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### Year 3

#### Fall Semester

5 credits: Foundations of Physics III Honors and FoS Biology Laboratory	Chinese or General Elective	General Elective	General Elective
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#### Spring Semester

Mathematical Physics	8 credits: Foundations of Physics IV Honors, Foundations of Chemistry II, FoS Chemistry Laboratory	Chinese or General Elective	No Class
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**Year 4 (These classes are only offered in NY or AD; requires exceptional permission from Academic Standards Committee to complete senior year away)**

#### Fall Semester

Physics Elective	Electricity and Magnetism	Quantum Mechanics	General Elective
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#### Spring Semester

Statistical Mechanics and Thermodynamics	Advanced Physics Lab	Physics Elective	Integrated Science Capstone
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Social scientists study human interactions among individuals, families, communities, and nations. Using a range of analytical, interpretive, and experimental tools from anthropology, economics, sociology, political science, and psychology, social scientists seek to understand conflict and cooperation, epidemics of disease and poverty, social organization and social change, kinship and belonging, human development, systems of exchange, and other enduring questions at the center of our shared humanity.

Students who complete the Social Science major at NYU Shanghai will be prepared to pursue careers and advanced study in fields as diverse as anthropology, business, development, economics, education, environmental studies, law, psychology, political science, public health, public service, sociology, and social policy. The major offers students a unique opportunity to explore broad areas of social science research and thought, while also allowing a concentration in one disciplinary area or a synthetic combination of fields within the major. The Social Science major encourages interdisciplinary inquiry into the complex problems of our contemporary world and the cross-disciplinary exchange that is at the heart of many of the most interesting advances in social science research today.

Social Science majors at NYU Shanghai develop competence in a variety of research tools in two methods courses and complete two interdisciplinary core courses on classic forms of social science analysis and new frontiers in social science research. Social Science majors select two foundational courses in the social science disciplines, and three focus courses in one track to deepen their engagement with a social science discipline (anthropology, political science, psychology, or sociology)\* or an interdisciplinary topic of interest (environmental studies, global health, international relations, political economy or urban studies). China—its peoples and politics—is an important focus for teaching and learning in the major, but the major is purposefully global in perspective and heterogeneous in the methodological and analytical scope of its course offerings. Social Science majors complete an independent research project as part of a senior year capstone.

\*NYU Shanghai students interested in a disciplinary focus in Economics are advised to pursue the Economics major instead of the Social Science major.

## REQUIREMENTS FOR THE MAJOR

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**Note:** While Calculus is not a requirement in the Social Science major, some methods course options and some focus courses in the political economy track do require Calculus as a prerequisite. Thus, students are encouraged to consider what courses and track they plan to take for the Social Science major and whether Calculus is a prerequisite.

Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill these requirements. Requirements may be met through equivalent courses in NYU's global network with prior approval.

### Foundational Courses (100-200 level) - Two Courses

These courses provide an introduction to the foundational knowledge and building blocks of analytic methods in a range of Social Sciences. Typical coursework: A mix of lectures, discussion, assignments, shorter essays, quizzes, and/or exams. Students need to successfully complete a Social Science foundational course to declare the major.

#### Sample Courses

- |                |  |
|----------------|--|
| • SOCS-SHU 130 | Introduction to Political Theory       |
| • SOCS-SHU 133 | Urbanization in China                  |
| • SOCS-SHU 135 | Environment and Society                |
| • SOCS-SHU 136 | Human Society and Culture              |
| • SOCS-SHU 150 | Introduction to Comparative Politics   |
| • SOCS-SHU 160 | Introduction to International Politics |
| • SOCS-SHU 170 | Introduction to Global Health          |
| • PSYC-SHU 101 | Introduction to Psychology             |
| • ECON-SHU 1   | Principles of Macroeconomics           |
| • ECON-SHU 3   | Microeconomics                         |
| • ECON-SHU 251 | Economics of Global Business           |

### Methods Courses (100-300 level) - Two Courses

These courses equip students with tools to both critically consume and create advanced social scientific research. Methods courses include introductory courses and more advanced courses which may have one or more prerequisites. Additional methods courses are available at the study away sites, NYU New York, and NYU Abu Dhabi.

#### Sample Courses

- |                |   |
|----------------|---|
| • SOCS-SHU 141 | Methods of Social Research                        |
| • SOCS-SHU 210 | Statistics for the Behavioral and Social Sciences |
| • SOCS-SHU 318 | Ethnographic Methods                              |
| • SOCS-SHU 350 | Empirical Research Practice                       |
| • BUSF-SHU 101 | Statistics for Business and Economics             |
| • ECON-SHU 301 | Econometrics                                      |
| • MATH-SHU 235 | Probability and Statistics                        |

### Core Courses (200-300 level) - Two Courses

The Social Science core courses are interdisciplinary courses that create unexpected connections between the Social Science disciplines. Some core courses (formerly designated as "Classical Problems") introduce the history and philosophy of the social scientific approach. Other core courses (formerly designated as "New Challenges") introduce new approaches to current challenges in Social Science research. Students must take two core courses in total from either of the two categories. Social Science core courses are not widely available at the study away sites, NYU New York, or NYU Abu Dhabi; students should plan to take them in Shanghai.

#### Sample Courses

- |                |                                  |
|----------------|----------------------------------|
| • SOCS-SHU 229 | Capitalism, Socialism, Communism |
| • SOCS-SHU 234 | Image as Evidence                |
| • SOCS-SHU 236 | The Chinese Family               |
| • SOCS-SHU 238 | Merchants, Chiefs, and Spirits   |
| • SOCS-SHU 245 | Ethnographic Thinking            |
| • SOCS-SHU 250 | Why is it so Hard to do Good?    |

- SOCS-SHU 253 Nature in Social Thought
- SOCS-SHU 270 Social Change in Contemporary China
- SOCS-SHU 334 Legal Psychology

**Note: Students who complete two Social Science core courses may use additional core courses to complete the focus requirement if appropriate for their approved choice of focus.**

### **Focus Courses (200-400 level, Two must be 300 or 400 level) - Three Courses**

Students select a disciplinary or interdisciplinary track in which to focus within the social science major.

#### **Disciplinary tracks include\***

- Anthropology,
- Psychology,
- Political Science
- Sociology.

#### **Interdisciplinary tracks include**

- Environmental Studies,
- Global Health,
- International Relations,
- Political Economy,
- Urban Studies.

Students may also petition to self-design a different interdisciplinary track with prior approval of the track and the focus courses for the track from the Undergraduate Coordinator; approval for interdisciplinary tracks will not be granted retroactively.

\*Students who wish to focus in Economics are advised to pursue the Economics major instead.

Students must complete 3 courses in one track, at least 2 of which must be at the advanced level (300 or 400 level). Your academic advisor can help you determine which courses count for each track, and at which level, if it is not clear from the course code. Tracks are noted on student transcripts; for students who self-design a track, "Self-Designed" will appear as the track of record on their transcripts. Additional 200 level focus courses are widely available at the study away sites, NYU New York, and NYU Abu Dhabi; some 300 and 400 level focus courses are available at other sites, but students should plan on taking them at NYU Shanghai or consult with their Academic Advisors to determine where 300 or 400 level focus courses in their track are offered.

*Sample Courses* (Note: some courses count for more than one track; consult your Academic Advisor for details)

#### **Anthropology**

- SOCS-SHU 241 Cultures of Business and Work
- SOCS-SHU 254 Ethnographies of Change in China

#### **Sociology**

- SOCS-SHU 227 Inequality and Society
- SOCS-SHU 265 Population and Society
- SOCS-SHU 360 Urban Sociology
- MCC-SHU 9451 Global Media Seminar

**Political Science** (See also courses listed under the Political Economy and International Relations tracks, many of which also count for the Political Science track)

- SOCS-SHU 220 Law and Society in the U.S.
- SOCS-SHU 272 The U.S. Constitution: Is It Relevant to China?

• SOCS-SHU 339	Comparative Revolutions
• SOCS-SHU 340	Comparative Constitutions
<b>Psychology</b>	
• PSYC-SHU 201	Social Psychology
• PSYC-SHU 234	Developmental Psychology
• PSYC-SHU 329	Parenting and Culture
• PSYC-SHU 238	Abnormal Psychology
• PSYC-SHU 300	Psychology of Justice
• PSYC-SHU 349	Cultures of Psychology
• PSYC-SHU 352	Psychology of Human Sexuality
• PSYC-SHU 360	Evolutionary Psychology
<b>Environmental Studies</b>	
• GCHN-SHU 243	Chinese Environmental Studies
• GCHN-SHU 250	Geographies of China
• SOCS-SHU 230	Science in Environmental Policy
• SOCS-SHU 330	Urban Political Ecology
• SOCS-SHU 333	Global Environmental Politics
<b>Global Health</b>	
• SOCS-SHU 306	Pestilence: Critical Perspectives in Global Health
• SOCS-SHU 326	Global Mental Health
<b>International Relations</b>	
• SOCS-SHU 232	International Law and Institutions
• SOCS-SHU 275	U.S. China Relations
• SOCS-SHU 341	Cross-Strait Relations
• SOCS-SHU 370	Chinese Foreign Policy
<b>Political Economy</b>	
• SOCS-SHU 326	Poverty and Inequality Around the Globe
• SOCS-SHU 391	International Investment in Developing Countries
• BPEP-SHU 9042	Political Economy of East Asia
• ECON-SHU 215	Economic History
• ECON-SHU 238	History of Modern Economic Growth
• ECON-SHU 260	International Trade
<b>Urban Studies</b>	
• SOCS-SHU 201	Planning Global Cities

### **Capstone Course - One Course**

Students complete a capstone seminar course during their senior year. As part of the capstone seminar students conduct an independent research project in their track using the methods, theories, and data with which they have become familiar over the course of completing the major. The capstone seminar must be completed in Shanghai.

### **Social Science Minor**

Students who wish to complete a minor in Social Science must complete one of the methods courses from the list of approved Social Science methods courses and three additional courses from the list of approved Social Science Foundational, Core, or Focus courses.

# Social Science

## SAMPLE SCHEDULE 1

This is just one example of how a student could organize their courses if pursuing a Social Science major. It assumes a student begins taking Social Science major courses in the first year. Sample Schedule 2 offers an alternate plan that begins in the second year. Students may propose alternative schedules to their advisors as well.

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Course	Core Course	English or Chinese
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#### Spring Semester

Writing as Inquiry	Foundational Course	Core Course	English or Chinese
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### Year 2

#### Fall Semester

Perspectives on the Humanities	Foundational Course	Social Science Core	Core class or Chinese
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#### Spring Semester

Core class, or Chinese	Core Course	Social Science Core	Methods Course
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### Year 3

#### Fall Semester

Core Course	Focus Course	General Elective	General Elective
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#### Spring Semester

Focus Course	General Elective	Core or General Elective	General Elective
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### Year 4

#### Fall Semester

Methods Course	Focus Course	General Elective	General Elective
----------------	--------------	------------------	------------------

#### Spring Semester

Capstone Course	Core Course	General Elective	General Elective
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# Social Science

## SAMPLE SCHEDULE 2

### Year 1

Fall Semester	Global Perspectives on Society	Core Course	Core Course	English or Chinese
Spring Semester	Writing as Inquiry	Core Course	Core Course	English or Chinese

### Year 2

Fall Semester	Perspectives on the Humanities	Foundational Course	Social Science Core	Core class or Chinese
Spring Semester	Core class, or Chinese	Core Course	Social Science Core	General Elective

### Year 3

Fall Semester	Foundational Course	Focus Course	Core or General Elective	General Elective
Spring Semester	Methods Course	Focus Course	Core or General Elective	General Elective

### Year 4

Fall Semester	Focus Course	Methods Course	General Elective	General Elective
Spring Semester	Capstone Course	Core Course	General Elective	General Elective

# BUSINESS

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BUSINESS AND FINANCE

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BUSINESS AND MARKETING

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# BUSINESS AND FINANCE

To advance in today's global business environment, one must develop an exceptionally broad array of intellectual skills. The modern business environment demands the ability to analyze problems rigorously, to develop innovative and creative solutions, and to work effectively within the context of an organization. That in turn demands an understanding of the customers, the cultural and scientific contexts in which businesses operate, alongside an understanding of the techniques by which firms succeed in a competitive economy.

A successful business combines labor and capital to produce a good or service at a price and quality that customers want to purchase. In a complex business, different individuals often take responsibility for different aspects of that endeavor, such as operations management, marketing and sales, information systems management, and financial management. An effective business education should provide students with an overview of all these fields, together with an opportunity to explore some areas in greater depth.

The business program at NYU Shanghai is designed to provide students with comprehensive preparation for the modern globalized business world. It builds upon the liberal education designed into the NYU Shanghai core curriculum. Before entering the major, students will have developed an essential set of skills in mathematics, critical thinking, and oral and written communication. They will also have acquired a familiarity with the general cultural and scientific contexts in which businesses operate. Within the major, students obtain:

- a) a deeper understanding of the modern global business environment and its economic structure;
- b) disciplinary skills in economics and statistics;
- c) a focused introduction to accounting, analytics, finance, marketing, operations, and organizational management.

The Business & Finance major helps students develop knowledge and skills in corporate finance, investments management, securities trading, financial markets, and more.

## REQUIREMENTS FOR THE MAJOR

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Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement. Requirements may be met through equivalent courses in NYU's global network with prior approval. 3-credit versions of courses can generally substitute for a 4-credit requirement but note that a 2-credit course with a similar title or content will not by itself meet the requirement of the named course. All students in their senior year are required to take at least one business course that fulfills the senior thesis requirement.

### Business Core

- BUSF-SHU 101 Statistics for Business and Economics
- BUSF-SHU 202 Foundations of Finance
- BUSF-SHU 250 Principles of Financial Accounting
- ECON-SHU 3 Microeconomics
- ECON-SHU 251 Economics of Global Business

### Finance Core

- BUSF-SHU 303 Corporate Finance

### Business Electives - Choose Two

- BUSF-SHU 142 Information Technology in Business and Society
- BUSF-SHU 210 Business Analytics
- BUSF-SHU 351 Operations Management
- MGMT-SHU 301 Management and Organizations
- MKTG-SHU 1 Introduction to Marketing

### Finance Electives - Choose Two

Any 4-credit Finance elective course offered at NYU Shanghai (such as those listed below) or any 3-credit Finance elective course offered by Stern Finance Department can be counted as a Finance elective. Taking two 2-credit Finance courses will be counted as meeting the requirement of one Finance elective.

- BUSF-SHU 304 Futures and Options
- BUSF-SHU 305 Debt Instruments and Markets
- BUSF-SHU 321 Equity Valuation
- BUSF-SHU 229 Behavioral Finance
- BUSF-SHU 244 Portfolio Management

### Non-Finance Electives - Choose Two from the Following Areas

- Accounting
- Business Analytics
- Management
- Marketing
- Operations
- Information System

### China Business Studies - Choose One\*

- BUSF-SHU 288 Doing Business with China
- BUSF-SHU 200D Business Consulting in China
- MKTG-SHU 288 Strategic Marketing in China

\*Students who are admitted into the Business and Economics Honors Program and conduct a China related research may fulfill the China Business Studies requirement with the credits from Business and Economics Honors Program.

Business and Finance majors Tracks Requirement (Optional):

#### 1. Business Accounting Track

Business and Finance majors may complete a "Business Accounting track" within the major by taking Principles of Financial Accounting and Managerial Accounting and choosing one approved accounting

course\* in fulfilling their two “Non-Finance Elective” requirements. (\*Students should consult their academic advisor on the approved courses)

## 2. Business Analytics Track

Business and Finance majors may complete a “Business Analytics track” within the major by taking Business Analytics and Information Technology in Business & Society as the Business Electives and choosing one additional Operations/Information System/Analytics course(e.g., Operations Management) in fulfilling their two “Non-Finance Elective requirements.

## 3. Business Marketing Track

Business and Finance majors may complete a “Marketing track” within the major by taking Introduction to Marketing as one of their Business Electives and choosing two Marketing Elective courses in fulfilling their two “Non-Finance Elective” requirements.

## 4. Business Management Track

Business and Finance majors may complete a “Management track” within the major by taking Management and Organizations as one of their Business Electives and choosing two approved management courses\* in fulfilling their two “Non-Finance Electives” requirements. (\*Students should consult their advisors on the approved courses.)

### Business Minor

#### Required Courses

- |                       |   |
|-----------------------|---|
| • BUSF-SHU 101        | Statistics for Business and Economics   |
| • BUSF-SHU 250        | Principles of Financial Accounting  |
| • ECON-SHU 3          | Microeconomics  |
| • ECON-SHU 251        | Economics of Global Business (Students can take Introduction to Macroeconomics and Intermediate Macroeconomics to substitute EGB) |
| • MATH-SHU 121 or 131 | Calculus  |

### Choose One Elective Course

Please note that the business minor elective list below is complete, no courses outside of the list will be approved.

- |                |  |
|----------------|--|
| • BUSF-SHU 142 | Information Technology in Business and Society |
| • BUSF-SHU 202 | Foundations of Finance                         |
| • BUSF-SHU 210 | Business Analytics                             |
| • BUSF-SHU 303 | Corporate Finance                              |
| • BUSF-SHU 351 | Operations Management                          |
| • MGMT-SHU 301 | Management and Organizations                   |
| • MKTG-SHU 1   | Introduction to Marketing                      |

Economics majors must complete two of the additional courses listed below to complete the minor within the double counting limits.

- |                |  |
|----------------|--|
| • BUSF-SHU 142 | Information Technology in Business and Society |
| • BUSF-SHU 202 | Foundations of Finance                         |
| • BUSF-SHU 210 | Business Analytics                             |
| • BUSF-SHU 351 | Operations Management                          |
| • MGMT-SHU 301 | Management and Organizations                   |
| • MKTG-SHU 1   | Introduction to Marketing                      |

### Seniors Thesis Requirement

All NYUSH Business major students are required to submit a Senior Thesis paper to satisfy their graduation requirements. It serves to showcase their accumulated knowledge in business during their undergraduate studies.

The Senior Thesis requires students to write an independent paper under the supervision of a course instructor or in consultation with faculty experts. Professors from other NYU sites may also serve in this role. A panel of business professors review all submitted Senior Theses for approval.

The Senior Thesis is submitted in the final semester of a student's senior year.

# BUSINESS AND FINANCE

## SAMPLE SCHEDULE 1

This is just one example of how a student could organize their courses if pursuing a B&F major. It assumes a student begins taking B&F major courses in the first year. Students may propose alternative course sequences to their advisors as well.

Students interested in majoring in Business are recommended to take Calculus 131 in their first semester so that they can complete the Microeconomics, Foundations of Finance, Corporate Finance sequence before studying away and have flexibility in taking upper level electives.

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class (Calculus)*	Core Class	English, Chinese, Core or General Elective
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#### Spring Semester

Writing as Inquiry	Microeconomics**	Statistics for Business and Economics	English, Chinese, Core or General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	Principles of Financial Accounting	Foundations of Finance	Core, General Elective, or Chinese
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#### Spring Semester

Core Class	Economics of Global Business	Corporate Finance	Core, General Elective, or Chinese
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### Year 3

#### Fall Semester

Core Class or General Elective	Business Core Elective	Finance Elective or Non-Finance Elective	Core Class or General Elective
--------------------------------	------------------------	--	--------------------------------

#### Spring Semester

Core Class or General Elective	Business Core Elective	Finance Elective or Non-Finance Elective	General Elective
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### Year 4

#### Fall Semester

Non-Finance Elective or Finance Elective or China Business Studies	Finance Elective or Non-Finance Elective	Core or General Elective	General Elective
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#### Spring Semester

Non-Finance Elective or Finance Elective or China Business Studies	General Elective	Core or General Elective	General Elective
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#### Important Notes:

\*Students need to pass Calculus with a grade of C or above to fulfill the math core requirement for the business majors

\*\*Students can only take ECON-SHU 3 Microeconomics in Shanghai. It is highly recommended that students complete ECON-SHU 3 Microeconomics prior to study away.

\*\*\*Students may take up to three Stern Business courses per semester while studying away.

# BUSINESS AND FINANCE

## SAMPLE SCHEDULE 2

This is just one example of how a student could organize their courses if pursuing a B&F major. It assumes a student begins taking B&F major courses in the first year. Students may propose alternative course sequences to their advisors as well.

Students interested in majoring in Business are recommended to take Calculus 131 in their first semester so that they can complete the Microeconomics, Foundations of Finance, Corporate Finance sequence before studying away and have flexibility in taking upper level electives.

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class (Calculus)*	Core Class	English, Chinese, Core or General Elective
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#### Spring Semester

Writing as Inquiry	Core Class or General Elective	Core Class or General Elective	English, Chinese, Core or General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	Statistics for Business and Economics	Microeconomics **	Core, General Elective, or Chinese
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#### Spring Semester

Core Class	Economics of Global Business or Foundations of Finance	Principles of Financial Accounting	Core, General Elective, or Chinese
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### Year 3

#### Fall Semester

Foundations of Finance or Economics of Global Business	Business Core Elective	Finance Elective or Non-Finance Elective	Core Class or General Elective
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#### Spring Semester

Corporate Finance	Business Core Elective	Finance Elective or Non-Finance Elective	General Elective
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### Year 4

#### Fall Semester

Non-Finance Elective or Finance Elective or China Business Studies	Finance Elective or Non-Finance Elective	Core or General Elective	General Elective
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#### Spring Semester

Non-Finance Elective or Finance Elective or China Business Studies	General Elective	Core or General Elective	General Elective
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#### Important Notes:

\*Students need to pass Calculus with a grade of C or above to fulfill the math core requirement for the business majors

\*\*Students can only take ECON-SHU 3 Microeconomics in Shanghai. It is highly recommended that students complete ECON-SHU 3 Microeconomics prior to study away.

\*\*\*Students may take up to three Stern Business courses per semester while studying away.



# BUSINESS AND MARKETING

To advance in today's global business environment, one must develop an exceptionally broad array of intellectual skills. The modern business environment demands the ability to analyze problems rigorously, to develop innovative and creative solutions, and to work effectively within the context of an organization. That in turn demands an understanding of the customers, the cultural and scientific contexts in which businesses operate, alongside an understanding of the techniques by which firms succeed in a competitive economy.

A successful business combines labor and capital to produce a good or service at a price and quality that customers want to purchase. In a complex business, different individuals often take responsibility for different aspects of that endeavor, such as operations management, marketing and sales, information systems management, and financial management. An effective business education should provide students with an overview of all these fields, together with an opportunity to explore some areas in greater depth.

The business program at NYU Shanghai is designed to provide students with comprehensive preparation for the modern globalized business world. It builds upon the liberal education designed into the NYU Shanghai core curriculum. Before entering the major, students will have developed an essential set of skills in mathematics, critical thinking, and oral and written communication. They will also have acquired a familiarity with the general cultural and scientific contexts in which businesses operate. Within the major, students obtain:

- a) a deeper understanding of the modern global business environment and its economic structure;
- b) disciplinary skills in economics and statistics;
- c) a focused introduction to accounting, analytics, finance, marketing, operations, and organizational management.

The Business & Marketing major helps students develop knowledge and skills in marketing management, customer insights, brand management, and more.

## REQUIREMENTS FOR THE MAJOR

Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement. Requirements may be met through equivalent courses in NYU's global network with prior approval. 3-credit versions of courses can generally substitute for a 4-credit requirement but note that a 2-credit course with a similar title or content will not by itself meet the requirement of the named course. All students in their senior year are required to take at least one business course that fulfills the senior thesis requirement.

### Business Core

- BUSF-SHU 101 Statistics for Business and Economics
- BUSF-SHU 202 Foundations of Finance
- BUSF-SHU 250 Principles of Financial Accounting
- ECON-SHU 3 Microeconomics
- ECON-SHU 251 Economics of Global Business

### Marketing Core

- MKTG-SHU 1 Introduction to Marketing

### Business Electives - Choose Two

- BUSF-SHU 142 Information Technology in Business and Society
- BUSF-SHU 210 Business Analytics
- BUSF-SHU 303 Corporate Finance
- BUSF-SHU 351 Operations Management
- MGMT-SHU 301 Management and Organizations

### Marketing Electives - Choose Two

Any 4-credit Marketing elective course offered at NYU Shanghai (such as those listed below) or any 3-credit Marketing elective course offered by Stern Marketing Department can be counted as a Marketing elective. Taking two 2-credit Marketing courses will be counted as meeting the requirement of one Marketing elective.

NOTE: For Class of 2020 and beyond, either MKTG-SHU 9 or MKTG-SHU 2 below must be chosen as one of the two Marketing electives.

- **MKTG-SHU 2** Consumer Behavior
- **MKTG-SHU 9** Research for Customer Insights
- MKTG-SHU 3 Advertising Management
- MKTG-SHU 57 Digital Marketing
- MKTG-SHU 288 Strategic Marketing in China

### Non-Marketing Electives - Choose Two from the Following Areas

- Accounting
- Business Analytics
- Management
- Finance
- Operations
- Information System

### China Business Studies - Choose One \*

- BUSF-SHU 288 Doing Business within China
- BUSF-SHU 200D Business Consulting in China
- MKTG-SHU 288 Strategic Marketing in China

\* Students who are admitted into the Business and Economics Honors Program and conduct a China related research may fulfill the China Business Studies requirement with the credits from Business and Economics Honors Program.

Business and Marketing majors Tracks Requirement (Optional):

### **1. Business Accounting Track**

Business and Marketing majors may complete a “Business Accounting track” within the major by taking Principles of Financial Accounting and Managerial Accounting and choosing one approved accounting course\* in fulfilling their two “Non-Finance Elective” requirements. (\* Students should consult their academic advisor on the approved courses)

### **2. Business Analytics Track**

Business and Marketing majors may complete a “Business Analytics track” within the major by taking Business Analytics and Information Technology in Business & Society as the Business Electives and choosing one additional Operations/Information System/Analytics course(e.g., Operations Management) in fulfilling their two “Non-Finance Elective requirements.

### **3. Business Finance Track**

Business and Marketing majors may complete a “Finance track” within the major by taking Corporate Finance as one of their Business Electives and choosing two Finance Elective courses in fulfilling their two “Non-Marketing Elective” requirements.

### **4. Business Management Track**

Business and Marketing majors may complete a “Management track” within the major by taking Management and Organizations as one of their Business Electives and choosing two approved management courses\* in fulfilling their two “Non-Finance Electives” requirements. (\*Students should consult their advisors on the approved courses.)

### **Seniors Thesis Requirement**

All NYUSH Business major students are required to submit a Senior Thesis paper to satisfy their graduation requirements. It serves to showcase their accumulated knowledge in business during their undergraduate studies.

The Senior Thesis requires students to write an independent paper under the supervision of a course instructor or in consultation with faculty experts. Professors from other NYU sites may also serve in this role. A panel of business professors review all submitted Senior Theses for approval.

The Senior Thesis is submitted in the final semester of a student’s senior year.

# BUSINESS AND MARKETING

## SAMPLE SCHEDULE 1

This is just one example of how a student could organize their courses if pursuing a B&M major. It assumes a student begins taking B&M major courses in the first year. Students may propose alternative course sequences to their advisors as well.

Students interested in majoring in Business are recommended to take Calculus 131 in their first semester so that they can complete the Microeconomics, Foundations of Finance, Corporate Finance sequence before studying away and have flexibility in taking upper level electives.

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class (Calculus)	Core class	English, Chinese, Core or General Elective
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#### Spring Semester

Writing as Inquiry	Microeconomics*	Statistics for Business and Economics	English, Chinese, Core or General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	Principles of Financial Accounting	Foundations of Finance or Introduction to Marketing	Core, General Elective, or Chinese
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#### Spring Semester

Core or General Elective	Economics of Global Business	Foundations of Finance or Introduction to Marketing	Core, General Elective, or Chinese
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### Year 3

#### Fall Semester

Core or General Elective	Business Core Elective	Marketing Elective or Non-Marketing Elective	Core Class or General Elective
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#### Spring Semester

Marketing Elective or Non-Marketing Elective	Business Core Elective	Core or General Elective	General Elective
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### Year 4

#### Fall Semester

Non-Marketing Elective or Marketing Elective or China Business Studies	General Elective	Non-Marketing Elective or Marketing Elective	General Elective
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#### Spring Semester

Non-Marketing Elective or Marketing Elective or China Business Studies	General Elective	Core or General Elective	General Elective
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#### Important Notes:

\*Students need to pass Calculus with a grade C or above to fulfill the math core requirement for the business majors

\*\*Students can only take ECON-SHU 3 Microeconomics in Shanghai. It is highly recommended that students complete ECON-SHU 3 Microeconomics prior to study away.

\*\*\*Students may take up to three Stern Business courses per semester while studying away.

# BUSINESS AND MARKETING

## SAMPLE SCHEDULE 2

This is just one example of how a student could organize their courses if pursuing a B&M major. It assumes a student begins taking B&M major courses in the first year. Students may propose alternative course sequences to their advisors as well.

Students interested in majoring in Business are recommended to take Calculus 131 in their first semester so that they can complete the Microeconomics, Foundations of Finance, Corporate Finance sequence before studying away and have flexibility in taking upper level electives.

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class (Calculus)	Core class	English, Chinese, Core or General Elective
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#### Spring Semester

Writing as Inquiry	Core or General Elective	Core or General Elective	English, Chinese, Core or General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	Statistics for Business and Economics	Microeconomics ** or Introduction to Marketing	Core, General Elective, or Chinese
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#### Spring Semester

Core or General Elective	Principles of Financial Accounting	Microeconomics** or Introduction to Marketing	Core, General Elective, or Chinese
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### Year 3

#### Fall Semester

Core or General Elective	Business Core Elective	Marketing Elective or Non-Marketing Elective	Foundations of Finance
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#### Spring Semester

Marketing Elective or Non-Marketing Elective	Business Core Elective or Economics of Global Business	Core or General Elective	Core or General Elective
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### Year 4

#### Fall Semester

Non-Marketing Elective or Marketing Elective or China Business Studies	General Elective	Non-Marketing Elective or Marketing Elective	General Elective
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#### Spring Semester

Non-Marketing Elective or Marketing Elective or China Business Studies	Business Core Elective or Economics of Global Business	Core or General Elective	General Elective
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#### Important Notes:

\*Students need to pass Calculus with a grade C or above to fulfill the math core requirement for the business majors

\*\*Students can only take ECON-SHU 3 Microeconomics in Shanghai. It is highly recommended that students complete ECON-SHU 3 Microeconomics prior to study away.

\*\*\*Students may take up to three Stern Business courses per semester while studying away.

# COMPUTER SCIENCE AND ENGINEERING

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COMPUTER SCIENCE

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COMPUTER SYSTEMS ENGINEERING

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DATA SCIENCE

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ELECTRICAL AND SYSTEMS ENGINEERING

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Computer Science at NYU Shanghai is designed to create technological leaders with a global perspective, a broad education, and the capacity to think creatively. Computer science focuses on how to design, build, and effectively use the computers and systems that we interact with every day — from the iPhones in our hands to the complex databases in our banks and hospitals and to the self-driving cars of the future. Because computer technology powers the most essential functions of business, industry, government and entertainment, computer scientists have tremendous opportunities for growth and exploration.

The Bachelor of Science in Computer Science is a rigorous program that not only covers fundamental computer science subjects - such as object-oriented programming, computer architecture, algorithms, and operating systems – but provides a wide variety of elective courses, spanning artificial intelligence, game programming, natural language processing, information visualization, security and privacy, computer networking, machine learning, and database design. Students are actively encouraged to pursue research with NYU Shanghai computer science professors, all of whom are renown in their respective fields. Students are involved in an increasing number of interdisciplinary initiatives across the university, including the Center for Data Science and Artificial Intelligence and the Neuroscience Research Institute.

Computer science graduates have a myriad of career paths, including creating products for major high-tech companies such as Google, Tencent, Microsoft, founding or joining a high-tech startup, applying computer science savoir-faire in the public sector such as healthcare, law enforcement, or transportation, or going on to do cutting-edge research in a Ph.D. program. Household names such as Bill Gates, Mark Zuckerberg, Larry Page, Melisa Myers, Robin Li, and Kai-Fu Lee all began in computer science.

## REQUIREMENTS FOR THE MAJOR

**Note:** Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement. Requirements may be met through equivalent courses in NYU's global network with prior approval. 3-credit versions of courses can generally substitute for a full 4-credit course requirement. A 2-credit course with a similar title or content will not by itself meet the requirement of the named course.

### Required Major Course

- CSCI-SHU 101 Introduction to Computer Science  
(prereq: Placement test or CSCI-SHU 11 Intro to Computer Programming)
- MATH-SHU 235 Probability and Statistics **OR**  
MATH-SHU 233 Theory of Probability **OR**  
BUSF-SHU 101 Statistics for Business and Economics
- CENG-SHU 202 Computer Architecture  
(prereq: CSCI-SHU 11 Intro to Programming or CSCI-SHU 101 Intro to Computer Science) **OR**  
CSCI-UA 201 Computer Systems Organization **OR**  
CENG-SHU 350 Embedded Computer Systems
- CSCI-SHU 210 Data Structures  
(prereq: CSCI-SHU 101 Intro to Computer Science, A- or above in CSCI-SHU 11 Intro to Computer Programming)
- CSCI-SHU 215 Operating Systems  
(prereq: CSCI-SHU 210 Data Structures; CENG-SHU 202 Computer Architecture or CSCI-UA 201 Computer Systems Organization)
- CSCI-SHU 220 Algorithms  
(prereq: CSCI-SHU 210 Data Structures and CSCI-SHU 2314 Discrete Math or MATH-SHU 140 Linear Algebra or MATH-SHU 141 Honors Linear Algebra)
- CSCI-SHU 2314 Discrete Mathematics  
(co-requisite or prereq: MATH-SHU 121 Calculus)
- CSCI-SHU 420 Senior Project

### Computer Science Electives - Choose Four

The courses listed below are not an exhaustive list. In particular, most of the CS elective courses at Tandon, College of Arts and Sciences, or Abu Dhabi can be used as NYU Shanghai CS electives. If you would like to see if a course not listed below can count as an elective, please contact your advisor to have the course reviewed.

- CENG-SHU 201 Digital Logic
- CENG-SHU 350 Embedded Computer Systems
- CENG-SHU 304 Computer Security
- CSCI-SHU 213 Databases
- CSCI-SHU 222 Introduction to Game Programming
- CSCI-SHU 235 Information Visualization
- CSCI-SHU 254 Distributed Systems
- CSCI-SHU 304 Network Security
- CSCI-SHU 308 Computer Networking
- CSCI-SHU 310 UNIX System Programming
- CSCI-SHU 311 Functional Programming
- CSCI-SHU 213 Introduction to Databases
- CSCI-SHU 360 Machine Learning
- CSCI-SHU 410 Software Engineering
- INTM-SHU 231 Developing Web
- CSCI-SHU 188 Computer Music
- CSCI-SHU 240 Introduction to Optimization and Mathematical Programming
- CSCI-SHU 378 Introduction to Cryptography
- CSCI-SHU 375 Reinforcement Learning
- CSCI-SHU 376 Natural Language Processing
- BUSF-SHU 310 Data Science for Social and Information Networks



### Computer Science Minor

- CSCI-SHU 101 Introduction to Computer Science  
(prereq: CSCI-SHU 11 Introduction to Computer Programming or placement exam)
- CSCI-SHU 210 Data Structures
- CENG-SHU 202 Computer Architecture **OR**  
CSCI-UA 201 Computer Systems Organization **OR**  
CENG-SHU 350 Embedded Computer Systems
- One computer science elective course

# COMPUTER SCIENCE

## SAMPLE SCHEDULE 1

This is just one example of how a student could organize their courses if pursuing a CS major. It assumes a student begins taking CS major courses in the first year. Sample Schedule 2 offers an alternate plan that begins in the second year. Students may propose alternative schedules to their advisors as well.

### Year 1

Fall Semester	Global Perspectives on Society	Core Class (Calculus)	Core Class (Intro to Programming/Computer Science)	English, Chinese, Core, or General Elective
Spring Semester	Writing as Inquiry	Core Class	Introduction to Computer Science or Data Structures	English, Chinese, Core, or General Elective

### Year 2

Fall Semester	Perspectives on the Humanities	Data Structures or Computer Science Elective	Discrete Mathematics	Core, General Elective, or Chinese
Spring Semester	Core Class	Computer Science Elective	Computer Architecture	Core, General Elective, or Chinese

### Year 3

Fall Semester	Core or General Elective	Computer Science Elective	Algorithms	General Elective
Spring Semester	Core or General Elective	Computer Science Elective	Probability and Statistics or alternate statistics course	General Elective

### Year 4

Fall Semester	Operating Systems	Computer Science Elective or General Elective	General Elective	General Elective
Spring Semester	Senior Project	General Elective	General Elective	General Elective

# COMPUTER SCIENCE

## SAMPLE SCHEDULE 2

### Year 1

#### Fall Semester

Global Perspectives on Society	Core Class (Calculus)	Core class	English, Chinese, Core, or General Elective
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#### Spring Semester

Writing as Inquiry	Core class	Core or General Elective	English, Chinese, Core, or General Elective
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### Year 2

#### Fall Semester

Perspectives on the Humanities	Core Class (Intro to Programming/Computer Science)	Discrete Mathematics	Core, General Elective, or Chinese
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#### Spring Semester

Computer Science Elective	Introduction to Computer Science or Data Structures	Computer Architecture	Core, General Elective, or Chinese
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### Year 3

#### Fall Semester

Computer Science Elective	Data Structures or Computer Science Elective	Probability and Statistics or alternate statistics course	General Elective
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#### Spring Semester

Algorithms	Computer Science Elective	General Elective	General Elective
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### Year 4

#### Fall Semester

Core class	Computer Science Elective or General Elective	Operating Systems	General Elective
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#### Spring Semester

Computer Science Elective	Senior Project	General Elective	General Elective
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Engineering challenges of the 21st century are varied, complex, and cross-disciplinary. Ranging from the nano-scale to mega-projects, they are characterized by sustainability concerns, environmental and energy constraints, global sourcing, and humanitarian goals. In the face of global competition, dwindling natural resources and the complexity of societal needs, the leaders of technological enterprises will be those who can innovate, are inventive and entrepreneurial, and understand how technology is integrated within society.

Computer Systems Engineering at NYU Shanghai is designed to create technological leaders with a global perspective, a broad education, and the capacity to think creatively. Students enjoy a learning environment conducive to creativity which is at the heart of tomorrow's technological innovations and enterprises. Today the products of computer engineering touch nearly every part of our lives. They let us chat with friends via webcams, send emails from cell phones, and withdraw cash from ATMs. But laptops and information networks aren't the only products computer engineers develop; they reconstruct genomes, design robots, and develop software to make businesses more efficient.

## REQUIREMENTS FOR THE MAJOR

**Note:** To fulfill the Core Curriculum Science requirement, students must take: 1) PHYS-SHU 91 Foundations of Physics I Honors or PHYS-SHU 11 General Physics I; 2) PHYS-SHU 93 Foundations of Physics II Honors or PHYS-SHU 12 General Physics II ; and 3) PHYS-SHU 94 Physics II Lab.

Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement. Requirements may be met through equivalent courses in NYU's global network with prior approval. 3-credit versions of courses can generally substitute for a full 4-credit course requirement. A 2-credit course with a similar title or content will not by itself meet the requirement of the named course.

### Required Major Courses

- |                |   |
|----------------|---|
| • CENG-SHU 201 | Digital Logic   |
| • CENG-SHU 202 | Computer Architecture   |
| • CENG-SHU 350 | Embedded Computer Systems   |
| • CSCI-SHU 101 | Introduction to Computer Science  |
| • CSCI-SHU 210 | Data Structures   |
| • EENG-SHU 251 | Circuits  |
| • EENG-SHU 400 | Senior Capstone Design Project (4-credit project taken in the spring semester of senior year) |
| • MATH-SHU 123 | Multivariable Calculus  |
| • MATH-SHU 235 | Probability and Statistics <b>OR</b>  |
| • MATH-SHU 233 | Theory of Probability   |
| • MATH-SHU 265 | Linear Algebra and Differential Equations <b>OR</b>   |
| • MATH-SHU 140 | Linear Algebra <b>OR</b>  |
| • MATH-SHU 160 | Networks and Dynamics   |

### Electives - Choose Two

The courses listed below are not an exhaustive list. If you would like to see if a course not listed below can count as an elective, please contact your advisor to have the course reviewed.

- |                 |   |
|-----------------|---|
| • CSCI-SHU 215  | Operating Systems                           |
| • CENG-SHU 302  | Compilers                                   |
| • CENG-SHU 303  | Parallel and Distributed Computing          |
| • CENG-SHU 304  | Computer Security                           |
| • CSCI-SHU 304  | Network Security                            |
| • CSCI-SHU 308  | Computer Networking                         |
| • CSCI-SHU 310  | UNIX System Programming                     |
| • CSCI-SHU 340  | Introduction to Databases                   |
| • EENG-SHU 3193 | Very Large Scale Integration Circuit Design |
| • EENG-SHU 322  | Electronics                                 |
| • EENG-SHU 375  | Robotic Systems                             |

**Note:** Rapid Prototyping or a similar IMA course is highly recommended as a general elective.

### Computer Systems Engineering Minor

- |                |                                       |
|----------------|---------------------------------------|
| • CENG-SHU 201 | Digital Logic                         |
| • CENG-SHU 202 | Computer Architecture <b>OR</b>       |
| • CENG-SHU 350 | Embedded Computer Systems             |
| • CSCI-SHU 11  | Introduction to Programming <b>OR</b> |
| • INTM-SHU 101 | Interaction Lab                       |
| • CSCI-SHU 101 | Introduction to Computer Science      |
| • EENG-SHU 251 | Circuits                              |

# COMPUTER SYSTEMS ENGINEERING

## SAMPLE SCHEDULE 1

This is just one example of how a student could organize their courses if pursuing a CSE major. It assumes a student begins taking CSE major courses in the first year. Sample Schedule 2 offers an alternate plan that begins in the second year. Students may propose alternative schedules to their advisors as well.

### Year 1

#### Fall Semester

Global Perspectives on Society

Core Class  
(Calculus)

Intro to Programming/  
Computer Science

English, Chinese, Core, or  
General Elective

#### Spring Semester

Writing as Inquiry

Introduction to  
Computer Science

Multivariable Calculus

English, Chinese, Core, or  
General Elective

### Year 2

#### Fall Semester

Perspectives on  
the Humanities

Digital Logic

Physics I

Core, General Elective, or  
Chinese

#### Spring Semester

Intro to Computer  
Science or Data  
Structures

Circuits

Physics II & Lab

Core, General Elective, or  
Chinese

### Year 3

#### Fall Semester

Data Structures or Core  
Class

Computer Architecture

Probability and Statistics  
or Theory of Probability

Computer Systems  
Engineering  
Elective

#### Spring Semester

Computer Systems  
Engineering  
Elective

Linear Algebra and  
Differential Equations or  
alternative course

Embedded Computer  
Systems

General Elective

### Year 4

#### Fall Semester

General Elective

Core or General Elective

Core or General Elective

General Elective

#### Spring Semester

Core or General Elective

Senior Project

General Elective

General Elective

# COMPUTER SYSTEMS ENGINEERING

## SAMPLE SCHEDULE 2

### Year 1

Fall Semester

Global Perspectives on  
Society

Core Class  
(Calculus)

Physics I

English, Chinese, Core, or  
General elective

Spring Semester

Writing as Inquiry

Core or General Elective

Physics II & Lab

English, Chinese, Core, or  
General Elective

### Year 2

Fall Semester

Perspectives on  
the Humanities

Intro to Programming/  
Computer Science

Multivariable Calculus

Core class

Spring Semester

Circuits

Introduction to  
Computer Science

Probability and Statistics  
or Theory of Probability

Core or General Elective

### Year 3

Fall Semester

Embedded Computer  
Systems

Intro to Computer  
Science or Data  
Structures

Linear Algebra and  
Differential Equations or  
alternative course

Computer Systems  
Engineering  
Elective

Spring Semester

Digital Logic

Data Structures or Core  
class

Computer Systems  
Engineering  
Elective

General Elective

### Year 4

Fall Semester

General Elective

Core class

General Elective

General Elective or  
Chinese

Spring Semester

Senior Project

Computer Architecture

General Elective

General Elective or  
Chinese

Data Science at NYU Shanghai is designed to create data-driven leaders with a global perspective, a broad education, and the capacity to think creatively. Data science involves using computerized methods to analyze massive amounts of data and to extract knowledge from them. Data science addresses a wide-range of data types, including scientific and economic numerical data, textual data, and image and video data. This new discipline draws from methodologies and tools in several well-established fields, including computer science, statistics, applied mathematics, and economics. Data science has applications in just about every academic discipline, including sociology, political science, digital humanities, linguistics, finance, marketing, urban informatics, medical informatics, genomics, image content analysis, and all branches of engineering and the physical sciences. The importance of data science is expected to accelerate in the coming years, as data from the web, mobile sensors, smartphones, and Internet-connected instruments continues to grow.

Students who complete the major will not only have expertise in computer programming, statistics, and data mining, but also know how to combine these tools to solve contemporary problems in a discipline of their choice, including the social science, physical science, and engineering disciplines. Upon graduation, data science majors have numerous career paths. Data Science majors can go on to graduate school in data science, computer science, social science, business, finance, medicine, law, linguistics, education, and so on. Outside of academia, there are also myriad career paths. Not only can graduates pursue careers with traditional data-driven computer-science companies and startups such as Google, Facebook, Amazon, and Microsoft, but they can also be valuable to companies in the transportation, energy, medical, and financial sectors. Graduates can also pursue careers in the public sector, including urban planning, law enforcement, and education.



## REQUIREMENTS FOR THE MAJOR

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**Note:** Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement. Requirements may be met through equivalent courses in the global network with prior approval. 3-credit versions of courses can generally substitute for a full 4-credit course requirement. A 2-credit course with a similar title or content will not by itself meet the requirement of the named course.

### Foundational Courses

- CSCI-SHU 101 Introduction to Computer Science
- MATH-SHU 235 Probability and Statistics **OR**
- MATH-SHU 233 Theory of Probability

### Required Major Courses

#### Programming & Computer Science

- CSCI-SHU 210 Data Structures

#### Mathematics

- MATH-SHU 123 Multivariable Calculus **OR**
- MATH-SHU 328 Honors Analysis I
- MATH-SHU 140 Linear Algebra **OR**
- MATH-SHU 265 Linear Algebra and Differential Equations **OR**
- MATH-SHU 141 Honors Linear Algebra I

#### Data Analysis

- CSCI-SHU 360 Machine Learning
- ECON-SHU 301 Econometrics **OR**
- DATS-SHU 234 Introduction to Mathematical Statistics
- DATS-SHU235 Information Visualization **OR**
- CSCI-SHU 220 Algorithms **OR**
- CSCI-SHU 240 Introduction to Optimization and Mathematical Programming

#### Data Management

- CSCI-SHU 213 Databases

### Concentration Courses

- Domain-area courses
- DATS-SHU 420 Data Science Project ( Not required for students who are enrolled in the Business and Econ Honors Program)

**Note:** Students who are strong in mathematics are encouraged to take Analysis I and Analysis II (in place of Multivariable Calculus), Honors Linear Algebra I (in place of Linear Algebra), and Theory of Probability.

### Concentration Options

#### Domain-Area Courses for Concentration in Finance

- ECON-SHU 3 Microeconomics
  - BUSF-SHU 250 Principles of Financial Accounting
  - BUSF-SHU 202 Foundations of Finance
  - BUSF-SHU 303 Corporate Finance
- 14 courses total

#### Domain-Area Courses for Concentration in Marketing

- ECON-SHU 3 Microeconomics
  - BUSF-SHU 250 Principles of Financial Accounting
  - BUSF-SHU 202 Foundations of Finance
  - MKTG-SHU 1 Introduction to Marketing
- 14 courses total

**Domain-Area Courses for Concentration in Economics**

- ECON-SHU 3                      Microeconomics
  - ECON-SHU 1                    Macroeconomics
- 12 courses total.

**Domain-Area Courses for Concentration in Genomics**

- BIOL-SHU 21                    Foundations of Biology 1 and lab
  - BIOL-SHU 22                    Foundations of Biology 2 and lab
  - BIOL-SHU 261                  Bioinformatics
- Foundations of Biology 1 can count as core curriculum course.
- 12 courses total.

**Domain-Area Courses for Concentration in Mathematics**

Two courses from:

- MATH-SHU 329                  Honors Analysis II
  - MATH-SHU 233                  Theory of Probability
  - MATH-SHU 234                  The Mathematics of Statistics
  - MATH-SHU 142                  Honors Linear Algebra 2
  - MATH-SHU 345                  Introduction to Stochastic Process
- 12 courses total.

**Domain-Area Courses for Concentration in Artificial Intelligence**

Two courses from:

- CSCI-UA 480                    Natural Language Processing
- CSCI-SHU 372/CS-UY 4613   Artificial Intelligence
- BUSF-SHU 310                  Data Science for Social and Information Networks
- CSCI-GA 2566                  Foundations of Machine Learning
- DS-GA 1008/CSCI-GA 2572   Deep Learning
- DS-GA 1012                    Natural Language Understanding and Computational Semantics
- DS-GA 1013                    Mathematical Tools for Data Science
- CSCI-SHU 240                  Introduction to Optimization and Mathematical Programming
- CSCI-SHU 235                  Information Visualization
- CS-UY 2413/CSCI-UA 310/CSCI-SHU 220   Algorithms
- CSCI-SHU 375                  Reinforcement Learning

– 12 courses total.

**Domain-Area Courses for Concentration in Political Science**

- SOCS-SHU 150                  Introduction to Comparative Politics
- SOCS-SHU 160                  Introduction to International Politics

– 12 courses total.

**Domain-Area Courses for Concentration in Psychology**

Two Required Courses:

- SOCS-SHU 350                  Empirical Research Practice
- SOCS-SHU 101                  Introduction to Psychology

One course from:

- PSYC-SHU 234                  Developmental Psychology
- PSYCH-UA 25                    Cognitive Neuroscience
- PSYCH-UA 32                    Social Psychology
- PSYCH-UA 30                    Personality
- PSYCH-SHU 352                  Psychology of Human Sexuality\* **OR**
- PSYCH-UA 300                  Human Sexuality
- SOCS-SHU 334                  Legal Psychology

– 13 courses total.

**Data Science Minor**

- CSCI-SHU 101 Introduction to Computer Science  
(prereq: CSCI-SHU 11 Intro to Programming or placement exam)
- CSCI-SHU 210 Data Structures
- CSCI-SHU 360 Machine Learning
- ECON-SHU 301 Econometrics **OR**  
MATH-SHU 234 Introduction to Mathematical Statistics
- MATH-SHU 235 Probability and Statistics **OR**  
MATH-SHU 233 Theory of Probability

# DATA SCIENCE

## SAMPLE SCHEDULE 1

This is just one example of how a student could organize their courses if pursuing a DS major. It assumes a student begins taking DS major courses in the first year. Sample Schedule 2 offers an alternate plan that begins in the second year. Students may propose alternative schedules to their advisors as well.

### Year 1

Fall Semester	Global Perspectives on Society	Core Class (Calculus)	Core Class (Intro to Programming/Computer Science)	English, Chinese, Core, or General Elective
Spring Semester	Writing as Inquiry	Probability and Statistics or alternate courses	Intro to Computer Science or Data Structures	English, Chinese, Core, or General Elective

### Year 2

Fall Semester	Perspectives on the Humanities	Data Structures or Domain-area class	Multivariable Calculus	Core, General Elective, or Chinese
Spring Semester	Linear Algebra	Machine Learning	Econometrics or The Mathematics of Statistics and Data Science	Core, General Elective, or Chinese

### Year 3

Fall Semester	Core or General Elective	Databases	Domain-area Class	General Elective
Spring Semester	Core or General Elective	Core Class	Domain-area Class or General Elective	General Elective

### Year 4

Fall Semester	Information Visualization	General Elective	General Elective	General Elective
Spring Semester	Senior Project	General Elective	General Elective	General Elective

# DATA SCIENCE

## SAMPLE SCHEDULE 2

### Year 1

Fall Semester

Global Perspectives on Society

Core Class (Calculus)

Core class

English, Chinese, Core, or General Elective

Spring Semester

Writing as Inquiry

Core class

Core or General Elective

English, Chinese, Core, or General Elective

### Year 2

Fall Semester

Perspectives on the Humanities

Core Class (Intro to Programming/Computer Science)

Multivariable Calculus

Core, General Elective, or Chinese

Spring Semester

Linear Algebra

Intro to Computer Science or Data Structures

Probability and Statistics or alternate courses,

Core, General Elective, or Chinese

### Year 3

Fall Semester

Econometrics OR The Mathematics of Statistics and Data Science

Data Structures or Domain-area Class

Databases

General Elective

Spring Semester

Core class

Machine Learning

Domain-area class

General Elective

### Year 4

Fall Semester

Information Visualization

General Elective

Domain-area class or General Elective

General Elective

Spring Semester

Senior Project

General Elective

General Elective

General Elective

Electrical and Systems Engineering at NYU Shanghai is designed to create technological leaders with a global perspective, a broad education, and the capacity to think creatively. Innovations by electrical engineers touch every aspect of modern life, from the subway systems beneath our cities to the HD televisions on our walls to the smartphones in our pockets. But this process of innovation is never complete, and new challenges await tomorrow's electrical engineers.

The Electrical and Systems Engineering program draws upon courses across an array of disciplines. The liberal arts core provides the intellectual breadth, a "license to learn," preparing students to thrive in a multicultural globalized world and to learn and adapt quickly in areas that evolve with ever-increasing swiftness. Students not only gain a firm grounding across various science and engineering fields that underscore the technical component of an engineering education, but also draw upon courses to develop an understanding of cultural, political, economic, environmental, and public safety considerations. These studies often include hands-on coursework in state-of-the-art laboratories. In addition, the variety of specialized subjects students can investigate through elective coursework — from wireless communication to smart grid power systems — ensures a highly flexible education suited to individual interests.

# ELECTRICAL AND SYSTEMS ENGINEERING

## REQUIREMENTS FOR THE MAJOR

**Note:** To fulfill the Core Curriculum Science requirement, students must take: 1) PHYS-SHU 91 Foundations of Physics I Honors or PHYS-SHU 11 General Physics I; 2) PHYS-SHU 93 Foundations of Physics II Honors or PHYS-SHU 12 General Physics II; and 3) PHYS-SHU 94 Physics II Lab

Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement. Requirements may be met through equivalent courses in NYU's global network with prior approval. 3-credit versions of courses can generally substitute for a full 4-credit course requirement. A 2-credit course with a similar title or content will not by itself meet the requirement of the named course.

### GPA minimum requirement

Physics, Chemistry and Electrical Engineering majors' students must achieve and maintain a minimum 3.0 cumulative and major GPA in order to declare the major. Since they are required to study away in NY or AD for their junior year in order to complete major coursework offered at those campuses, they must complete all of the prerequisite courses at NYU Shanghai for the junior year major classes they need to take in New York or AD before they will be admitted to study away. If declared majors fail to maintain a 3.0 GPA or do not complete the required courses during study away, they may be required to declare a different major to be able to graduate.

### Required Courses

- |                 |   |
|-----------------|---|
| • CENG-SHU 201  | Digital Logic   |
| • CSCI-SHU 11   | Introduction to Programming <i>OR</i>   |
| • CSCI-SHU 101  | Introduction to Computer Science  |
| • EENG-SHU 2054 | Signals and Systems   |
| • EENG-SHU 251  | Circuits  |
| • EENG-SHU 304  | Electromagnetic Fields and Waves  |
| • EENG-SHU 322  | Electronics   |
| • EENG-SHU 400  | Senior Capstone Design Project (4-credit project taken in the spring semester of senior year) |
| • MATH-SHU 123  | Multivariable Calculus  |
| • MATH-SHU 235  | Probability and Statistics <i>OR</i>  |
| • MATH-SHU 233  | Theory of Probability   |
| • MATH-SHU 265  | Linear Algebra and Differential Equations <i>OR</i>   |
| • MATH-SHU 140  | Linear Algebra <i>OR</i>  |
| • MATH-SHU 160  | Networks and Dynamics   |

### Electives

#### Choose 2 from these 4 courses:

- |                        |  |
|------------------------|--|
| • EENG-SHU 356         | Communication Systems                                    |
| • EENG-SHU 364         | Feedback Control   |
| • EE-UY 112/EE-UY 3124 | Fundamentals of Electronics II (offered in New York)     |
| • EE-UY 3824           | Electric Energy Conversion Systems (offered in New York) |

#### Choose 2 more from the following list:

- |                 |   |
|-----------------|---|
| • CENG-SHU 350  | Embedded Computer Systems                         |
| • CENG-SHU 351  | Computer Networks                                 |
| • EENG-SHU 306  | Instrumentation, Sensors and Actuators            |
| • EENG-SHU 3193 | Very Large Scale Integrated (VLSI) Circuit Design |
| • EENG-SHU 355  | Digital Signal Processing                         |
| • EENG-SHU 356  | Communication Systems                             |
| • EENG-SHU 375  | Robotic Systems                                   |

Note: Rapid Prototyping or a similar IMA course is highly recommended as a general elective.

### Electrical and Systems Engineering Minor

- |   |                                       |
|---|---------------------------------------|
| • CENG-SHU 201                                | Digital Logic                         |
| • CSCI-SHU 11                                 | Introduction to Programming <i>OR</i> |
| • INTM-SHU 101                                | Interaction Lab                       |
| • EENG-SHU 251                                | Circuits                              |
| • Electrical and Systems Engineering Elective |                                       |

# ELECTRICAL AND SYSTEMS ENGINEERING

## SAMPLE SCHEDULE 1

This is just one example of how a student could organize their courses if pursuing a ESE major. It assumes a student begins taking ESE major courses in the first year. Sample Schedule 2 offers an alternate plan that begins in the second year. Students may propose alternative schedules to their advisors as well.

### Year 1

#### Fall Semester

Global Perspectives on Society

Core Class (Calculus)

Intro to Programming/ Computer Science

English, Chinese, Core, or General Elective

#### Spring Semester

Writing as Inquiry

Multivariable Calculus

Linear Algebra and Differential Equations or alternate course

English, Chinese, Core, or General Elective

### Year 2

#### Fall Semester

Perspectives on the Humanities

Physics I

Digital Logic

Core, General Elective, or Chinese

#### Spring Semester

Core or General Elective

Physics II & Lab

Circuits

Core, General Elective, or Chinese

### Year 3 (These classes are only offered in NY or AD)

#### Fall Semester

Core or General Elective

Electronics

Electromagnetic Fields and Waves

Signals and Systems

#### Spring Semester

Electrical and Systems Engineering Elective

Electrical and Systems Engineering Elective

Electrical and Systems Engineering Elective

Electrical and Systems Engineering Elective

### Year 4

#### Fall Semester

Probability and Statistics or Theory of Probability

General Elective

General Elective

General Elective

#### Spring Semester

Senior Capstone Design Project

General Elective

General Elective

General Elective



# ELECTRICAL AND SYSTEMS ENGINEERING

## SAMPLE SCHEDULE 2

### Year 1

Fall Semester	Global Perspectives on Society	Core Class (Calculus)	Physics I	English, Chinese, Core, or General Elective	
Spring Semester	Writing as Inquiry	Multivariable Calculus	Physics II & Lab	Intro to Programming/Computer Science	2-credit English or Chinese (if available)

### Year 2

Fall Semester	Perspectives on the Humanities	Digital Logic	Core Class	Core Class
Spring Semester	Core or General Elective	Circuits	Linear Algebra and Differential Equations or alternate course	Core or General Elective

### Year 3

Fall Semester	Electronics	Signals and Systems	Electromagnetic Fields and Waves	Electrical and Systems Engineering Elective
Spring Semester	Probability and Statistics or Theory of Probability	Electrical and Systems Engineering Elective	Electrical and Systems Engineering Elective	Electrical and Systems Engineering Elective

### Year 4

Fall Semester	General Elective	General Elective	General Elective or Chinese	General Elective
Spring Semester	Senior Capstone Design Project	General Elective or Chinese	General Elective	General Elective

# SELF- DESIGNED HONORS MAJOR

# SELF-DESIGNED HONORS MAJOR

Students at NYU Shanghai can apply to craft and complete a Self-Designed Honors major, rather than one of the existing majors at the campus. This major enables a small number of very capable and highly motivated students to pursue a plan of study that brings together courses from more than one NYU department or program. During their sophomore year, students compose their academic plan for the major in consultation with their two faculty advisers for their self-designed program of study as well as with the Associate Provost for Academic Affairs. Their two faculty advisors have to be from different majors and one has to be from a relevant department in New York if more than three of the required classes are from a major that exists in New York but not in Shanghai. By spring of the sophomore year, the plan of study must be submitted to and approved by the Academic Standards Committee.

This NYU Shanghai major serves students who can realize their interdisciplinary goals within the NYU's global network, drawing on courses from any of the study away sites and degree-granting campuses. The honors major has prerequisites for entry (3.75 GPA; students must maintain a 3.65 GPA to remain in the major) and entails a heavy commitment to honors-level work, including independent research under faculty supervision. For more information, please see the following website: <https://shanghai.nyu.edu/academics/majors/sdhm>.

# REQUIREMENTS FOR MINORS

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The courses required for NYU Shanghai Minors are:

## Biology Minor

### A. Molecular and Cell Biology Minor

- BIOL-SHU 21 Foundations of Biology I
- BIOL-SHU 22 Foundations of Biology II
- BIOL-SHU 123 Foundations of Biology Lab
- BIOL-SHU 30 (Formerly 264) Genetics **OR**  
BIOL-SHU 263 Developmental Biology
- BIOL-UA 36 At the Bench: Applied Molecular Biology DNA Techniques **OR**  
BIOL-UA 37 At the Bench: Applied Cell Biology **OR**  
One approved class to count towards this minor

### B. Genomics and Bioinformatics Minor

- BIOL-SHU 21 Foundations of Biology I
- BIOL-SHU 22 Foundations of Biology II
- BIOL-SHU 123 Foundations of Biology Lab
- BIOL-SHU 261 Genomics and Bioinformatics
- BIOL-SHU 267 Microbiology and Microbial Genomics **OR**  
BIOL-GA 1128 Systems Biology **OR**  
BIOL-UA 58 Evolution

## Business Minor

### Required Courses

- BUSF-SHU 101 Statistics for Business and Economics
- BUSF-SHU 250 Principles of Financial Accounting
- ECON-SHU 3 Microeconomics
- ECON-SHU 251 Economics of Global Business (Students can take Intro to Macro and Intermediate Macro to substitute EGB)
- MATH-SHU 121 or 131 Calculus

### Choose One Elective Course

Please note that the business minor elective list below is complete, no courses outside of the list will be approved.

- BUSF-SHU 142 Information Technology in Business and Society
- BUSF-SHU 202 Foundations of Finance
- BUSF-SHU 210 Business Analytics
- BUSF-SHU 303 Corporate Finance
- BUSF-SHU 351 Competitive Advantage from Operations
- MGMT-SHU 201 Management and Organizations
- MKTG-SHU 1 Introduction to Marketing

Economics majors must complete two of the additional courses listed below to complete the minor within the double counting limits.

- BUSF-SHU 142 Information Technology in Business and Society
- BUSF-SHU 202 Foundations of Finance
- BUSF-SHU 210 Business Analytics
- BUSF-SHU 351 Competitive Advantage from Operations
- MGMT-SHU 201 Management and Organizations
- MKTG-SHU 1 Introduction to Marketing

### **Chemistry Minor**

- |                |   |
|----------------|---|
| • CHEM-SHU 125 | Foundations of Chemistry I                      |
| • CHEM-SHU 126 | Foundations of Chemistry II                     |
| • CHEM-SHU 127 | FoS Chemistry Laboratory                        |
| • CHEM-SHU 225 | Organic Chemistry I + Organic Chemistry I Lab   |
| • CHEM-SHU 226 | Organic Chemistry II + Organic Chemistry II Lab |

### **Chinese Minor**

16 credits of Chinese language above Elementary II are required to complete the minor. Only 4 credits of those 16 can double-count with another degree requirement. Elementary I and II do not count toward fulfilling the requirements. Typical plan of study: Intermediate I, Intermediate II, Advanced I, and Advanced II.

A student who passes out of Intermediate I&II or Advanced I&II will have to replace the course(s) they placed out of with other Chinese language classes higher than the level(s) they placed out of. Only 4 credits of those 16 can double-count with another major or minor degree requirement.

#### **Example 1:**

GCS major who doesn't place out of Intermediate I must do the following for the Chinese minor:

- Intermediate I
- Intermediate II
- Advanced I and Advanced II (but can only count one towards the minor, because they are also required for GCS major.)
- Other course higher than Advanced II

#### **Example 2:**

Students who placed out of Advanced Chinese I and are taking Advanced Chinese II now are aiming for a Chinese minor. They can get a Chinese minor by taking:

- Advanced Chinese II (double counting one course between the major and the minor).
- 3 additional Chinese courses, such as Reading Chinese Newspapers, Interpreting Modern China: Reading the Era of 1919-1949, and Chinese Business and Finance.

### **Chinese Language and Literature Minor**

Students in the Chinese Language and Literature Minor will develop a basic understanding of Classical Chinese language and texts, modern and/or contemporary Chinese Literature and literary theory, will learn the skills and conventions for literary criticism and analysis in Mandarin, and for applying Chinese language in various professional contexts. In order to help students navigate through both traditional and modern Chinese literature, the 20-credit minor has one of the following two courses as a required point of entry:

- Classical Chinese for Advanced Mandarin Learners (4 credits. Prerequisite: Advanced Chinese II)
- Foreign Societies in Classical Chinese Writing (4 credits. Prerequisite: Written or Spoken Contemporary Chinese or by placement)

In addition to these 4 credits, students must complete 8 credits in the category of "Language in Context" and 8 credits in "Chinese Literature" courses. For Language in Context courses, the language of instruction is Chinese. For Chinese Literature courses, the language of instruction may be Chinese or English, depending on the semester and the faculty. Student minoring in Chinese Language and Literature are strongly recommended to enroll in courses where the language of instruction is Chinese, if possible.

#### **Language in Context- Students take total of 8 credits from the following electives**

- Reading and Viewing Modern China (4 credits. Prerequisite: Advanced Chinese II)
- Contemporary Chinese Art & Fashion (4 credits. Prerequisite: Advanced Chinese II)
- Written Chinese Discourse (4 credits. Prerequisite: Advanced Chinese II)
- Introduction to Contemporary China (4 credits. Prerequisite: Advanced Chinese II)

- Chinese Business and Finance (4 credits. Prerequisite: Advanced Chinese II)
- Introduction to Chinese Phonetics (4 credits. Prerequisite: Advanced Chinese II)
- **Chinese Literature- Students take a total of 8 credits from the following electives**
- Traditional Chinese Literature from the Beginning to 1911 (4 credits. Instruction is in English)
- Shanghai Stories (4 credits. Instruction is in English)
- Cultural (Mis)translations: China and the West (4 credits. Instruction is in English)
- Additional literature courses taught in Chinese will be added as they become available

#### Computer Science Minor

- CENG-SHU 202 Computer Architecture
- CSCI-SHU 101 Introduction to Computer Science (prereq: CSCI-SHU 11  
Introduction to Computer Programming or placement exam)
- CSCI-SHU 210 Data Structures
- One computer science elective course

#### Computer Systems Engineering Minor

- CENG-SHU 201 Digital Logic
- CENG-SHU 202 Computer Architecture **OR**
- CENG-SHU 350 Embedded Computer Systems
- CSCI-SHU 11 Introduction to Programming **OR**
- INTM-SHU 101 Interaction Lab
- CSCI-SHU 101 Introduction to Computer Science
- EENG-SHU 251 Circuits

#### Creative Writing Minor

- CRWR-SHU 159 Introduction to Creative Writing (a prerequisite for the intermediate and advanced craft courses). **OR**
- CRWR-SHU 161 Introduction to Creative Writing: Literary Translation
- Two intermediate/advanced creative writing workshops
- An additional intermediate/advanced creative writing workshop or a designated elective

#### Data Science Minor

- CSCI-SHU 101 Introduction to Computer Science (prereq: CSCI-SHU 11 Intro to  
Programming or placement exam)
- CSCI-SHU 210 Data Structures
- CSCI-SHU 360 Machine Learning
- ECON-SHU 301 Econometrics
- MATH-SHU 235 Probability and Statistics **OR**
- MATH-SHU 233 Theory of Probability **OR**
- BUSF-SHU 101 Statistics for Business and Economics **OR**
- BIOL-SHU 42 Biostatistics

#### Economics Minor

- BUSF-SHU 101 Statistics for Business and Economics **OR**
- MATH-SHU 235 Probability and Statistics **OR**
- MATH-SHU 233 Theory of Probability **OR**
- MATH-SHU 234 Mathematical Statistics
- ECON-SHU 1 Principles of Macroeconomics **OR**
- ECON-SHU 251 Economics of Global Business
- ECON-SHU 3 Microeconomics **OR**
- ECON-SHU 2 Principles of Microeconomics
- ECON-SHU 202 Intermediate Macroeconomics **OR**
- ECON-SHU 10 Intermediate Microeconomics
- Two additional 4-credit courses from the Economics elective list

#### Electrical and Systems Engineering Minor

- CENG-SHU 201 Digital Logic

- CSCI-SHU 11 Introduction to Programming **OR**
- INTM-SHU 101 Interaction Lab
- EENG-SHU 251 Circuits
- Electrical and Systems Engineering Elective

### **Global China Studies minor**

Four classes from the required and elective list of Global China Studies courses, of which at least one must be from the required list. Students may take up to two advanced or post-advanced language courses in fulfillment of this minor.

### **History Minor**

Four classes from the required and elective list of Humanities major History courses.

### **Humanities Minor**

Four classes from the required and elective list of Humanities major courses.

### **Interactive Media Arts Minor**

- INTM-SHU 101 Interaction Lab
- INTM-SHU 120 Communications Lab
- 7-8 credits from the Interactive Media Arts Elective List

### **Interactive Media Business Minor**

- BUSF-SHU 250 Principles of Financial Accounting
- ECON-SHU 251 Economics of Global Business
- 8 Credits from Interactive Media Foundation Courses
- 4 Credits from Business Elective Courses
- 4 credits from Interactive Media Elective Courses

### **Literature Minor**

Four classes from the required and elective list of Humanities major Literature courses.

### **Mathematics Minor**

Four 4-credit mathematics courses at the Calculus level or higher. Of current math offerings, Mathematics for Economists and Mathematical Functions do not count for the minor.

### **Neural Science Minor**

- BIOL-SHU 21 Foundations of Biology I
- BIOL-SHU 22 Foundations of Biology II
- BIOL-SHU 123 FoS Biology Laboratory
- NEUR-SHU 201 Introduction to Neural Science
- NEUR-SHU 251 Behavioral and Integrative Neuroscience **OR**
- NEUR-SHU 301 Cellular and Molecular Neuroscience

### **Philosophy minor**

Four classes from the required and elective list of Humanities major Philosophy courses.

### **Physics Minor**

- PHYS-SHU 71 FoS Physics Laboratory
- PHYS-SHU 91 Foundations of Physics I Honors **OR**
- CCSC-SHU 50 Physics I
- PHYS-SHU 93 Foundations of Physics II Honors **OR**
- CCSC-SHU 51 Physics II
- PHYS-SHU 94 Physics II Laboratory
- Two Physics Elective Courses (Must bring total credits of the minor courses to 16 or more)

### **Social Science Minor**

Students who wish to complete a minor in Social Science must complete one of the Methods courses from the list of approved Social Science Methods courses and three additional courses from the list of

**Global Network Minor**

Students can complete a Global Network (GN) minor using classes from one or more of the eleven Study Away Sites in NYU's global network. This option enables capable and highly motivated students to pursue a plan of study that brings together courses from more than one NYU department or program taught at a study away site.

These minors serve students who can realize their interdisciplinary goals within the NYU's global network drawing on courses from any of the study away sites. Even if all of the classes are from a single department in one of the other degree-granting campuses or is identical to a minor offered on one of those campuses, the GN minor is an NYU Shanghai minor and will be identified as such on the student's transcript. The other requirements and limitations for these minors are identical with the standard ones identified above for all minors.

GN minors require at least 2 courses from global sites and may be completed using courses taken at the associated study away site or degree-granting campuses. Courses and therefore minor availability may vary by semester, students should see each academic center's website for specific classes, and plan with their academic advisor how to complete the minor. Pursuing a GN minor does not guarantee acceptance to study at a study away site. A list of approved global network minors is available on the NYU Shanghai study away website. The courses that have been reviewed to count towards GN minors are also posted to the NYU Shanghai study away website. As students inquire about new courses, they are reviewed and added to the sheet.

**Cross School Minor**

Cross school minors offered by NYU Schools are available to NYU Shanghai students as listed on the NYU Cross-School Minors website. Students who successfully complete any of those minors, which do not have analogous minors in Shanghai, will have them identified by name as a minor on the student transcript. Where there is an analogous minor student may use courses for the cross-school minor which are equivalent to courses required for the Shanghai minor to complete the Shanghai minor. For example, courses required for the Business Studies



# **{ Part VII }**

## **Course Descriptions**

## ART-SHU 101

### What is Art?

This introductory class explores the nature and value of the arts through an examination of aesthetic theory, select art movements and their context and through hands-on projects that acquaint students, in an embodied fashion, with how artists make meaning. It considers art's powers and limits, its benefits and potential dangers, the nature of artistic mediums and unpacks the mechanisms through which art communicates a particular vision. At the end of this course, students will be able to define and utilize key terms and concepts particular to the visual arts, and able to create compelling and researched arguments that synthesize theoretical, historical, iconographical and technical frameworks. They will also be able to perform in-depth analysis of artworks and visual media and create and defend their own artworks. Prerequisite: None. Fulfillment: Humanities Major Requirement Introductory Courses (18-19 Critical Concepts Core Course/Survey Courses).

## ART-SHU 105

### Performance Art

In this course we will survey histories of performance as art from traditions ancient to modern through physical work, playwriting, and study of design. We'll work through repertoires and theatrical traditions of the Ancient Greeks alongside movements like Futurism, Dada, Surrealism, and the Bauhaus School. Using Kate Tempest's play *Brand New Ancients* with elements of spoken poetry and hip hop, we will workshop a new adaptation using students' original text and dramaturgy, ending the semester with a performance of our work. From Tempest's play: "The stories are here, the stories are you, and your fear and your hope is as old as the language of smoke, the language of blood, the language of languishing love."

## ART-SHU 310

### Introduction to Studio Art - Chinese Traditional Methods in Contemporary Art

This course will be an introduction to studio art for students, to traverse both cultural and temporal barriers of visual arts. Students will examine the content of artwork, and build various skills to translate ideas into reality. Class time will be devoted to individual projects and critiques, lectures, and group discussions. This course is open to all students with or without an art background. Note that attendance in the first class meeting is mandatory, otherwise you will be dropped from the course. Prerequisite: None. Fulfillment: general elective

## ART-SHU 225A

### Contemporary Dance

For non-majors. This course is an introduction to the fundamental and intermediary concepts of dance through learning a diversity of movement styles. Students will gain an appreciation for the expressive and dynamic capacity of the body, recognizing shared, unifying attributes as well as those that are unique and intrinsic to each style. The thorough warm up places an emphasis on breath, proper placement, and building stamina for general health. Short dances and sequences from Jazz, Hip Hop, Contemporary, and Modern Dance will be learned to sharpen kinesthetic memory, foster joy in movement, and express the timelessness of all dance. Students enrolling for 4 credits will learn the historical and cultural background behind the dances and 2 credits fulfill just the dance requirement. All levels are welcome. No previous experience is required. Prerequisite: None. Fulfillment: This class counts towards the Tisch School of the Arts Dance Minor.

## ART-SHU 225B

### Contemporary Dance

This course is an introduction to the fundamental and intermediary concepts of dance through learning a diversity of movement styles. Students will gain an appreciation for the expressive and dynamic capacity of the body, recognizing shared, unifying attributes as well as those that are unique and intrinsic to each style. The thorough warm up places an emphasis on breath, proper placement, and building stamina for general health. Short dances and sequences from Jazz, Hip Hop, Contemporary, and Modern Dance will be learned to sharpen kinesthetic memory, foster joy in movement, and express the timelessness of all dance. Students enrolling for 4 credits will learn the historical and cultural background behind the dances and 2 credits fulfill just the dance requirement. All levels are welcome. No previous experience is required.

This class counts towards the Tisch School of the Arts Dance Minor.

## ART-SHU 227

### Theory and Practice of Acting

The class will introduce students to the fundamentals of acting for the stage by pairing some of theatre's foremost theorists with their contemporary practitioners. The methods of Constantin Stanislavski will be paired with the work of Anton Chekhov; Cicely Berry's voice and text exercises will be paired with the plays of William Shakespeare, and the work of Anne Bogart will be studied alongside the plays of Charles L. Mee and Naomi Lizuka. Students will be exposed to physical movement, voice and text work, character and script analysis, monologue and scene study - all of which are intended to engage students in emboldening their imaginations while building a solid foundation in the skills and craft of acting.

## ART-SHU 230

### Ballet

For none major. This course is an introduction to the fundamentals of classical ballet technique. A thorough warm-up will be given in each class to improve strength, balance, and coordination through various exercises. This class

begins with barre, develops into stretch, adagio, and finishes with allegro and reverence. Throughout the semester, three major movement combinations will be taught and the student will be expected to demonstrate their mastery of those combinations. No prior dance experience is necessary. Prerequisites: None Fulfillment: general elective

ART-SHU 231

#### **Introduction to Dance Technique & Movement**

This technique class aims to help beginning level students learn about their body through anatomical knowledge, kinesthetic practices, and gain both the confidence and ability to execute and perform movement combinations in class. This class will refine psychomotor skills, increase self-awareness, and improve physical coordination.

Pre-requisite for (1) Choreography & Performance and (2) Minority Dance of Southern China, (3) Minority Dance of Northern China

ART-SHU 239.2

#### **Choreography & Performance**

For none major. The purpose of this 2-credit course is to enable the student to gain an appreciation and knowledge of team building skills, collaboration, and the creative process through movement exploration, choreography and performance. Through individual and collective participation in bodywork, contact improvisation, developing phrases, and playing an active role in the final performance, students are physically and conceptually challenged and informed. Through better understanding space, control, aesthetics, alignment, and musicality as well as practicing learning strategies within a duet/group context, the student gains an appreciation not only for self and collective discovery, but also for the creative process underlining and shaping personal, artistic expression.

Prerequisite: Any former dance class. Fulfillment: This class counts towards the Tisch School of the Arts Dance Minor.

ART-SHU 239.4

#### **Choreography & Performance**

For none major. The purpose of this 4-credit course is to enable the student to gain an appreciation and knowledge of team building skills, collaboration, and the creative process through movement exploration, choreography and performance. Through individual and collective participation in bodywork, contact improvisation, developing phrases, and playing an active role in the final performance, students are physically and conceptually challenged and informed. Through better understanding space, control, aesthetics, alignment, and musicality as well as practicing learning strategies within a duet/group context, the student gains an appreciation not only for self and collective discovery, but also for the creative process underlining and shaping personal, artistic expression. All levels are welcome. No previous experience is required. Fulfillment: This class counts towards the Tisch School of the Arts Dance Minor.

ART-SHU 242

#### **Minority and Folk Dance (Southern China)**

This course provides an introduction to minority and ethnic folk dances in southern China. It explores the forms of these dances as well as the culture, religion, history, and natural environments influencing the creation of these dance forms. The Spring 2020 semester the focus will be on Tibetan 藏族, Dai 傣族 or Wa 佤族 minorities. Students learn the legends, stories, and myths surrounding each dance form as well as the distinct movement beats, rhythms, and traditional combinations.

This course counts towards the Chinese Arts Minor (2020) and the Dance Minor.

ART-SHU 243

#### **Minority and Folk Dance (Northern China)**

This course provides an introduction to minority and ethnic folk dances in northern China. It explores the forms of these dances as well as the culture, religion, history, and natural environments influencing the creation of these dance forms. The Fall 2019 semester the focus will be on Yanbian Korean 朝鲜族, Uighur 维吾尔族 or Mongolian 蒙古族 minorities. Students learn the legends, stories, and myths surrounding each dance form as well as the distinct movement beats, rhythms, and traditional combinations. This course counts towards the Chinese Arts Minor (2020) and the Dance Minor.

ART-SHU 255

#### **Printmaking in an Expanded Field**

This Praxis course is an exploration of contemporary and traditional artistic printmaking practices, with an emphasis on expanding notions of conventional printmaking techniques and forms. Students will be introduced to various printmaking techniques, and experiment with traditional and non-traditional forms, in conjunction with their histories and consider what constitutes a hand-made print in an artistic framework. Students will gain an understanding of printmaking - its history based in China, development across the globe and inventive contemporary practices which include sculptural forms. They will learn techniques, modes, forms, and applications of printmaking - with an emphasis on relief prints (stamps and wood cuts) - in a conceptual framework of contemporary printmaking practices and global visual culture. Note: attendance in the first class meeting is mandatory, otherwise you will be dropped from the course. Prerequisite: None. Fulfillment: This course satisfies IMA/IMB elective.

ART-SHU 275

#### **Mark Making: From Basic Drawing Skills to Contemporary Approaches to Drawing**

Drawing is one of the earliest ways humans attempted to understand the world, and it remains a remarkable tool for perceiving, recording, negotiating, and inventing our relationship with our surroundings. Drawing is not a privilege of the talented but a teachable skill acquired through the continued practice of specific techniques. In this class students will learn basic drawing methods such as contour, gesture, negative space, value and perspective, and will study why and how these techniques aid draughts persons in creating a three-dimensional illusion on a surface. Students will also examine contemporary drawing concerns and tackle two longer drawing projects centered around narrative and different materials and drawing methods. At the end of this course, students will have acquired basic drawing skills, learned some of the ways artists have practiced and conceptualized drawing and started to build their own personal visual vocabulary and approaches to the medium. Prerequisite: None (This course is reserved for Shanghai students). Fulfillment: General Elective.

ART-SHU 301

### **Photography I**

Photography I is a praxis course that provides students with an introduction to photography as an artistic medium in the field of Contemporary Art. The course will examine documentary, pictorial, and conceptual photographic works that are exhibited in museums and galleries starting from the post-war era and continuing to the present day. Students will learn to shoot, edit, and print digital photographs using professional photographic equipment and software. In the studio, students are required to critique the work of their peers, their own work, and work sourced from current contemporary art exhibitions. Outside the studio, students will examine major historical movements in photography. Works by artists are examined to provide the framework and vocabulary to articulate the students' own photographic investigations. Students are expected to do about 6-8 hours of course work per week outside of class. Note that attendance in the first class meeting is mandatory, otherwise you will be dropped from the course.

ART-SHU 306

### **Moving Images I**

Moving Images I is a praxis course that provides students with an introduction to time-based practices in the discipline of Visual Art and Film. The focus of the class is on the exploration of experimental film and video art in the context of museums, galleries, and art fairs, as well as independent film houses and film festivals. Students will experiment with essayist, abstract, and narrative and non-narrative moving image practices in both single-channel and multi-channel formats, and learn to shoot and edit moving image works using professional equipment and software. In the studio, students are required to critique the work of their peers, their own work, and work sourced from current contemporary art exhibitions and film screenings. Outside the studio, students will examine major historical movements in contemporary moving image practices. Works of practicing artists are examined to provide the framework and vocabulary to articulate the students' own moving image investigations. Students are expected to do about 6-8 hours of course work per week outside of class. Note that attendance in the first class meeting is mandatory, otherwise you will be dropped from the course. Prerequisite: None. Fulfillment: This course satisfies IMA/IMB elective.

ART-SHU 307

### **Moving Images II**

Moving Images II is a praxis course that provides students with a critical examination of moving image practices as a medium-specific discipline at the intersection of Visual Art and Experimental Film/Avant-Garde Cinema. Using Gilles Deleuze's Cinema 1 The Movement Image as a theoretical foundation, the course examines the mobile camera and montage as two essential kinetic elements of time-based media. The class will survey a variety of moving image works by filmmakers and artists from France, Germany, Russia, Taiwan, Canada, and the US, and read texts by film theorists such as Sergei Eisenstein, Christian Metz, and Trinh, T. Minh-Ha to contextualize Deleuze's film theory in a broader context. Building on Beginning Film/Video, and through in-class lectures, course readings, and studio work, students will further their understanding of narrative and non-narrative moving image practices in single-channel formats. Students will continue to shoot and edit film/video works using professional equipment and software, and are required to critique the work of their peers and their own work. Different time-based works are examined in class to provide the framework and vocabulary for students to articulate their own film/video investigations. Prerequisite: ART-SHU 306 (Moving Images or Moving Images I); ART-SHU 301 / ART-SHU 9301 (Introduction to Photography I or Photography I)

ART-SHU 340

### **Composition**

The classes are designed as a laboratory for investigating and expanding our own creativity for the construction of full dance pieces. We will learn how developing a creative practice can not only facilitate dance making and choreography, but also enrich our role as a creative, thinking, dancer and performer, and as an informed and articulate dance viewer. We will use "scores" and problem solving tasks to explore ways of generating movement that access our own individuality; and we will investigate different sources and stimuli for inventive movement creation, including looking deep inside our own bodies. We will play with strategies for manipulating this movement and then see how the nature of the material we generate can inform how we compose and structure it. Prerequisite: ART-SHU 239.2 choreography & performance class Fulfillment: counts towards the Global Dance Minor

ART-SHU 610

### **Art is a Hammer**

This course will be taught remotely using a dynamic combination of synchronous and asynchronous tools. "Art is not a mirror that reflects reality, but a hammer with which to shape it." -Bertolt Brecht. Every artistic tradition was once an act of rebellion. Everything in popular culture was once punk. In this course, we will examine the history of performance, dance, literature, music, visual art, and film to find groundbreaking acts of artistic rebellion and

discover how they shattered norms, affected their contemporaries, and changed how we look at art today. Students will explore theories from a wide range of global practices and respond with short essays and artistic projects in the form of photography, music, and video. Exploring new technologies as modes for philosophical expression, they will propose their own manifestos to challenge modern customs, redefine what it means to be an artist, and shape new realities in their community. Prerequisite: None. Fulfillment: This course satisfies Old Humanities Requirements: Topic Course; New Humanities Requirements: Introductory Course.

ART-SHU 629

### **The Villain**

What makes a villain and who decides? In this course, we will track the evolution of the villain across the globe and through the ages, exploring representations of evil in myth, literature, and art history, as well as on the stage and screen. We'll identify the origins of iconic imagery and characteristics, interrogate the scapegoating of certain characters or populations, and question our own perceptions of villainy. Our material will include sacred text, Shakespeare, Japanese Noh, political documents, psychological studies, horror films of early cinema, and relevant works of today from Disney to Black Panther. Assignments will take the form of textual analysis and research, as well as artistic responses in the form of performance, music, photography, and video, all seeking to understand new perspectives on those we label "villain." Prerequisites: None

ART-SHU 845

### **Comedy**

In this course we will examine global histories and applications of comedy in performance and media as students from a company of actors, writers, and directors to produce dynamic new work. Students will explore comparative approaches to the technicalities of writing and performing comedic scenes and characters as we seek to understand the science of humor and find the purpose of comedy in our own communities. Each week we will seek inspiration from wide range of examples offered from the history of comedy, from the accents to modern sketch comedy. We'll finish the semester with a presentation of the original work we've created in the form of videos and live performance.

ART-SHU 1010

### **Making Theatre**

In this course, we will explore the essential elements of collaboration and theater making, seeking to understand how the creation process works and how it can be applied across many disciplines. We will investigate groundbreaking theories from the history of performance, mine them for tools useful to our process, and then put them into action as a company of collaborators. As we move through foundational exercises, scene work, and devising methods, students will take on rotating roles of actor, director, writer, designer, and more. Working together, we will hone our craft and establish effective systems for creating and rehearsing new work. Our goal: to further develop our own artistic voices and discover how they can impact the world around us as we make theater. Prerequisites: None. Fulfillment: General Elective

ART-SHU 1911

### **Projects in Studio Art - Chinese Traditional Methods in Contemporary Art**

This course is designed for studio artists who want to create a succinct body of artwork while studying in Shanghai. Students will create contemporary artworks, while using a unique integrated style of work. Students will examine the content of artwork, including ideas in contemporary and traditional art, and build various skills to translate ideas into reality. Class time will be devoted to individual projects and critiques, lectures, and group discussions. This course is open to students who have an art background and upon the approval of the professors. Note that attendance in the first class is mandatory, otherwise you will be dropped from the course. Prerequisite: Instructor Consent Required.

ART-SHU 9077

### **Contemporary Art & New Media**

Over the past three decades, the contemporary art scene in China has expanded fast. The massive political, economic, and social changes the country has undergone since the end of the Cultural Revolution in 1976 have dramatically altered its cultural landscape. The course will survey the main development areas in Chinese contemporary art. Dedicated to responding to the new textures of China's metropolitan culture, it will look at the relationship between visual arts, new media, architecture and performance in the mega-city of Shanghai, often regarded as the cradle of Chinese modernity. The class will be complemented by guest lectures and visits to public museums, galleries and artists' studios in and around Shanghai. Students will have the opportunity to meet leading figures from the art world in China as well as the international art community, including artists, museum directors, curators, art critics, and art dealers.

MUS-SHU 59

### **Group Piano for Beginners**

For Non-Majors. Fulfillment: general elective

MUS-SHU 60

### **Group Piano for Intermediate Beginners**

For Non-Majors. Prerequisite: MUS-SHU 59 Group Piano for Beginners or prior training Fulfillment: general elective

MUS-SHU 61

**Group Piano for Advanced**

For Non-Majors. 5 years of prior training. Permission code is required to register Fulfillment: general elective

MUS-SHU 62

**Group Piano for Intermediate**

This praxis course is intended for students who have moved beyond the beginner level. Students will develop their piano playing and score-analysis skills. In order to grow as pianists, they will deepen their analytic and technical skills through experimenting with different tone qualities (in order to express a variety of musical feelings) and utilizing music theory to analyze piano playing applications. Students will read texts and study music compositions from different historical music periods, musical genres, and experts in order to ground their understanding.

Prerequisite: MUS-SHU 60 Group Piano for Inter Beginner or 2 years previous experience (instructor consent).

Fulfillment: general elective

MUS-SHU 63

**Performance Piano**

Performance Piano is a course for the very advanced student to build performance confidence, communicating the essence of the music while demonstrating a command of the instrument. A deep understanding of the stylistic and structural elements of each repertoire selection is the main goal for the course. This is a praxis course with a seminar component. Students will ground their individual practice and repertoire with a weekly group class alternating between discussion and critique. Historical, theoretical, conceptual, and topical texts will be the focal point of discussion. Students will engage in peer critique as a way of becoming proficient in music theory language. Prerequisite: Performance Piano: by audition (8+ years recommended) Fulfillment: general elective

MUS-SHU 150

**Group Erhu: All Levels**

Note: Introductory Chinese recommended. Some course instruction in Chinese.

MUS-SHU 151

**Bamboo Flute: All Levels**

Note: Introductory Chinese recommended. Some course instruction in Chinese.

MUS-SHU 152

**Group Guqin, All Levels**

This course provides hands on instruction in Guqin. Designed for all levels of ability this course also presents elements of history and technique, music reading and performance. Beginners to advanced students welcome.

Prerequisite: instructor's permission. Fulfillment: general elective

MUS-SHU 219

**Music of Shanghai**

Centered around attending a variety of musical performances in Shanghai, the course consists of lectures, readings, listening and discussions. Students work on refining critical listening skills and develop a greater knowledge of music as an integral part of society and in particular, Shanghai's past and present artistic community. Genres include: jazz, classical, indigenous, fusion, theatre music and contemporary pop/rock.

This course satisfies 2 credits of the Chinese Arts Core Curriculum. Prerequisites: None.

MUS-SHU 221

**Songwriting**

What's in a song? What are the qualities of an effective song, and what features do famous songs and songwriters share? In this course, students will learn the essential elements of songwriting—melody, harmony, form, lyrics, and more—via analysis of existing popular music in a variety of styles. Through popular music analysis, guided class work, and talks with guest composers, students will engage in the songwriting process toward presenting fully and partially realized original songs. Prerequisite: None. Some prior experience in music is recommended; students should contact instructor prior to registering. Fulfillment: general elective

MUS-SHU 225

**The Structure of Music**

This course examines the basic components of sound (frequency, duration, amplitude, sequence, timbre, harmony) and how they are used as building blocks in creating recognized musical forms. By means of oral, aural, score study and written work/composition, students will be able to recognize these elements, how they function and are used in simple melody through more complex larger forms such as binary, ternary, rondo, variations, and sonata. Prior musical study is recommended, but not necessary.

MUS-SHU 260

**Introduction to the History of Western Music**

Introduction to the History of Western Music is a survey course designed to provide students with broad

knowledge of Western music, spanning the Middle Ages through the early Twenty century. Students will develop an understanding of this history as well as the contexts in which musical movements, styles, and theories occurred. Through the biographical and cultural contexts, together with a rich repertoire of listening materials, students will be able to shape their constructional perception of Western music and its linkage to today's musical environment, and develop critical listening and music appreciation skills. Prerequisite: None Fulfillment: general elective

MUS-SHU 1085.1

**Choral Arts: NYU Shanghai Chorale**

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For Non-Majors. The NYU Shanghai Chorale will explore all types of choral music - pop, jazz, classical etc., help you improve your singing and musicianship skills in a fun environment. Those taking for one or two credits will receive individual singing instruction outside of class at mutually convenient times throughout the semester. Sectional rehearsals may be called as needed. Fulfillment: general elective. Course Repeatable for Credit. NYU Shanghai Chorale

MUS-SHU 1085.3

**Choral Arts: NYU Shanghai Chorale**

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For Non-major. The NYU Shanghai Chorale will explore all types of choral music - pop, jazz, classical etc., help you improve your singing and musicianship skills in a fun environment. Those taking for one or two credits will receive individual singing instruction outside of class at mutually convenient times throughout the semester. Sectional rehearsals may be called as needed. Fulfillment: general elective. Course Repeatable for Credit. Class meet in room 206.

MUS-SHU 1086

**Choral Arts: NYU A Cappella**

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This is an advanced performance ensemble for students that read music and/ or learn music quickly. Prior solo or choral training is preferred. Instruction will take the form of group and sectional rehearsals and private instruction for those registered for credit. Students may also have the option to sing with one of the other NYU Shanghai choral classes. Fulfillment: general elective

MUS-SHU 1086.2

**Choral Arts: NYU A Cappella**

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This is an advanced performance ensemble for students that read music and/ or learn music quickly. Prior solo or choral training is preferred. Instruction will take the form of group and sectional rehearsals and private instruction for those registered for credit. Students may also have the option to sing with one of the other NYU Shanghai choral classes. Fulfillment: general elective

MUS-SHU 1087.1

**Elite A Cappella, NYUSH Chamber Singer**

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NYUSH Chamber Singers is a performance-oriented class that prepares students for ensemble and solo public performance covering a wide spectrum of vocal genres. Instruction in vocal technique, sight reading, performance practices and musicianship will be included in all instructions. This course culminates in public performance(s) representing the university at events and in concert. This course also provides the students with the opportunity to perform more regularly and at community events as no accompaniment is required. Course Requisite: By Audition Fulfillment: general elective

MUS-SHU 1179.1

**Chamber Ensemble: Orchestra Instrumental**

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For Non-majors. Fulfillment: general elective

MUS-SHU 1182.1

**Chamber Ensemble: Jazz**

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An instrumental ensemble focused on jazz and related popular music styles. Students taking this course for credit will receive either four 30-minute one-on-one coaching sessions (1 credit), or eight 30-minute one-on-one coaching sessions (2 credits) over the course of the semester. They will also be expected to maintain a weekly practice journal. Fulfillment: general elective

MUS-SHU 1182.3

**Chamber Ensemble: Jazz**

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Fulfillment: general elective

## BIOL-SHU 21

### Foundations of Biology I

This course satisfies part of the Foundations of Science core, DS Genomics concentration; satisfies ED Core Requirement.

## BIOL-SHU 22

### Foundations of Biology II

Our objective is to provide a concrete foundation in the principles of modern molecular and cellular biology. These concepts form almost all basis for the great discoveries now being made in biology and the medical science. In this course, we will discuss how proteins and biomolecules are sorted in the cell, how cells maintain structural framework, how cells multiply, how cells regulate transport cross membranes, how cells interact with environment, and how cancer cells arise. In addition, we will discuss about principle experimental methods of modern cell biology. An emphasis is place on understanding molecular mechanism of essential process, but not memorizing details. In recitations, students will discuss modern research papers related to the topics that are covered in lecture. Students should be able to understand the biology of the paper and criticize its potential pitfall. Prerequisites: MATH-SHU 121 Calculus or MATH-SHU 201 Honors Calculus AND BIOL-SHU 21 Foundations of Biology I Fulfillment: Biology Major Foundational Courses; Mathematics Major Science Lecture sections; Honors Mathematics Major Science Lecture Courses; Neural Science Major Foundational Courses; Data Science Major Courses for Concentration in Genomics.

## BIOL-SHU 30

### Genetics

Why do offspring often exhibit physical features of their parents? Why do combinations of certain features in offspring translate into specific characteristics that either enhance or diminish the organism's fitness? Answers to questions such as these fall partly within the discipline of genetics, which is the study of heredity. Principles from the Foundations of Science curriculum and Organismal Biology provide a framework for learning about classical genetics, chromosome structure and mutation, gene function and regulation, and aspects of molecular and developmental genetics. Recent studies in human genetics and their applications, particularly to health-related issues, are also investigated. Prerequisite: BIOL-SHU 22 Foundations of Biology II. Fulfillment: Core Curriculum Requirement Science, Technology and Society Courses; Biology Major Electives; Neural Science Major Approved upper-level Biology courses

## BIOL-SHU 31

### Genetics Laboratory

pre-req or co-req is BIOL-SH 30 Genetics or BIOL-UA 30 Genetics Fulfillment: Biology Major Electives.

## BIOL-SHU 123

### FoS Biology Laboratory

The course will teach students the skills needed in molecular biology research such as the hand-on techniques of microscopy, transformation, gene expression, PCR, gel electrophoresis, SDS-PAGE, and chromatography. Students will first learn these basic biological techniques in short experiment sets and then apply them as part of a Genetically-Modified Food project. The lab course will also emphasize literature search, scientific writing, peer reviewing, lab notes taking, poster and power point presentations, data analysis, and best practices in lab safety. pre-reqs: MATH-SHU 121 Calculus or MATH-SHU 201 Honors Calculus AND BIOL-SHU 21 Foundations of Biology I Fulfillment: Core Curriculum Requirement Experimental Discovery in the Natural World Courses; Biology Major Foundational Courses; Mathematics Major Science Lab sections; Honors Mathematics Major Science Lab sections; Neural Science Major Foundational Courses; Physics Major Foundational Courses; Data Science Major Courses for Concentration in Genomics.

## BIOL-SHU 250

### Organismal Systems

The array of organisms that populates the globe is astounding in its diversity and adaptability. This course uses fundamental concepts from the Foundations of Science curriculum to examine essential elements of animal physiology, including adaptations to environments such as deserts. This course develops an understanding of the relationship between structure and function of the organism; how structure develops through evolutionary and developmental processes; and how structure is related to the environment surrounding the organism. Prerequisite CCSC-SHU 114 or BIOL-SHU 21. This course is a Biology required course.

## BIOL-SHU 261

### Genomics and Bioinformatics

Fueled by recent advances in technical approaches to data collection and analysis, the biological sciences have entered a new era in which vast amounts of genome-scale sequence and functional data are becoming available for a large number of species, including human. Many medical and biological studies are being carried out on an unprecedented scale. The surge of biological data changes genomics and biology into one of the major research topics in data science. Familiarity with the fields of genomics and bioinformatics, which impact society on all levels, is vital for the next generation of scientists. The course of Genomics and Bioinformatics introduces to students a broad range of subjects in this field through lectures and hands-on exercises that use fundamental principles of biochemistry, computer science, and mathematics. Students are also expected to understand G&B applications such as how genomic analysis is used to facilitate precision medicine research, and how to study biology questions from



a systemic perspective. Prerequisite: Fos Biology 1 AND Biostatistics or Statistics AND ICP, Introduction to computer programming. Fulfillment: Core Curriculum Requirement Science, Technology and Society Courses; Biology Major Biology Electives; Data Science Major Courses for Concentration in Genomics.

BIOL-SHU 263

### **Developmental Biology**

Multicellular organisms undergo a series of complex temporal and spatial changes in gene expression following fertilization, which results in the highly organized, coordinated cell divisions needed for growth and development. This course introduces students to the principles and experimental strategies of developmental biology. It covers the cellular and molecular basis for patterning in the embryo; the determination of cell fate; cell differentiation; the genes controlling these events; how the genes are identified and studied; and the cellular proteins that effect shape, movement, and signaling among cells. Prerequisite: BIOL-SHU 250, or Foundations of Science III Biology, or Foundations of Biology II. This course satisfies Biology elective; NS Approved upper-level Biology course.

BIOL-SHU 271

### **Cell Biology: Body's Battle with Cancer**

This course is designed to provide comprehensive understanding of how cancer breaks our body's defense for its survival. Cancer is a devastating disease in a modern society and a plethora of efforts has been made to find its cure. In this course, students will learn how difficult fighting against cancer is in a molecular level. Furthermore, using cancer as an example, students will also learn how metazoan develops multiple defense mechanisms and survives in the hostile environment. Pre-requisite: Foundations of Biology I (BIOL-SHU 21). This course satisfies BIOL elective.

BIOL-SHU 400

### **Independent Study - Biology Capstone**

Students must conduct two semesters of research (8 credits) with a faculty member in NYU Shanghai Biology or another faculty member approved by the Biology Area Director. One semester of research can be conducted in NYU NY or NYU AD upon approval of Biology Area Director and NYU SH faculty advisor. The students must take the Undergraduate Research Thesis course in Shanghai in the last semester of senior year and prepare a written thesis of the research. The students must submit the research thesis for approval by two NYU Shanghai biology faculty members. Presentation of the thesis work at the NYU Shanghai Undergraduate Research Conference is required. Once a student completes all of the requirements for the honors program, there is a competitive selection process for determining which students receive the Major Honors recognition. Fulfillment: Biology Major Electives.

BIOL-SHU 997

### **Independent Study - Biology**

Prerequisite: Foundations of Science I-III (or Physics I&II, Foundations of Chemistry I&II, Foundations of Biology I&II), and a minimum GPA of 3.0 overall and in all science and mathematics courses required for the major, permission of a biology faculty member (at NYU-Shanghai, NYU-Abu Dhabi, or NYU-New York) who will act as a sponsor and mentor, and approval of Discipline Leader in Biology in Biology. The faculty mentor must be selected in consultation with the Discipline Leader in Biology. Offered in the Fall, Spring or Summer. 2 to 4 points per term for a maximum of 4 points. This course aims at engaging students in research. It is designed to offer students an opportunity to observe biological research up close and gain hands-on research experience by working as a member in an active research team. Independent Study I and II can be done with the same supervisor or two different supervisors. No lectures will be given. Student researchers are expected to attend and actively participate in lab/supervision meetings. A Proposal for Independent Study form must be filled out, signed by the Discipline Leader in Biology, and submitted to the student's academic advisor. Requires a written report on the research to be evaluated by the faculty sponsor, with a copy submitted to the Discipline Leader in Biology and a copy to the Dean of Arts & Sciences. Fulfillment: Biology Major Electives.

BIOL-SHU 998

### **Integrated Science Capstone**

This course provides students with a completion of their undergraduate science education by applying the skills and knowledge they acquired over the course of their major to scientific problems across disciplines. Students will be paired with a faculty mentor to engage either in Independent Research or Literature Review to address a scientific question of the student's design, culminating in a written report. Students are encouraged to work with faculty mentors outside of their own field. Open only to Biology, Chemistry, and Physics majors in the senior year. Prereqs: students must have completed (or enrolled in) all remaining major requirements.

BIOL-SHU 999

### **Biology Undergraduate Research Thesis**

Prerequisites: Independent Study (BIOL-SHU 997 or 998), a minimum GPA of 3.65 overall, a minimum GPA of 3.65 in all science and mathematics courses required for the major, and permission of a sponsor and the Dean of Arts & Sciences. Open to Biology majors only. The faculty mentor must be selected in consultation with the Dean of Arts & Sciences. May not be used for the major in biology. Offered in the fall, spring, and summer. 2 points. For biology majors who have completed at least one semester of laboratory research (BIOL-SHU 997 or 998) and are able to expand this work into a thesis. Requires writing a Thesis (i.e., a full literature search of the subject and a formal written report on the research in publication form), which is defended in front of a committee of three faculty (which includes the faculty sponsor), chosen by the student in consultation with the faculty mentor. (The defense may be a brief oral presentation followed by a question-and-answer session.) The Thesis and defense must be evaluated by the committee, with the cover page of the thesis signed by all committee members, with a copy

of the Thesis submitted to the Dean of Arts & Sciences. (It is recommended that the student meet with the faculty committee at least once mid-semester to evaluate and guide the student's progress on the thesis work.) Course Repeatable for Credit. This course satisfies Biology elective. Must receive invitation of Biology Area Leader

BUSF-SHU 3

## **Business and Economics Honors Seminar**

Prerequisite: Permission by the Coordinator of Business Honors Program. Fulfillment: This course may satisfy China Business Studies, depending on the individual topic; otherwise non-Finance/non-Marketing elective.

BUSF-SHU 5

## **Principles of Finance for Non-majors**

This course is for Non-Business and Non-Data Science with Finance Concentration students. It is a general elective course.

BUSF-SHU 101

## **Statistics for Business and Economics**

This course introduces students to the use of statistical methods. Topics include: descriptive statistics; introduction to probability; sampling; statistical inference concerning means, standard deviations, and proportions; correlation; analysis of variance; linear regression, including multiple regression analysis. Applications to empirical situations are an integral part of the course. Prerequisite: None. Fulfillment: This course satisfies the following: Major req: BUSF, BUSM, ECON, CS, DS Foundational course (pre19-20); Social Science: methods course; IMB Business elective.

BUSF-SHU 142

## **Information Technology in Business & Society**

In Information Technology in Business and Society, students learn the fundamental concepts underlying current and future developments in computer-based information technology - including hardware, software, network and database-related technologies. They will also acquire proficiency in the essential tools used by today's knowledge workers and learn how these can be used to help solve problems of economic, social or personal nature. Throughout the course, they will be exposed to a range of more advanced topics which may include big data, information privacy, information security, digital piracy and digital music. Pre-requisites: not open to freshman. Fulfillment: This course satisfies BUSF/ BUSM Business Elective, Business Analytics Track; IMB Business Flexible Core.

BUSF-SHU 2008

## **Topics in Business: Real Business Case Projects**

The course enables students to apply tools and skills, learned in this and previous business courses, by undertaking projects focused on real business cases and provided by real companies. The cases are supplied by organizations expressly for this course and concern real opportunities and challenges facing them. Students will participate on teams of 4-5 people. Each team will have a different project. They will meet the organization for which they are undertaking the project to get insights into the problem being addressed and to present their results in the end. They will also meet regularly with the professor who will give lectures on problem-solving tools and skills as well act as a mentor when the projects are undertaken. They will also meet with outside mentors, brought in from the business world to review and offer comments / suggestions.

BUSF-SHU 200D

## **Business Consulting in China**

This course provides a consultant's perspective on business consulting, particularly in China context. It introduces the principles, end-to-end processes, frameworks and best practices of business consulting. The course addresses how consulting firms work, what it is like working in a consulting firm and being on a consulting project. Students will form project teams and apply the principles and frameworks to real-life business consulting projects from mid-small companies in China. Prerequisites: Management and Organizations or Intro to Marketing, requires Junior or Senior standing. Fulfillment: This course satisfies Business China Business Studies or Non-Finance/Non-Marketing elective; IMB Business elective.

BUSF-SHU 202

## **Foundations of Finance**

This course is a rigorous, quantitative introduction to financial market structures and financial asset valuation. It has three goals: 1. To develop the concepts of arbitrage, the term structure of interest rates, diversification, the Capital Asset Pricing Model (CAPM), valuation of an individual firm, efficient and inefficient markets, performance evaluation of investment management, and valuation of derivative securities, particularly options. 2. To provide sufficient background knowledge about financial institutions and market conventions for students seeking an overview of capital markets as an introduction to advanced finance courses. 3. To introduce the principles of asset valuation from an applied perspective. The majority of the class is concerned with the valuation of financial securities. These valuation issues are heavily used in portfolio management and risk management applications. Throughout the course every effort will be made to relate the course material to current financial news. To take this course, students must be comfortable with statistics, linear algebra, calculus, and microeconomics. Prerequisites: BUSF-101 and (ECON-150 or ECON-3). Fulfillment: This course satisfies BUSF/BUSM Major core; IMB Business Flexible Core or elective; Data Science concentration in Finance/Marketing. It can count for the Stern Minor.

BUSF-SHU 206

## **Investing And Financing In And With China**

What does it take to be successful in China? How do domestic and foreign businesses do in the world's most dynamic economy? How do Chinese entrepreneurs work in a dynamic country? How do investors think about

cross border investing into and out of China? How do investors think about cross border investing into and out of China? What are the leading opportunities in Chinese markets today? How are Chinese firms reshaping global business? Course overview This course is designed to prepare students for a good overview of investments, financing as well as conducting business in and with China. The class format will include lectures, case studies, discussions, guest speakers and student presentations to explore the opportunities and risks of international and domestic investments in China as well and the outward expansion of Chinese firms. The course will be require the student's active participation and parts will involve group work. Leading industry guest speakers and a site tour may be arranged for further learning enhancement, schedules permitting. The course materials will draw heavily on the lecturer's experiences. Target students / audience The target students are NYU Shanghai business & finance majors, economics majors and study abroad students from Stern. This course is suitable for any student interested in understanding international business, emerging markets, investments, cross border business and China. No prior knowledge or experience with China's business environment is required. Prerequisites: Foundations of Finance and Economics of Global Business (or Macroeconomics). Corporate Finance is recommended but not required.

BUSF-SHU 210

#### **Business Analytics**

This course introduces the basic principles and techniques of applied mathematical modeling for managerial decision making. You will learn to use some important analytic methods (e.g. forecasting, data mining, optimization, Monte Carlo simulation), to recognize their assumptions and limitations, and to employ them in decision making. The course is entirely hands-on. The emphasis will be on model formulation and interpretation of results, not on mathematical theory. The emphasis is on models that are widely used in diverse industries and functional areas, including finance, marketing, and operations. A prior Statistics Course (BUSF-SHU 101)

BUSF-SHU 215

#### **Alternative Investment I: Principles & Strategies**

This course provides both a theoretical and practical look into the world of managing alternative investments, in particular, hedge funds. The long-term goal of the course is for students to understand how investment managers put outside capital to work. In order to do this, students need to understand how classic hedge fund strategies are executed, how to evaluate these strategies as well as new ones, and how to manage risk. The course intends to teach students in all of these areas. Prerequisite: Foundations of Finance (BUSF-SHU 202) Fulfillment: Business and Finance Major: Finance Elective; Business and Marketing Major: Non-Marketing Elective; IMB Business Elective

BUSF-SHU 221

#### **Professional Responsibility & Leadership**

Professional Responsibility and Leadership (PRL) is an interdisciplinary course designed to help students: Become more familiar with the variety of ethical dilemmas that can arise in the course of business practice & in one's personal life; Understand the different values and principles that can inform and guide decision-making in such ambiguous and difficult situations; Gain experience articulating and defending courses of action as future societal & business leaders; and Begin the process of developing professional ethics in harmony with their own personal values. The format of the course is a discussion seminar. Each class session may include a variety of activities, including: discussion, in-class reading and writing, role-playing, and other participatory exercises. These various activities will be designed and facilitated by the instructor to allow students to engage in a reflective dialogue. These discussions draw from three different sources: 1) the students' own personal experiences and values; 2) expert insights drawn from a variety of academic disciplines including philosophy, literature, history, and art, as well as the natural and social sciences; and 3) relevant business cases. In each class session, students consider a set of expert accounts identified by the instructor as starting points for discussion, and then they integrate their experiences with business cases that have personal relevance for them. The overarching themes of this dialogue include: 1) the relationship between business and society on a global, national and local basis; 2) the foundations of personal and professional business ethics; and 3) the exercise of leadership in organizations. These themes are developed in reference to a series of cases that have been either drawn from recent news reports on business practice or drafted specifically for this course by NYU Stern faculty. In this way, the PRL classroom is 'flipped' – the course focuses primarily on the students' own interests and refines them both through dialogue and in reference to expert sources. Rather than involving the one-way dispensation of 'content' from faculty to student, the course unfolds as a 'process' of students and faculty working together in response to open-ended, age-old questions. While there may be no 'right' answer to such questions in the way that mathematical problems may be solved, still there are answers that are better or worse for individuals, organizations and societies. In this light, students are encouraged to challenge themselves and each other to make the world a better place, and to discover how they can thrive individually and collectively. Prerequisite: None. Satisfies 2 credits of Business Major Non-Finance/Non-Marketing elective.

BUSF-SHU 225

#### **Negotiation and Consensus Building**

This course will teach you the science and practice of negotiation - creating agreements between two or more interdependent parties. We negotiate daily with potential employers, co-workers, landlords, merchants, service providers, significant others, family members, friends, roommates, and more. These negotiations often lead to outcomes that are less than they could be, and at times they also lead to conflict. Although we negotiate often, many of us know very little about the strategy and psychology of effective negotiation. The main objectives of this course are to understand the structure of negotiation as it is practiced in a variety of settings, and to help students feel more comfortable and confident with the negotiation process. We will discuss theories and principles to guide our negotiations (the science). And students will develop and sharpen their bargaining skills by actually negotiating with other students in experiential exercises (the practice). Prerequisites: None Fulfillment: This course satisfies BUSF Non-Finance Elective; BUSM Non-Marketing elective; IMB Business elective.

**Portfolio Management**

Portfolio management: The art and science of making decisions about investment mix and policy, matching investments to objectives, asset allocation for individuals and institutions, and balancing risk against performance. (Investopedia) The primary objective of the course is to study the theory and empirical evidence relevant for investing, particularly in the context of portfolio management. The basic theoretical framework is standard modern portfolio theory, as developed in Foundations of Finance, and its extensions. "Modern portfolio theory" is a general approach for maximizing the expected return of a portfolio given a certain amount of risk. This approach is the basis of virtually all quant investing strategies and is widely used by traditional portfolio managers as well. There has been a proliferation of new products and strategies in the asset management space in recent years, e.g., smart beta, alternative beta, fundamental indexing, low volatility, and leveraged and inverse ETFs. This course applies portfolio theory to understand and evaluate these products and strategies in the context of the empirical evidence about return patterns across assets (i.e., the factors such as value/growth, momentum, and carry that drive returns) in multiple markets/asset classes (e.g., US and international equities and bonds, currencies, and commodities). Key questions include: • What factors drive asset returns? Is it risk or mispricing? • Can this structure of returns be used to construct better portfolios and products? • How should the performance of existing products be evaluated given the empirical evidence? The course will rely heavily on Excel modeling using real world data. The course also covers, to a lesser extent, the institutional landscape of the asset management business—the firms (e.g., Blackrock, Vanguard), the vehicles (e.g., mutual funds, ETFs, hedge funds), and the trends (e.g., active vs. passive, fee competition). Prerequisite: Foundations of Finance.

**Principles of Financial Accounting**

Develops students' abilities to understand business transactions and financial statements and to determine the most appropriate financial measures for these events. Investigates the underlying rationale for accounting practices and assesses their effectiveness in providing useful information for decision making. Emphasis is placed on accounting practices that purport to portray corporate financial position, operating results, cash flows, manager performance, and financial strength. Prerequisite: Not open to freshmen. Fulfillment: This course satisfies BUSF/BUSM Major core /Business Accounting track; IMB Business required Foundation /elective; Data Science concentration in Finance/Marketing. It can count for the CAS Business Studies Minor.

**Financial Reporting & Disclosure**

The prerequisite for this course is ACCT-UB 3, Financial Statement Analysis. Students learn the financial reporting rules associated with the concepts learned in FSA. The course emphasizes the relationship between financial statements and the reporting rules on which they are based. Prerequisite: Principles of Financial Accounting.

**Artificial Intelligence for Business**

Artificial Intelligence (AI) is reshaping business processes, creating disruptive innovations that change established industries and markets beyond recognition. The emergence of powerful algorithms, combined with recent growth in computational power and availability of massive amounts of data, enable companies to operate faster, make better decisions, automate processes, maximize revenue and customer engagement, among many other advantages. In this 7-week course we will briefly discuss some of the core principles underlying AI and then focus on a few selected applications of AI in business, such as predictive analytics for maximizing marketing and financial strategies, pattern recognition to understand customer behavior, and conversational AI and chatbots to improve engagement and customer experience. Last, AI also possesses significant limitations and poses new challenges with respect to fairness, biases, and automated errors. The course will conclude with a discussion of the main ethical issues and risks associated with AI technology. Prerequisite: Calculus and ICP. Sophomore or above students. Fulfillment: BUSF Non-Finance elective; BUSM Non-Marketing elective; IMB Business elective.

**Chinese Financial Markets**

This course introduces the institutions, instruments, and empirical regularities of Chinese financial markets and the role these markets play in the broader Chinese economy. The goal of the course is to provide students with a comprehensive understanding of Chinese financial markets. It focuses on current issues and debates about Chinese financial markets, including the Chinese banking system, RMB exchange rates, Chinese stock markets and bond markets, mutual fund and hedge fund industry, Chinese derivative markets and other important topics. The similarities and differences between Chinese financial markets and more developed markets will be highlighted. Pre-requisites: Foundations of Finance or Principles of Finance Fulfillment: BUSF China Business Studies or Finance elective; BUSM China Business Studies or Non-Marketing elective; IMB Business elective.

**Doing Business with China**

The course is designed to help the students to better understand business practices, environment, and cultures in China. Special focus will be placed on the understanding of the political, institutional, and financial contexts within which business activities unfold. The course will also discuss the implications of regional and global factors in shaping opportunities and constraints on businesses in China as well as the impact of Chinese business on international markets. Learning goals of the course are to: 1. Become knowledgeable in select concepts of the businesses in China; 2. Obtain essential knowledge on the evolution and development of business in China; 3.

Develop an awareness of the political, socioeconomic, and cultural aspects of life in China, including critiques of common intercultural stereotypes around values and assumptions related to Chinese society and business practices; 4. Gain practical experience in interacting with diverse Chinese business communities. Fulfillment: This course satisfies Business China Business Studies course or Non-Finance/Non-Marketing elective, Business Management Track; IMB Business Elective; GCS Elective The Politics, Economy, and Environment of China.

BUSF-SHU 289

#### **NYU Big Ideas Series: The Role of China in the Future of World**

This course provides students the opportunity to learn and explore the roles of China in the future of world business through lectures and discussions. Through understanding the past, examining the current and projecting the future developments, a wide range of important business topics will be analysed including: • China's role as the factory of the world • Chinese brands' global expansion • Financial market reform • RMB Internationalization • Doing business IN China and WITH China • China's growth model • and more The course is taught by experienced practitioners and academics with deep knowledge about China, its impact and connections with the world business." Prerequisite: None Fulfillment: China Business Studies

BUSF-SHU 303

#### **Corporate Finance**

This course analyzes the major financial decisions made by corporate managers. The major topics include the objective of the firm, investment valuation and capital budgeting, risk management, capital structure and dividend policy. Insights from behavioral corporate finance that help better understand corporate decisions in practice will also be discussed. There will be emphasis on both developing the tools and mindset of the financial practitioner as well as examining specific applications in the form of examples, case discussions, and classroom simulations. Prerequisite: BUSF-SHU 202 Fulfillment: This course satisfies BUSF core: BUSM Business elective; Data Science concentration in Finance; IMB Business elective.

BUSF-SHU 304

#### **Futures and Options**

This course covers the theoretical and practical aspects of futures, options, and other derivative instruments, which have become some of the most important tools of modern finance. While the primary focus is on financial derivatives, contracts based on commodities, credit risk, and other nonfinancial variables are also covered. Topics include market institutions and trading practices, valuation models, hedging, and other risk management techniques. The course requires relatively extensive use of quantitative methods and theoretical reasoning Prerequisite: BUSF-202. Fulfillment: This course satisfies BUSF Finance Elective; BUSM Non-Marketing Elective; IMB Business elective.

BUSF-SHU 305

#### **Debt Instruments and Markets**

This course describes important fixed income securities and markets and develops tools for valuing debt instruments and managing interest rate risk. The course covers traditional bond pricing, term structure, and interest rate risk concepts. It also covers the analytical and institutional aspects of fixed income derivatives, such as interest rate swaps, forwards, futures, and options, as well as bonds with embedded options and mortgage-backed securities. Topics also include credit risk, bond portfolio, management, financial engineering, and international fixed income. The study of fixed income is quantitative and technical by nature. Prerequisite: BUSF-202. Fulfillment: This course satisfies BUSF Finance Elective; BUSM Non-Marketing elective; IMB Business elective.

BUSF-SHU 310

#### **Data Science for Social and Information Networks**

The world we live in is built upon a myriad of networks: Human society is defined by our interpersonal relationships. Organizations are structured around interconnecting roles and lines of authority between workers, colleagues, and bosses. Global information is conveyed across a world-wide web of linked content. As we have witnessed recently, epidemics spread over a social network of contacts, in the same way in which we buy products as we are influenced by our peers. New sources of massive amounts of data fundamentally reflect interactions, and, in this context, networks are intuitive abstractions to model our social life, especially that mediated by technology. In networks, local interactions among members of small communities can often propagate and further affect the outcomes of an entire system. This course combines theories, models, and algorithms from computer science, economics, and the social sciences to analyze network data and find solutions to business problems. More information: <https://shanghai.nyu.edu/is/course-spotlight-network-analytics>. Prerequisites: Introduction to Computer Programing (to manipulate network datasets), and Calculus. Fulfillment: This course satisfies BUSF Non-Finance Elective; BUSM Non-Marketing elective; IMB Business Elective; Social Science methods; Computer Science elective.

BUSF-SHU 311

#### **New Venture Strategy**

This course introduces students to a new class of decision-making framework and tools for optimizing the most critical strategic choices faced by new ventures. The major topics include (1) identify and choose between alternative opportunities, (2) choose between different markets, technologies and business models, (3) formulate commercialization strategies, (4) evaluate the financial attractiveness of a business opportunity and different deal structures, and (5) form and manage diverse teams. This course will consist of theory-based lectures, case discussions, and guest presentations. It is suitable for students interested in founding or working in start-ups, as well as in related careers such as consulting and venture investing. Prerequisite: sophomore standing and higher Fulfillment: This course satisfies BUSM Non-Marketing Elective; BUSF Non-Finance Elective; IMB Business elective.

**International Trade and Business**

International trade has fostered global economic growth as it provides investment, jobs, and access to technology. It offers opportunities to millions of people and has helped them to get out of the poverty. An understanding of real-world international trade rules and business practices is key for students in today's interdependent world. This course introduces students to the theories, systems, and practices of international trade, with emphasis on empirical knowledge. Students will learn the fundamentals around international trade and gain a systematic understanding of why nations trade, what to trade, and especially how they trade. Students will learn principles of the multilateral trading system, international trade terminologies, operations/logistics, insurance, cross-border e-commerce; as well as technology and intellectual property rights and international commercial dispute settlement. Prerequisite: Business Majors; Senior or Junior Standing. Fulfillment: This course satisfies Business China Business Studies (if China related); BUSM: Non-Marketing Elective; BUSF:Non-Finance Elective; Management Track; IMB Business elective.

**Equity Valuation**

This course covers the valuation of stocks and businesses. Real life valuations of companies are an inherent part of the content. By the end of the course, students should be able to: (1) apply discounted cash flow analysis to find the intrinsic value of an asset; (2) define, describe, analyze, and apply any multiple (PE, Value/EBITDA, Price/Book Value, etc.) to find the relative value of an asset; (3) value any publicly traded firm, small or large, domestic or foreign, healthy or troubled; (4) value any private business for owners or investors (private equity, venture capital, IPO); and (5) separate fact from fiction, sense from nonsense, and real analysis from sales pitch in equity research reports, valuations, and general discourse. Prerequisites: Foundations of Finance AND Corporate Finance Fulfillment: This course satisfies BUSF Finance elective; BUSM Non-marketing elective; Business Finance track; IMB Business elective.

**Advanced Futures and Options**

This course consists of three parts. The first section of the course is a detailed examination of the pricing and hedging of option contracts, with particular emphasis on the application of these concepts to the design of derivatives instruments and trading strategies. The first part of this section is a review and re-examination of materials covered in the basic course, but with greater rigor and depth of coverage. The emphasis in the second part of this first section is on trading applications and risk management. The second section of the course is designed to provide a broad exposure to the subject of interest rate derivative products, both swaps and options. The last section of the course deals with recent innovations in the derivatives markets such as exotic options, credit derivatives and catastrophe derivatives. In the first section of the course, the discussion of trading strategies is in the context of the management of the risk of a derivatives book. The topics covered in the second part of the course include the relationship of swaps to other fixed income contracts such as futures contracts and forward rate agreements, valuation and hedging of swaps, building the yield curve, and valuation and hedging of interest rate options, with particular reference to caps, floors and swaptions, and modeling the term structure of interest rates. The third section of the course deals with non-standard option contracts such as exotic options and options on new underlying instruments such as credit, weather and insurance derivatives. Prerequisites: Foundations of Finance

**Managerial Accounting**

Introduces students to the evolving role that managerial accounting has played and is expected to play in servicing the informational needs of managers in the planning, organizing, and controlling functions. Highlights the attention-directing, decision-support, and decision-influencing roles of managerial accounting, while helping students learn to structure business decisions systematically and identify the information relevant to a decision. Trains students to think analytically about improving existing systems to further a firm's competitive advantage. Prerequisite: Principles of Fin Accounting (BUSF-SHU 250).

**Operations Management**

Operations Management (OM) plans and coordinates all activities in the process of producing and delivering products (goods and services). Effective operations management is a key ingredient of success in most industries. Achieving operations excellence is one of the most essential strategies to improve efficiency and to gain a competitive advantage. The goal of this course is to introduce students to the fundamental concepts, problems, and strategies in the operations function of a firm. This course will cover a mix of qualitative and quantitative methods that provide the necessary tools to make intelligent decisions in operations. Prerequisites: Sophomore Standing. Fulfillment: This course satisfies BUSF/BUSM Business Elective or non-Finance/non-Marketing elective; Business Analytic track; IMB Business Flexible Core or elective.

**International Financial Management**

This course examines the operation of international currency exchange and capital markets and applies financial management principles to the financial decisions of multinational corporations. It addresses such topics as economic determinants of exchange rates, currency market efficiency, exchange rate forecasting, techniques for measuring and managing exposure to exchange and political risk and financing alternatives and capital budgeting decisions of multinational corporations. Readings and case studies are employed. Prerequisites: BUSF-SHU 202 Foundations of Finance and ECON-SHU 250/251 Economics of Global Business.

BUSF-SHU 361

### **Entrepreneurial Finance**

This course seeks to provide an understanding of the financial and transactional skills that are required to fund new businesses and mature firms. The course will integrate both an academic and practitioner view of the challenges facing entrepreneurs and investors involved in business start-up, venture capital, and private equity investment activities. Prereq: None

BUSF-SHU 366

### **Applications in Entrepreneurial Finance: Fintech**

In this class, we will focus on the key technologies in the fintech landscape. Starting from the mid 1970's, we will cover major innovations such as the introduction of options markets, index funds, and securitizations. We will then discuss new advances in fintech including digital asset management, lending platforms, and blockchain. Particular emphasis will be placed on understanding why some innovations take off, while others languish. Prereq: Foundations of Finance

BUSF-SHU 420

### **Business Topics Courses: Financial Market Volatility Modeling**

The most fascinating aspect of financial market prices is how they change. The uncertainty or risk related to the size of changes in prices is referred to as financial volatility. Volatility can present significant investment risk, when correctly harnessed. It can generate solid returns for shrewd investors. It is also a tradable market instrument in itself. Even when markets are choppy, crash, or surge, there can be opportunity. In this course, students will learn how to measure and forecast financial volatility. They will study historical volatilities, exponential smoothing, ARCH/GARCH models, high frequency stochastic volatility models and implied volatilities from options. These tools will be applied to measuring risk, analyzing alternative approaches to calculating Value at Risk, measuring and forecasting correlations, solving the problem of dynamic portfolio selection, risk control and trading. Prereq: Foundations of Finance and a familiarity with simple probability and statistics including least squares regression. Programming experience will be preferred.

BUSF-SHU 441

### **Private Equity & Venture Capital in Asia and Emerging Markets**

This course is focused on the industry of private equity and venture capital (PE/VC) with a focus on Asia and emerging markets. This is intended to provide students a good general understanding of the different dynamics of PE/VC and similarities and differences between the Asia/emerging markets and western markets. The entire PE/VC life cycle will be discussed from different perspectives. Fulfillment: This course satisfies BUSF Finance elective; BUSM Non-Marketing elective; IMB Business elective.

BUSF-SHU 442

### **International Project and Structured Investing and Financing**

This course is designed to prepare students to have a good general understanding of project and structured investing and finance especially with on international projects in the infrastructure, energy and transportation sectors. This will provide an overview of investments, financing, strategies and other elements in project and structured investing and finance both in China, Asia, and globally. The class format will include lectures, case studies, discussions, and guest speakers (time dependent). The course will require the student's active participation. Leading industry guest speakers may be arranged for further learning enhancement, schedules permitting. The course materials will draw heavily on the lecturer's experiences. Fulfillment: This course satisfies BUSF Finance elective; BUSM Non-Marketing elective; IMB Business elective.

BUSF-SHU 997

### **Business Independent Study**

Course repeatable for Credit. Prerequisite: Permission of Area Leader Required

MGMT-SHU 18

### **Strategic Analysis**

This course provides an introduction to the basic frameworks of modern strategy that aim to help firms establish and sustain competitive advantages. The objective of this course is to introduce students to the role of the "general manager," who is faced by core strategic choices that concern the long-term performance of the firm, and provide them with the necessary skills to formulate and implement effective strategies. This course is equally relevant for students who want to work with companies as consultants, attorneys or investors, helping clients understand and solve critical strategic issues. From this course, students will learn to think critically and analytically about competitive business situations. This course emphasizes the need to look outward to the environment and inward to a firm's resources and capabilities and operating policies. It describes a firm's strategy as the formulation of "competitive strategy," "corporate strategy," and "organizational strategy." Prerequisite: Sophomore standing or higher

MGMT-SHU 301

### **Management and Organizations**

This course addresses contemporary management challenges stemming from changing organizational structures, complex environmental conditions, new technological developments, and increasingly diverse workforces. It



highlights critical management issues involved in planning, organizing, controlling, and leading an organization. Ultimately, it aims to strengthen students' managerial potential by providing general frameworks for analyzing, diagnosing, and responding to both fundamental and complex organizational situations. It also provides opportunities for students to enhance their communication and interpersonal skills, which are essential to effective management. The structure of the course encourages learning at multiple levels: through in-class lectures, exercises, and discussions; in small teams carrying out projects; and in individual reading, study, and analysis. Prerequisite: no freshman. Fulfillment: This course satisfies BUSM/BUSF business core elective, Business Management Track; IMB Business Flexible Core. This course can count for the CAS Business Studies Minor for Study Away Students.

#### MKTG-SHU 1

##### **Introduction to Marketing**

Evaluates, from the management point of view, marketing as a system for the satisfaction of human wants and a catalyst of business activity. Deals with the subject at all levels, from producer to consumer, and emphasizes the planning required for the efficient use of marketing tools in the development and expansion of markets. Concentrates on the principles, functions, and tools of marketing, including quantitative methods. Utilizes cases to develop a problem-solving ability in dealing with specific areas. Prerequisite: Academic level should be greater than freshmen. Fulfillment: This course satisfies BUSM Marketing Core, BUSF: Business elective, IMB Business Flexible Core or elective; Data Science concentration in Marketing; Count for CAS Business Minor, Count for Stern Business Studies Minor.

#### MKTG-SHU 2

##### **Consumer Behavior**

This course presents a comprehensive, systematic, and practical conceptual framework for understanding people as consumers—the basic subject matter of all marketing. It draws on the social sciences to evaluate the influence of both individual and ecological factors on market actions. Students discuss relevant psychological and sociological theories and study how they can be used to predict consumers' reactions to strategic marketing decisions. Basic methodologies for research in consumer behavior are developed and applied. Course emphasis is on developing applications of behavioral concepts and methods for marketing actions. Prerequisites: Intro to Marketing

#### MKTG-SHU 3

##### **Advertising Management**

This course provides students with a comprehensive framework and tools to understand the advertising process and to appreciate managerial and theoretical perspectives in advertising. It tackles the stages in developing an advertising plan— from analyzing the situation and defining clear advertising objectives to execution. Students learn tools related to various skill areas in advertising, including account planning, media planning and buying, and copywriting/art direction, while developing a broader appreciation of how each skill area fits into the overall structure of the advertising process. Coursework involves a comprehensive group project that utilizes learning in all functional areas of advertising, while simulating the development of an advertising campaign. Prerequisite: Intro to Marketing (MKTG-SHU 1)

#### MKTG-SHU 9

##### **Research for Customer Insights**

At the core of successful marketing is a deep understanding of the customer's perspective, one that is informed not only by intuition, but also by data. What are his or her pain points? How will he or she respond to my latest invention? This course provides students with the tools needed to conduct essential marketing research that can inform data-driven decision-making and strategy. These tools include imagery-guided interviews, surveys, focus groups, experiments, and applied statistical analyses (e.g. cross-tabulations, t-tests, regressions). This course also introduces fundamental methods that are critical for segmentation, identifying the right target market, brand positioning, and pricing various products and services. This course explores topics through a combination of business case studies and hands-on experience with an actual, "live" marketing research project. Prerequisite: Intro to Marketing (MKTG-SHU 1) Fulfillment: This course satisfies BUSM Marketing Elective; BUSF Non-Finance Elective; IMB Business elective.

#### MKTG-SHU 57

##### **Digital Marketing**

Digital marketing has experienced tremendous growth and attention over the last few years, thanks to technological innovation and rapid changes in online social networks and digital consumer behavior. This course tackles the latest topics in digital marketing (e.g. digital platforms, online reviews, mobile marketing, influencers), through a combination of business case studies reflecting recent frameworks in the field, in-class exercises on metrics and methods for evaluating the success of digital marketing, and coverage of the latest news and innovation in digital marketing. This course also provides in depth exposure to the psychology of virality and social influence in digital contexts, which is critical for understanding both social media marketing and broader cultural trends. Prerequisite: Intro to Marketing (MKTG-SHU 1) Fulfillment: This course satisfies BUSM Marketing Elective; BUSF Non-Finance Elective; IMB Business elective.

#### MKTG-SHU 64

##### **Global Marketing Strategy**

Examines the specific issues involved in entering international markets and in conducting marketing operations on an international scale. Attention is focused on problems such as identifying and evaluating opportunities worldwide, developing and adapting market strategies in relation to specific national market needs and constraints, and coordinating global marketing and branding strategies. Emphasis is on strategic issues relating to international

operations rather than on technical aspects of exporting and importing. Prerequisites: Introduction to Marketing

MKTG-SHU 110

**Topics: Practicum on Innovation and Branding**

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Innovation is the process by which an organization generates creative new ideas and converts them into viable commercial products. Branding, on the other hand, is the process of creating a unique image for the product in the consumers' mind. This perception reflects on the organization as a whole. Moreover, branding aims to establish a differentiated presence in the marketplace to attract and retain loyal customers. Thus, innovation and branding are inextricably linked for organizational success, or survival, in today's hyper-competitive business landscape. This course aims to equip students with knowledge in both the innovation and branding processes. By participating in the International L'Oréal Brandstorm Competition, students will gain practical experience in formulating an idea, develop branding around said idea, and then pitching said idea (innovation and branding) in a competitive forum. Students will also develop an understanding of the role of design and innovation as a collaborative, multidisciplinary group activity; and improve writing and presentation skills. The course incorporates multiple ways of learning including: lectures, case studies, ethnographic research, industry expert feedback on projects and guest presentations, and design activities in the interactive media lab. In essence, the course integrates a project-based learning approach. Prerequisites: None. Satisfies IMB Major, and Business Major - Marketing Elective if Intro to Marketing has been taken, otherwise Non-finance/Non-marketing Elective)

MKTG-SHU 154

**Digital Marketing Analytics**

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Demand for advanced digital marketing professionals is rapidly increasing due to (1) the explosion of consumer data created by the digitization of commerce and (2) methodological advances in data science and engineering supported by decreased data storage and processing cost. This course provides an introduction to a comprehensive set of models that marketing analytics professionals – data scientists, managers, and executives – will encounter in applied business contexts. Additionally, this course will cover related topics on successfully integrating marketing analytics into broader organizational functions: data acquisition and analysis environments, stakeholder scoping and communication, and product integration. The class is mix of lecture and programming exercises intended to give students hands-on experience executing marketing analytics projects based on experiences from the instructor's prior roles as a former McKinsey & Company analytics consultant and founder of an analytics consulting firm. Prerequisite: 1. Statistics for Business and Economics (BUSF-SHU 101), and 2. Introduction to Marketing (MKTG-SHU 1), and 3. ICP (CSCI-SHU 11). Fulfillment: Business and Finance Major Non-Finance Elective; Business and Marketing Major Marketing elective; IMB Business Elective.

MKTG-SHU 228

**Strategic Marketing in China: Live Projects and Case Studies**

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For most marketers, China is probably one of the most dynamic markets to do business in today. It offers unlimited new opportunities and endless challenges. The purpose of this course is to provide students with first-hand experience in dealing with some of the marketing practices and issues particular to China. The course consists of a combination of live projects, case analyses, lectures, guest talks by industry experts and company visits. The course provides students with a framework for researching and developing a strategic marketing plan, as grounded in theory and industry practice. Student teams will apply structured problem-solving approaches in an iterative and competitive process. They will gain a holistic understanding of the challenges of doing marketing in China. Pre-requisites: Intro to Marketing and Junior/Senior Level Standing Fulfillment: This course satisfies Business: China Business Studies; BUSM Marketing Elective; BUSF Non-Finance Elective; IMB Business elective.

SOIM-SHU 65

**Organizational Communication and Its Social Context**

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Students learn how organizations communicate with multiple types of audiences, focusing on the interconnections between business and society. The course uses the stakeholder model of the corporation to introduce the strategic implications of communication for modern organizations. Students focus on strategic and tactical aspects of corporate communication to study and practice the ways in which organizations communicate to their varied internal and external stakeholders. Assignments develop students' abilities in speaking and writing to these varied audiences, both to inform and to persuade. The course emphasizes bridging theoretical fundamentals, and action learning is stressed, which includes applying communication strategy to the following: oral and written business assignments; presentation delivery techniques; visual communication analysis and practice; team communication. Prerequisites: None, but priority to business majors; not open to freshmen.

## CHEM-SHU 125

**Foundations of Chemistry I**

This course constitutes an introduction to general aspects of chemistry for science, engineering and math majors. Topics include the theories of atomic structure, stoichiometry, properties of gases, kinetic molecular theory, thermodynamics, quantum mechanics, electronic structure of atoms, periodicity of the elements, chemical bonding, and molecular structure. A particular emphasis is placed on developing physical and chemical intuition through problem solving. Pre-req or co-req: MATH-SHU 131 (Calculus) or MATH-SHU 201 (Honors Calculus). This course satisfies the following: Core ED; FoS for Science& Math& Honor Math Majors.

## CHEM-SHU 126

**Foundations of Chemistry II**

This course is a continuation of Foundations of Chemistry I. Topics covered include the theories of intermolecular interactions, molecular orbital theory, reaction kinetics, chemical equilibria, acid-base reactions, properties of solutions, properties of solids, phase changes, transition-metal chemistry, coordination chemistry, electrochemistry, and nuclear chemistry. Students will reinforce and refine their physical and chemical intuition with a problems-based approach. Prereq: CHEM-SHU 125 Foundations of Chemistry I AND pre-req or co-req: MATH-SHU 131 Calculus or MATH-SHU 201 Honors Calculus. This course satisfies part of the Foundations of Science core.

## CHEM-SHU 127

**FoS Chemistry Laboratory**

In this laboratory course, students will be familiarized with various techniques, equipment, data analysis skills, best practices in lab safety and ideas common to chemistry laboratories and experimental research. The lab will both introduce and reinforce principles covered in the Foundations of Chemistry Lectures by providing practical applications of chemical theories, including acid-base chemistry, thermodynamics, spectroscopy, chemical kinetics, and buffer solutions, and applying quantitative data analysis in the chemistry lab. In addition, the laboratory will emphasize scientific communication, including scientific writing. As part of the course, students will work on a multi-week project, comparable to a graduate level independent-research project. Previous activities have included studying crystal growth and DNA thermodynamic parameters. With the help of their instructors and peers, students will learn the skills of modern scientific research: proposing a hypothesis, developing a proposal to test the hypothesis, collecting and analyzing data, writing a report, and presenting the findings to the public as a poster or an oral presentation. These skills will help students to develop and build their careers regardless of the major or discipline of study they are seeking. pre-req or co-req: MATH-SHU 121 Calculus (or MATH-SHU 201 Honors Calculus) AND CHEM-SHU 126 Foundations of Chemistry II Fulfillment: Core Curriculum: Experimental Discovery in the Natural World Courses; Major: Biology Foundational Courses; Chemistry Foundational Courses; Mathematics & Honors Mathematics Science Lab sections; Neural Science Foundational Courses.

## CHEM-SHU 128

**FoS Chemistry II Laboratory**

Prereq for CHEM-SHU 128 is Prereq OR Coreq: Calculus/ Honors Calc (MATH-121/201) AND Prereq OR Coreq: Found of Chem II (CHEM-SHU 126).

## CHEM-SHU 225

**Organic Chemistry I**

This course uses an interactive, problems-based approach to study the structure and bonding of organic materials, conformational analysis, stereochemistry, and spectroscopy, topics that partly trace their roots to the development of quantum theory. The topics covered include basic reaction mechanisms such as substitution and elimination, and the reactions of aliphatic and aromatic hydrocarbons, alcohols, ethers, amines, carbonyl compounds, and carboxylic acids. The course incorporates modern analytical methods that are the cornerstone of contemporary organic chemistry. Prerequisite: CCSC-SHU 109 or CHEM-SHU 126. Fulfillment : Biology Major Additional Required Courses; Chemistry Major Additional Required Courses.

## CHEM-SHU 225L

**Organic Chemistry I Lab**

This Organic Chemistry I Laboratory course is intended to introduce students to major concepts and techniques in organic chemistry through laboratory experiments. The course will provide training in the techniques of the organic chemistry laboratory, such as carrying out chemical reactions and purification of chemical mixtures. Purification methods such as recrystallization, extraction, distillation, and column chromatography will be utilized. Chemical identification and purity will be determined by methods such as chemical tests, melting point, boiling point, thin-layer chromatography (TLC), gas chromatography (GC) and spectroscopy: infrared (IR), ultraviolet (UV) and visible light. Expanding students knowledge base and critical thinking skills will help students to prepare for a wide array of potential future challenges, including the upper level courses, organic requirements for medical schools, and independent research. This course satisfies: Chemistry Major: Additional Required Courses. This course satisfies: Chemistry Major: Additional Required Courses. Prereq or coreq: Organic Chem I (CHEM-SHU 225) Fulfillment : Biology Major Additional Required Courses; Chemistry Major Additional Required Courses.

## CHEM-SHU 226

**Organic Chemistry II**

This is a continuation of the course Organic Chemistry I, directing to the same objectives: An introduction to the world of Organic Chemistry; learning the main classes of compounds, their structure, nomenclature, reactivity

and reactions. Students who complete the course should be able to understand the symbolism used in organic chemistry, the three-dimensional structure of organic molecules, and how that influences organic reactions. Students should be able to reproduce reaction mechanisms and relate those to compounds and reactions they have not encountered. Students should be able to predict the major product of simple reactions on organic compounds containing only one functional group and apply those same principles to more complex compounds containing multiple functional groups. Students should be able to design simple organic syntheses. Students should be able to read and comprehend articles from the current literature. Prerequisite: CHEM-SHU 201(225). This course satisfies: Chemistry Major: Additional Required Courses.

CHEM-SHU 226L

### **Organic Chemistry II Lab**

This Organic Chemistry II Laboratory course is a continuation of the Organic Chemistry I Laboratory course. Students who complete the course are able to correlate, for the different functional groups studied, the molecular structure with common chemical and physical properties (such as solubility, reactivity, boiling and melting points). Students are able to characterize and elucidate structures using chemical and spectroscopic techniques. Students are able to characterize organic compounds based on physical and chemical properties (such as polarimetry, FT-IR spectroscopy, <sup>1</sup>H FT-NMR and other spectroscopic data) and purify organic compounds by physical methods such as chromatography, recrystallization, solvent extraction, sublimation, distillation, etc. Co-requisite of Org Chem II lecture. This course satisfies: Chemistry Major: Additional Required Courses.

CHEM-SHU 312

### **Analytical Chemistry**

Analytical Chemistry uses qualitative and quantitative analytical tools for ascertaining the chemical composition of a substance. In this course, students will be introduced to instrumental methods, including titrations, spectroscopy (UV-Vis, FTIR, NMR, Mass Spectroscopy, Atomic Absorption Spectroscopy) and chromatography. Quantitative measurement methods will be introduced along with the statistical concepts and tools of estimation, confidence, accuracy and precision. Students will learn the theoretical and practical aspects of Analytical Chemistry through lectures and laboratory demonstrations. Prerequisites: Foundations of Chemistry II and FoS of Chemistry Laboratory. Fulfillment: Chemistry Major Electives.

CHEM-SHU 652

### **Physical Chemistry: Thermodynamics and Kinetics**

Develops the close connection between the microscopic world of quantum mechanics and the macroscopic world of thermodynamics. Topics include properties of gases, kinetics, elementary statistical thermodynamics, and thermodynamics of single and multicomponent systems. Prereq: CHEM-SHU 126 Foundations of Chemistry II and PHYS-SHU 93 Foundations of Physics II Honors/CCSC-SHU 51 Physics II. Multivariable Calculus is strongly recommended. Linear Algebra and Differential Equations is also recommended. Fulfillment: Chemistry Major Required.

CHEM-SHU 881

### **Biochemistry I**

This course offers deeper and more complete treatments of the chemistry of living cells and biological chemistry than in the Foundations of Science courses. Topics include structure and function of proteins, lipids, carbohydrates, and nucleic acids; enzyme structure, mechanism and regulation of enzyme activity, and membrane structure and transport; mechanisms of cellular processes and cellular physiology, including ion channels and pumps, cell motility, and the immune response. Prereq: CHEM-SHU 226 (Organic Chemistry II). Fulfillment: Biology Major Electives; Chemistry Major Electives; Neural Science Major Approved upper-level Biology courses.

CHEM-SHU 882

### **Biochemistry II**

Building on the lessons of Biochemistry I, Biochemistry 2 emphasizes analysis of basic metabolic pathways, including glycolysis, electron transport, and oxidative phosphorylation, as well as mechanisms of metabolic regulation and integration. Prereq: CHEM-SHU 881 Biochemistry I. This course satisfies CHEM elective; BIOL elective; NS Approved upper-level Biology course.

CHEM-SHU 997

### **Independent Study – Chemistry**

Prerequisite: Foundations of Science I-III (or Physics I&II, Foundations of Chemistry I&II, Foundations of Biology I&II), and a minimum GPA of 3.0 overall and in all science and mathematics courses required for the major, permission of a chemistry faculty member (at NYU-Shanghai, NYU-Abu Dhabi, or NYU-New York) who will act as a sponsor and mentor, and approval of the Director of Undergraduate Studies (DUS) in Chemistry. The faculty mentor must be selected in consultation with the DUS. Offered in the Fall, Spring or Summer. 2 to 4 points per term for a maximum of 4 points. This course aims at engaging students in research. It is designed to offer students an opportunity to observe chemistry research up close and gain hands-on research experience by working as a member in an active research team. Independent Study I and II can be done with the same supervisor or two different supervisors. No lectures will be given. Student researchers are expected to attend and actively participate in lab/supervision meetings. A Proposal for Independent Study form must be filled out, signed by the DUS, and submitted to the Registrar. Requires a written report on the research to be evaluated by the faculty sponsor, with a copy submitted to the DUS and a copy to the Dean of Arts & Sciences. This course satisfies CHEM elective if approved.

## CSCI-SHU 11

### Introduction to Computer Programming

An introduction to the fundamentals of computer programming. Students design, write, and debug computer programs. No prior knowledge of programming is assumed. Students will learn programming using Python, a general purpose, cross-platform programming language with a clear, readable syntax. Most class periods will be part lecture, part lab as you explore ideas and put them into practice. This course is suitable for students not intending in majoring in computer science as well as for students intending to major in computer science but having no programming experience. Students with previous programming experience should instead take Introduction to Computer Science. This course satisfies: Core Curriculum: Programming and Computational Thinking. Note: Students who have taken ICS in NY, Abu Dhabi, and Shanghai cannot take ICP. Prerequisite: Either placed into Calculus or at least a C in Pre-Calculus.

## CSCI-SHU 101

### Introduction to Computer Science

This course has three goals. First, the mastering of a modern object-oriented programming language, enough to allow students to tackle real-world problems of important significance. Second, gaining an appreciation of computational thinking, a process that provides the foundations for solving real-world problems. Finally, providing an overview of the very diverse and exciting field of computer science - a field which, arguably more than any other, impacts how we work, live, and play today. Prerequisite: Introduction to Computer Programming or placement exam. Equivalency: This course counts for CSCI-UA 101. Fulfillment: Core Curriculum Requirement Algorithmic Thinking; Computer Science Major Required Courses; Computer Systems Engineering Major Required Courses; Data Science Major Foundational Courses; Electrical and Systems Engineering Major Required Major Courses.

## CSCI-SHU 188

### Introduction to Computer Music

Computers are used to process signals, compose music, and perform with humans. Personal computers have replaced studios full of sound recording and processing equipment, completing a revolution that began with recording and electronics. In this course, students will learn the fundamentals of digital audio, basic sound synthesis algorithms, techniques for human-computer music interaction, and machine learning algorithms for media generation. In a final project, students will demonstrate their mastery of tools and techniques through a publicly performed music composition. Prerequisites: ICP OR ICS (best to have some experience in Music, or check with the instructor before enrolling). Fulfillment: Computer Science Major Electives.

## CSCI-SHU 210

### Data Structures

Data structures are fundamental programming constructs which organize information in computer memory to solve challenging real-world problems. Data structures such as stacks, queues, linked lists, and binary trees, therefore constitute building blocks that can be reused, extended, and combined in order to make powerful programs. This course teaches how to implement them in a high-level language, how to analyze their effect on algorithm efficiency, and how to modify them to write computer programs that solve complex problems in a most efficient way. Programming assignments. Prerequisite: ICS or A- in ICP. Equivalency: This course counts for CSCI-UA 102 Data Structures (NY). This course satisfies: Core Curriculum: Programming and Computational Thinking; Major: CS Required, Data Science Required, CE Required.

## CSCI-SHU 213

### Databases

The course covers modeling an application and logical database design, the relational model and relational data definition and data manipulation languages, design of relational databases and normalization theory, physical database design, query processing and optimization, transaction processing focusing on concurrency and recovery. The labs emphasize experiential learning of database systems and applications and an insight into various database management systems and query languages. Fulfillment: Computer Science Major Electives; Data Science Major Required Courses.

## CSCI-SHU 215

### Operating Systems

Covers the principles and design of operating systems. Topics include process scheduling and synchronization, deadlocks, memory management (including virtual memory), input-output, and file systems. Programming assignments. Prerequisite: Data Structures; Computer Architecture or Computer Systems Organization. Fulfillment: Computer Science Major Required Courses; Computer Systems Engineering Major Elective; Data Science Major Courses for Concentration in Computer Science.

## CSCI-SHU 220

### Algorithms

Introduction to the study of algorithms. Presents two main themes: designing appropriate data structures and analyzing the efficiency of the algorithms that use them. Algorithms studied include sorting, searching, graph algorithms, and maintaining dynamic data structures. Homework assignments, not necessarily involving programming. Prerequisites: Data Structures and Discrete Math and Calculus. This course satisfies: Major: NS Electives, CS Required, Data Science Concentration in Computer Science.

CSCI-SHU 222

### **Introduction to Game Programming**

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A programming intensive introduction to the creation of computer games. Using mostly two-dimensional sprite-based programming, we examine and experiment with animation, physics, artificial intelligence and audio. In addition, the course explores the mathematics of transformations (both 2D and 3D) and the ways they may be represented. Prerequisite: Data Structures OR CS-UY 2134 (Data Structures and Algorithms) OR ICS with Instructor Permission. This course satisfies: Major: CS Electives.

CSCI-SHU 235

### **Information Visualization**

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Information visualization is the graphical representation of data to aid understanding, and is the key to analyzing massive amounts of data for fields such as science, engineering, medicine, and the humanities. This is an introductory undergraduate course on Information Visualization based on a modern and cohesive view of the area. Topics include techniques such as visual design principles, layout algorithms, and interactions as well as their applications of representing various types of data such as networks and documents. Overviews and examples from state-of-the-art research will be provided. The course is designed as a first course in information visualization for students both intending to specialize in visualization as well as students who are interested in understanding and applying visualization principles and existing techniques. This course satisfies: Major: CS Electives, Data Science Data Analysis Required; Data Science Courses for Concentration in Artificial Intelligence. Prerequisite or Co-requisite: Data Structures. Students must be CS or DS major and have junior or senior standing.

CSCI-SHU 240

### **Introduction to Optimization and Mathematical Programming**

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This is an introductory course to introduce the model building and mathematical programming for the infrastructure systems optimization. This course prepares students with the systems-level approach to the analysis, design, operation and management of civil infrastructure systems. Topics include model building, linear programming, nonlinear programming, integer programming, network optimization models and the use of algebraic modeling languages for describing and solving large-scale optimization models. Pre-requisites: ICP; AND Calculus (MATH-SHU 121) or Honor Calc (MATH-SHU 201); AND Prob and Stats (MATH-SHU 235) or Stats for Bus and Econ (BUSF-SHU 101) or Theory of Probability (MATH-SHU 233)).

CSCI-SHU 254

### **Distributed Systems**

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This course offers a solid grounding in the basic issues and techniques of parallel and distributed computing. The material covers the spectrum from theoretical models of parallel and distributed systems to actual programming assignments. Pre-requisite: Data Structures and Operating Systems.

CSCI-SHU 308

### **Computer Networking**

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This course takes a top-down approach to computer networking. After an overview of computer networks and the Internet, the course covers the application layer, transport layer, network layer and link layers. Topics at the application layer include client-server architectures, P2P architectures, DNS and HTTP and Web applications. Topics at the transport layer include multiplexing, connectionless transport and UDP; principles of reliable data transfer, connection-oriented transport and TCP and TCP congestion control. Topics at the network layer include forwarding, router architecture, the IP protocol and routing protocols including OSPF and BGP. Topics at the link layer include multiple-access protocols, ALOHA, CSMA/CD, Ethernet, CSMA/CA, wireless 802.11 networks and link layer switches. The course includes simple quantitative delay and throughput modeling, socket programming and network application development and Ethernal labs. Prerequisite: CSCI-101 or placement test. This course satisfies: Major: CS Electives, EE Additional Electives.

CSCI-SHU 311

### **Functional Programming**

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Functional Programming is a very powerful and expressive style of programming which has become extremely popular in the recent years, both in academia and in the software industry. There are good reasons for this success: functional programs are modular by design, and interact through expressive and cleanly specified interfaces, using static typing and pattern matching. As a result, functional programs are generally simpler to reason about, to maintain and to execute in parallel than imperative or object-oriented programs. The purpose of the course will be to provide an advanced introduction to Haskell, a purely functional language used today in the software industry for real-world applications. The language comes with a rigorous semantics and everything one could expect of a functional programming language: static type inference, lazy evaluation, type classes, explicit handling of effects using monads, and concurrency primitives and abstractions. We will take the opportunity of this course on Haskell to cover elements of formal language theory, with the implementation in Haskell of a parser, pretty-printer and interpreter for a small imperative language. Prereq: CSCI-SHU 2314 Discrete Math and CSCI-SHU 210 Data Structures

CSCI-SHU 350

### **Embedded Computer Systems**

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An embedded system is a computer system with a dedicated function within a larger mechanical or electrical system, often with real-time computing constraints. It is embedded as part of a complete device often including hardware and mechanical parts. Embedded systems control many devices in common use today. Topics covered

include microcontroller architecture, assembler programming, interrupts, peripheral interfacing, embedded system design, higher-level languages on embedded Systems, as well as a brief introduction to real-time operating systems. Practical Lab Exercises complement the lectures. The students will further specialize and consolidate their knowledge through semester-long hands-on projects. Prerequisite: ( CSCI-SHU 11 or CSCI-SHU 101 ) AND CENG-202 or CENG-SHU 201. This course satisfies: Major: CE Required, EE Additional Electives.

CSCI-SHU 360

### **Machine Learning**

In this class, students will learn about the theoretical foundations of machine learning and how to apply these to solve real-world data-driven problems. We will apply machine learning to numerical, textual, and image data. Topics will be drawn from perceptron algorithm, regression, gradient descent and stochastic gradient descent, support vector machines, kernels for support vector machines, recommendation systems, decision trees and random forests, maximum likelihood, estimation, logistic regression, neural networks and the back propagation algorithm, convolutional neural networks, recurrent neural networks, Bayesian analysis and naive Bayes, clustering, latent Dirichlet allocation (LDA), sentiment analysis, dimensionality reduction and principle component analysis, reinforcement learning. Prerequisite: For students following the 2019-20 or later bulletin, Introduction to Computer Programming, Calculus, (Probability and Statistics OR Theory of Probability). For students following the 2018-19 or earlier and are declared data science/computer science majors, Statistics for Business & Econ can be regarded as an alternative to Probability and Statistics OR Theory of Probability. Please contact your advisor for more information. Fulfillment: Business and Finance Major Business Analytics Track; Business and Marketing Major Business Analytics Track; Computer Science Electives; Data Science Major Data Analysis Courses.

CSCI-SHU 375

### **Reinforcement Learning**

Reinforcement Learning (RL), a form of machine learning and a branch of Artificial Intelligence, enables an agent to learn in an interactive environment by trial and error using feedback from its own actions and experiences. RL seeks to learn a good policy for taking actions, using rewards and penalties as signals for positive and negative behavior. Modern RL problems are formulated as Markov decision processes with unknown environments. There are two major sub-branches of reinforcement learning: tabular reinforcement learning for relatively small state spaces; and deep reinforcement learning, which combines deep learning and reinforcement learning, and is appropriate for environments with large (including continuous) state and action spaces. The course will cover both tabular and deep reinforcement learning. Probability theory and algorithms will be used throughout the course. Assignments will involve both mathematical derivations and programming assignments. Prerequisites: Machine Learning AND (Probability and Statistics OR Theory of Probability). Fulfillment: Computer Science Major Electives; Data Science Major Courses for Concentration in Artificial Intelligence.

CSCI-SHU 376

### **Natural Language Processing**

Natural language processing (NLP), a form of artificial intelligence (AI) that gives computers the ability to read, understand and interpret human languages, is one of the most important technologies that have made significant progress recently. NLP has been applied to many areas such as spoken dialogue system, machine translation, question and answering, machine reading, document summarization, and even music generation. Traditional NLP approaches involve rules that are handcrafted by linguists. On the other hand, modern NLP approaches are data-driven, trying to learn a model to minimize a target loss function over labeled or unlabeled training text. The course will cover various NLP techniques such as text classification, sequence classification, parse trees, and sequence-to-sequence generation from statistical or deep learning perspectives. Students will be expected to derive mathematical formulas, and code and tune NLP algorithms on datasets in homework assignments. Prerequisite: (1) Machine learning; (2) Probability and Statistics or Theory of Probability.

CSCI-SHU 378

### **Introduction to Cryptography**

The study of modern cryptography investigates mathematical techniques for securing information, systems and distributed computations against adversarial attacks. We introduce fundamental concepts of this study. Emphasis will be placed on rigorous proofs of security based on precise definitions and assumptions. Topics include: one-way functions, encryption, signatures, pseudorandom number generators and zero-knowledge proofs. Prerequisite: Algorithms, theory of probability, or permission of the instructor. This course satisfies: Major: Mathematics Additional Electives; Honors Mathematics Electives; CS Electives.

CSCI-SHU 410

### **Software Engineering**

An intense hands-on study of practical techniques and methods of software engineering. Topics include: advanced object-oriented design, design patterns, refactoring, code optimization, universal modeling language, threading, user interface design, enterprise application development and development tools. All topics are integrated and applied during the semester-long group project. The aim of the project is to prepare students for dynamics in a real workplace. Members of the group will meet on a regular basis to discuss the project and to assign individual tasks. Students will be judged primarily on the final project presentations. Prerequisites: Intro to Computer Science. This course satisfies: Major: CS Electives.

CSCI-SHU 420

### **Computer Science Senior Project**

The purpose of the Senior Project is for the students to apply the theoretical knowledge they acquired during the Computer Science program to a concrete project in a realistic setting. During the semester, students engage in the entire process of

solving a real-world computer science project. It requires students to pursue a long-term, mentored learning experience that culminates in a piece of original work. At the end of the semester, the proposed work comes to fruition in the form of a working software prototype, a written technical report, and an oral presentation at a capstone project symposium. This course satisfies: Major: CS Required.

CSCI-SHU 997

#### **Computer Science Independent Study**

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Prerequisite: permission of the department. Does not satisfy the major elective requirement. 2-4 credits Students majoring in computer science are permitted to work on an individual basis under the supervision of a full-time faculty member in the department if they have maintained an overall GPA of 3.0 and a GPA of 3.5 in computer science and have a study proposal that is approved by a computer science professor. Students are expected to spend about two to three hours a week per credit (a 4-credit IS would involve about ten to twelve hours a week) on their project. Fulfillment: Computer Science Major Electives.

CSCI-SHU 2314

#### **Discrete Mathematics**

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This course is an introduction to discrete mathematics, emphasizing proof and abstraction, as well as applications to the computational sciences. Topics include sets, relations, and functions, graphs and trees, algorithms, proof techniques, and order of magnitude analysis, Boolean algebra and combinatorial circuits, formal logic and languages, automata, and combinatorics, probability, and statistics. Co-requisite OR Pre-requisite: MATH-SHU 121 or MATH-SHU 201. Equivalent to MATH-UA 120. This course satisfies: Major: MATH Additional Mathematics Electives, CS Required, Data Science Concentration in CS.



## CENG-SHU 201

**Digital Logic**

This module provides a rigorous introduction to topics in digital logic design. Introductory topics include: classification of digital systems, number systems and binary arithmetic, error detection and correction, and switching algebra. Combinational design analysis and synthesis topics include: logic function optimization, arithmetic units such as adders and subtractors, and control units such as decoders and multiplexers. In-depth discussions on memory elements such as various types of latches and flip-flops, finite state machine analysis and design, random access memories, FPGAs, and high-level hardware description language programming such as VHDL or Verilog. Timing hazards, both static and dynamic, programmable logic devices, PLA, PAL and FPGA will also be covered. Prerequisite: Intro to Programming or Intro to Computer Science or placement test or interaction lab. This course satisfies: Core Curriculum: Programming and Computational Thinking; Major: CS Electives, CE Required, EE Required.

## CENG-SHU 202

**Computer Architecture**

The main ambition of this course is to teach you how a modern computer works, starting from its most elementary components (transistors, resistors, capacitors) and then climbing up the ladder of abstraction to reach a high-level programming language like C and its compilation in machine code. In this excursion, we will learn (among other things) how to turn electrons into digital logic, how to make machine instructions execute faster through pipelining and prediction, and how to organize memory in hierarchies in order to make it more efficient. Since the only way to learn computer architecture is by practicing it, we will design a register transfer level (RTL) implementation of a MIPS-like processor in Verilog, and implement a simulator of the very same architecture in C. Preliminary syllabus of the course. General introduction to the course Dataflow and parallelism From silicon to transistors The digital abstraction Number systems Programming in C: basic types and control flow Programming in C: arrays, strings and functions Programming in C: pointers, structures and unions Programming in C: linked lists and beyond Programming in C: the Unix System interface Boolean logic Karnaugh maps Latches and flip-flops Finite state machines Binary and Synchronous Decision Diagrams Programming and simulating in Verilog [part I] Programming and simulating in Verilog [part II] Digital building blocks Compilation from C to MIPS Single-cycle microarchitectures Multi-cycle microarchitectures Pipelining and dependence hazards Out-of-order execution Memory hierarchies and cache Virtual memory Memory models and multiprocessor programming Equivalency: This course counts for CSCI-UA 201 Computer Systems Organization. Prerequisite: Intro to Programming or Intro to Computer Science. This course satisfies: Major: CS Required, Data Science Concentration in CS, CE Required.

## CENG-SHU 352

**Emerging Technologies for Smart Cities**

Nowadays, many smart cities are being developed around the world. This is an undergraduate-level course to introduce a series of emerging technologies for smart cities. This course offers students fresh materials and case studies to expand their horizon on smart cities; helps them understand the functions and identify the limitations of various emerging technologies used in the smart city; and explore a set of analysis techniques on analyzing the smart city systems. Topics involve electric vehicles, connected and autonomous vehicles, ride-sourcing services, car-sharing services, bike-sharing services, on-demand services, advanced parking management, smart traffic signals, and smart grids. Fulfillment: Core Curriculum Science Science, Technology and Society Courses.

# Core Curriculum

## CULTURAL FOUNDATIONS

CCCF-SHU 101W3

### Perspectives on Humanities: Tales of Gender and Power

This course will explore how the expression, exercise and experience of power, as it interacts with gender, impacts human relationships. We will start the semester in the realm of the sacred with an examination of various ancient cosmogonies' gender dynamics—the Greek, Chinese and Judeo-Christian. As we move across millennia, we will engage a variety of great works of different cultures, such as *The Epic of Gilgamesh*, *The Arabian Nights*, *Mary Shelley's Frankenstein* and the films *Raise the Red Lantern* and *The Truman Show*. Our main area of inquiry will be the primary relational constellations among humans: couples involved in lover-spouse intimacies and families shaped by father-mother-son-daughter allegiances. Gender figures significantly in the dynamics of these relationships, impacting the lives of individuals and families as well as informing the expression of social groups and cultural traditions. As we gain a deeper understanding of the subtle yet complex plays of power involved in certain gender relations, our inquiry will also bring us close to other crucial human issues, such as: the quest for knowledge, the uncertainties of identity and self, the creative need for love and community, the fear of/attraction to death, and the longing for transformation and transcendence, amongst others. Drawing on literary texts ranging from ancient to contemporary times—myth, epic, novel, film, drama, poetry—as well as products of visual culture and the performance arts, this course will examine how each articulates and resolves (or not) the above complex relationships and issues. To gain perspective, we will apply a variety of critical lenses to our close readings of texts, including the works of psychological and philosophical theorists such as Freud, Luce Irigaray, and Judith Butler. One required class attendance at an evening theatre performance will occur. This course will extend writing skills and concepts learned in *Writing as Inquiry*, focusing on critical theory, research, and academic writing and expression in the humanities. The primary assignments will be analytical essays and a digital expressions project. Fulfillment: Core Curriculum: Perspectives on the Humanities.

CCCF-SHU 101W9

### Perspectives on Humanities: Literature and Its Critics

Although the concept of literature referring to written works of an imaginative nature is fairly recent, the phenomenon of literature as a type of verbal expression deemed to have aesthetic value has been around for thousands of years. What is literature? How is it valuable? What are the conditions in which it can become a positive force in the world we live in? This course aims to explore such questions via a consideration of the classical debates surrounding the nature and value of literature raised by prominent Western thinkers such as Plato and Rousseau. We will then look to ancient China for possible answers to these questions and challenges through a study of a few excellent specimens from its classical poetic tradition. Finally, moving into the modern period, we will examine several canonical works of fiction as test cases to rethink the questions introduced earlier. What new answers do we need in order to address the changed conditions of modernity? Students will write two major essays that allow them to practise modes of inquiry and writing habits central to the humanities while refining the skills first introduced in *Writing as Inquiry*. Fulfillment: Core Curriculum Perspectives on the Humanities.

CCCF-SHU 101W11

### Perspectives on the Humanities: American Superheroes

This course organizes student writing and research around the study of American superheroes in comics, film, and television. Born in a low-prestige, disposable medium, superhero narratives now drive franchise production at some of the world's largest media conglomerates, which make, distribute, and license content for audiences worldwide. The course aims to introduce students to three interpretative approaches. First, the formal study of texts: Scott McCloud's *Understanding Comics* offers a point of entry to the study of comics as a narrative art form, which we can then apply to Alan Moore and Dave Gibbons's *Watchmen*. Second, the historicist study of genre: students will learn about the industrial and commercial forces that converted the superhero from newsstand kid stuff to the subject of negotiations between Hollywood and Wall Street. Third, the political economy of commercial media: we will look at how Hollywood exploits superheroes as intellectual property, and who benefits from that exploitation. We will also look at how studios have navigated the political demands of their largest new market: the People's Republic of China. Pre-req for CCCF-SHU 101W: Must pass WRIT-SHU with a C or better. Students cannot register for more than one section of PoH.

CCCF-SHU 101W19

### Perspectives on the Humanities: The Truth is out There?

How do we represent history? How do we narrate the past? In this Perspectives on the Humanities course, we consider how various actors—in particular, historians, journalists, artists, memoirists, documentarians, and filmmakers—create texts which contribute to public discourse about our past histories, our present societies, and our shared future. We will examine the ways these visual and written texts shape the contours of our collective memories, giving voice to the underrepresented, establishing (or challenging) authoritative narratives, recasting history to serve the agendas of the present and, at times, eclipsing other possible truths with their evocative power. The goal of our inquiry is not to separate “true” histories from “false” ones. But we will be cautious about these texts' potential power, undertaking a comparative analysis of how they are constructed and how they work—and work on us. We will continue to build upon the skills of writing and inquiry introduced in *Writing as Inquiry*. The course will emphasize close reading of visual and narrative texts; the analysis of these texts in the context of relevant theoretical perspectives; and developing an inquiry through research essays. The primary assignments are research essays. In some of our case studies, we will encounter traumatic moments in world history; the texts which represent these events may include painful content. Fulfillment: Core Curriculum: Perspectives on the Humanities.

CCCF-SHU 101W20

### Perspectives on the Humanities: The Question of the Anthropocene

In 2016, a group of scientists formally declared that the planet Earth recently entered a new geological epoch:

the Anthropocene. Though broad scientific consensus on the matter has yet to be reached, the very concept of the Anthropocene — the idea that we humans have fundamentally altered our planet at such a deep level that it registers in the permanent geological record — has not only caught on with scientists, but also philosophers, artists, writers, and filmmakers concerned about the future of life on our planet. In this class, students will explore a range of texts across several genres that take up the question of the Anthropocene while developing and practicing a range of skills central to critical analysis and academic writing. Fulfillment: Core Curriculum: Perspectives on the Humanities.

CCCC-SHU 101W24

#### **Perspectives on the Humanities: Medicine and Disease in the Humanities**

This Perspectives on the Humanities course will explore the medical humanities, drawing upon literature, art, history, and anthropology to examine the culturally situated experiences of being ill and treating illness. While the importance of the medical humanities is most often stressed in the context of educating future doctors, the field is relevant to all of us: as Susan Sontag writes, “Everyone who is born holds dual citizenship, in the kingdom of the well and in the kingdom of the sick... sooner or later each of us is obliged, at least for a spell, to identify ourselves as citizens of that other place.” Readings will encompass memoirs by patients and physicians, historical and contemporary case studies, and works by medical anthropologists, including an ethnographic study of healthcare in Shanghai. In discussing these texts, we will consider how social and cultural factors shape perceptions of wellness and disease, with particular attention to the role of language. How objective is “scientific” communication and what experiences might it fail to capture? How does the language used to talk about a disease affect our perception of those who have it? Why do memoirs of illness have such strong appeal to many readers? Key authors include Susan Sontag, Barbara Ehrenreich, Oliver Sacks, and Anne Fadiman. This course will build upon skills and concepts introduced in Writing as Inquiry, such as evaluative reading and writing techniques, rhetorical organization, and strategies for effective research. Primary writing assignments will be analytical essays, at least one of which will involve a research element.

CCCC-SHU 101W27

#### **Perspectives on the Humanities: Memory, Identity, and Resistance in a Global Context**

This course explores how and why 20th and 21st century authors, from across the globe and writing in different genres, depict, re-imagine, and problematize individual, familial, and group identities through tapping into memory. In the process, they offer nuanced representations of their nations. Yet, as the business of representing involves inscriptions and erasures, narratives rarely achieve consensus: some are disapproved by the author’s ethnic group, others dismissed by the dominant culture or banned by a despotic regime. Thematically dynamic and often formally innovative, some of these writings invite fascinating questions which the course aspires to investigate and will have students engage through writing responses and research projects. Some of the larger questions that we will unpack may include the following: Is there a close relation between national myths formation and othering of minorities? Is the imagined group identity fictitious or real? What role does remembering play in unveling or perpetuating injustices? What solutions do some of the writers suggest to help communities heal or move forward in spite of the trauma? Why do certain women writers reclaim lived traditions and invoke indigeneity, orality, and matrilineal ancestral history? And can we, readers, serve as witnesses to the horrors revisited in a literary text? The course will continue to build upon the writing and critical thinking skills introduced in Writing as Inquiry. Students will be introduced to theoretical perspectives and will sample texts from different literary genres. They are required to produce close readings, analytical pieces, and research projects. Fulfillment: Core Curriculum: Perspectives on the Humanities.

CCCC-SHU 101W28

#### **PoH: The Pursuit of Beauty**

The recent popularity of the photo-editing app Facetune and Instagram’s and Snapchat’s editing filters, as well as the increasing expression of the view that cosmetic surgery is a form of “empowerment,” prompts us to question – why do we seek to appear beautiful? Which leads to the more profound question: What is the meaning of beauty? What is its role in our human lives? Who decides who or what can be called beautiful? What is the relationship between beauty and desire and how might we try to untangle it? Do we link, perceptively and persistently, beauty and goodness and therefore ascribe morality to beauty itself? What is the relationship between beauty and aspects of power? In this course we will investigate literary interpretations of and reflections on beauty and read philosophical, theoretical and critical texts to help us frame our questions. Pre-req for CCCC-SHU 101W: Must pass WRIT-SHU 101/102 with a C or better. Students cannot register for more than one section of PoH. Fulfillment: Core Curriculum: Perspectives on the Humanities.”

CCCC-SHU 101W29

#### **Perspectives on the Humanities: Eating Your Words- The Rhetoric of Food**

How do we translate the rich taste of a wine into words? Does the language we use to describe food affect its taste? Has your grandmother ever told you she loved you by cooking a special meal? When you buy street foods, which languages do you hear being spoken around you? Most of the time, our encounters with food focus on eating, but food is deeply enmeshed with language—what Plato called a “feast of discourse.” This course will give you a taste of how language and food intersect. It will investigate the ways that we speak about food; the ways that we communicate through food; and the ways that languages come into contact in food places. Our readings will include fiction, non-fiction, cookbooks, menus and proverbs. We will watch films, look at still-life painting, and examine commercials, posters, and ads. At the same time, we will further develop your analytical and writing skills. Fulfillment: Core Curriculum: Perspectives on the Humanities.

CCCC-SHU 101W31

#### **Perspectives on the Humanities: Race/Class/Borders**

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With each reprinting of *Citizen* (Graywolf Press), a hybrid poetry/essay/art collection, Claudia Rankine adds to page 134, a textual monument listing the names of African-American victims of police brutality. And, in her episodic book-length essay, *Tell Me How It Ends* (Coffee House Press), Valeria Luiselli documents and laments her experiences working with migrant children in the United States. Lastly, in her science fiction novel, *Dawn* (Grand Central Publishing), Octavia Butler describes a character's adjustment to an alien invasion. By investigating the formal, sociological, and ethical questions within these contemporary works of literature, students will develop their critical thinking and writing skills. We will employ excerpts of literary and critical theory texts to aid this inquiry with the goal of applying these ideas to contemporary phenomena. Students will ultimately use this material to drive the practical work of the class: to continue to refine their skills primarily as writers, but also as researchers, thinkers, and leaders. The primary assignments will be a series of short analytical essays, one longer researched analysis, and a collaborative service project: the creation of new Wikipedia pages to bring attention to unacknowledged and/or underreported issues, literature, and people in the People's Republic of China. Fulfillment: Core Curriculum Perspectives on the Humanities.

CCCC-SHU 101W32

#### **Perspectives on the Humanities: Art Histories**

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In 2017, three archaeologists came across a depiction of a hunt painted on a Sulawesi cave wall. Having established that the painting was 44,000 years old, the researchers debunked the long-standing notion that cave painting originated in Europe. This ascertainment has two important implications. First, it emphasizes the universality of art as a form of human expression. Second, some scholars surmise that similarities between the cave paintings in Indonesia and Europe indicate the existence of earlier prototypes in Africa, where humanity originated. That is, while each Indonesian and European cave painting is unique unto itself and thus an exemplar of the particular, each simultaneously reflects something fundamental about the archetypes on which they were modeled, an essentiality that represents the universal. In this way, the Indonesian and European cave paintings embody the concept of the *Urphänomen* introduced by the German writer Johann Wolfgang von Goethe. In this course, we'll explore art as a medium of thought and emotion common to all civilizations while evaluating Goethe's idea of the *Urphänomen*. Using the resources of Shanghai's art museums as our foundational "texts," we will comparatively examine works on exhibition at these institutions. After exploring the significance of these pieces as they've been informed by the aesthetic and broader cultural traditions to which they respectively belong, we will contemplate these objects as artefacts and/or as archetypal representations in light of how they are situated within other contexts beyond China's borders. In so doing, we'll gain an understanding of the cultural significance of these works and/or their motifs across various disciplines, cultures and eras while ascertaining the extent to which they testify to the *Urphänomen*'s existence. Building upon what students learned in *Writing as Inquiry*, this course will further develop their analytical, creative and research skills through analytical essays and a digital research project. Fulfillment: Core Curriculum Perspectives on the Humanities

CCCC-SHU 101W33

#### **Perspectives on the Humanities: World-Building**

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This course will explore Margaret Atwood's idea of creating an "Ustopia." We will imagine building a better world—the roles governance, science, and the arts would take. Instead of relying on science fiction as escapism or impossible fantasy, Atwood describes her speculative fiction as exploring Utopias: the liminal space between utopia and dystopia. Literary theorist Kenneth Burke argues that story features characters with a purpose (goal) encountering passion (trouble) and achieving perception (epiphany). Might we apply that story arc to our own human experiences, and by extension to social evolution? How might scientific advancements impact our efforts to build an ideal society? How do politics and law weigh personal freedoms against societal needs? How might globalization and translanguaging shape an Ustopia? This course will extend writing skills and concepts learned in *Writing as Inquiry* by focusing on critical theory (including gender and critical race theory), close readings, and analytical essays. Texts will include fiction, film, and art to analyze how Utopias are translated across genres. A capstone project asks writers to explore humanity's potential via a research-based creative project. Fulfillment: Core Curriculum Perspectives on the Humanities.

CCCC-SHU 101W35

#### **Perspectives on the Humanities: Science Fiction in Three Media**

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This course introduces students to some of the major topics and themes in so-called science fiction (SF), using SF stories to further develop the major skills trained in *Writing as Inquiry*: analytical reading, argumentative writing, and library research. Students will read short stories, watch episodes from theatrical serials, and listen to radio plays (both complete dramas and episodes from serials); students will attend to the ways that these three different media not only shape the narrative choices of the artists, but also inflect familiar themes like alien contact, interplanetary travel, and artificial intelligence. Furthermore, nonfiction readings will introduce students to three complimentary approaches to understanding SF: the formal study of narrative texts, the political economy of mass media, the historicist study of commercial genres. Students will use these approaches in prompted writing assignments, which will range from shorter exercises to a medium-length analytical essay, and which will include a major research essay. Prereq for CCCC-SHU 101W: Must pass WRIT-SHU with a C or better. Students cannot register for more than one section of PoH. Fulfillment: Core Curriculum Perspectives on the Humanities.

CCCC-SHU 101W36

#### **Perspectives on the Humanities: Speaking of Sickness**

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This Perspectives on the Humanities course will explore narratives of illness and health, drawing upon works of literature and art to ask questions about the boundaries of the body, the relationship between the body and the self, and the role of social and cultural factors in shaping our perceptions of illness. How does the language used to talk about a disease affect our perception of those who have it? Are there aspects of being ill that cannot be captured in words? How might gender, race, and social status inform a patient's approach to healing? What

happens when an individual's experience of being a patient or physician does not fit into traditional narratives about those roles? In discussing these questions and others like them, we will touch upon multiple academic fields, from history and anthropology to disability studies. Readings will encompass memoirs by patients and physicians, historical and contemporary case studies, and works of criticism related to narrative structure and the language of medicine. Key authors include Daniel Defoe, Susan Sontag, Audre Lorde, Elaine Scarry, and Arthur W. Frank. This course will build upon skills and concepts introduced in Writing as Inquiry, such as evaluative reading and writing techniques, rhetorical organization, and strategies for effective research. Primary writing assignments will be analytical essays, at least one of which will involve a research element. Prereq for CCCF-SHU 101W: Must pass WRIT-SHU with a C or better. Students cannot register for more than one section of PoH. Fulfillment: Core Curriculum Perspectives on the Humanities.

CCCF-SHU 101W37

#### **Perspectives on the Humanities: Drinking the Kool-Aid and Other Cult Stories**

This course traces motifs and common narrative threads in the stories of those who are drawn into or victimized by cults. We will explore how real and fictional cults are depicted in literature and film, closely studying such works as Emma Cline's novel *The Girls*, Haruki Murakami's work of literary journalism *Underground: The Tokyo Gas Attack and the Japanese Psyche*, the Netflix docuseries *Wild Wild Country*, Ari Aster's folk horror film *Midsommar*, and the psychological thriller *Martha Marcy May Marlene*. Our critical analysis and interpretation of these works will be aided by interdisciplinary readings that will give us a better understanding of how cults function and explore the controversy of the "cult" label itself. As we delve into the stories of cults, we will examine perennial themes that distinguish these narratives such as the critique of mainstream society suggested by the cult's formation and ability to attract followers, the lure of living in a utopian community for those seeking emotional connection, the role of charismatic, authoritarian leaders who exploit their followers, the tensions between cult members and the dominant culture and what their conflicts reveal about each group's ideals and prejudices, and the extent to which cultish groups are tolerated or repressed by their local communities and governments. This course will extend writing skills and concepts learned in Writing as Inquiry, focusing on critical theory, research, and academic writing and expression in the humanities. The primary assignments will be analytical essays. Prereq for CCCF-SHU 101W: Must pass WRIT-SHU with a C or better. Students cannot register for more than one section of PoH. Fulfillment: Core Curriculum Perspectives on the Humanities.

CCCF-SHU 101W38

#### **Perspectives on the Humanities: Music is the Message**

*Music is the Message* is an academic writing course that teaches critical research and writing skills using music to explore contexts including identity, place, and time. In a broad and intersectional sense, we will consider themes of gender, race, sexuality, politics, and protest in music from fixed space in time, imagined space, and diasporic space. For example, our unit on Afrofuturism presents a performance genre of fantastical empowerment for Black people, redefining Black history and futures on earth and beyond. To deepen our ability to personally reflect on the role of music in our lives and society, we will read academic and popular articles that critically examine musical artistry and performance to reveal the role of musicians and audience as active participants in historical activism and imagination. Additional units include Chinese pop, K-pop and gender; hip hop and sexuality; and jazz and cultural diplomacy. Course readings utilize the following research methods: discourse analysis, close reading, qualitative (e.g.: interview, participant observation, content analysis), journalistic, historical and ethnomusicology. This course will extend writing skills and concepts learned in Writing as Inquiry, focusing on critical theory, research, and academic writing and expression in the humanities. The primary assignments will be analytical essays. Prereq for CCCF-SHU 101W: Must pass WRIT-SHU with a C or better. Students cannot register for more than one section of PoH. Fulfillment: Core Curriculum Perspectives on the Humanities.

CCCF-SHU 101W39

#### **Perspectives on the Humanities: Hearing the Moving Image**

This academic writing course will build critical reading, listening, and writing skills by exploring what makes sound and music so necessary to our engagement with moving images. Through writing about a wide range of media texts, including Hollywood and Chinese film, television, and animation, Triple-A and indie video games, we will pursue questions about power, the environment, technology, narrative, representation, and global identity. For instance, what does the urban soundscape in Ridley Scott and Vangelis's *Blade Runner* have to say about our fraught relationship with technology both now and in the future? By contrast, how do musical depictions in Peter Jackson and Howard Shore's *The Lord of the Rings* film trilogy construct pre-industrial local cultures and what is natural? In addition, we will historicize and interrogate the Western gaze toward China in light of Edward Said's *Orientalism* by investigating how music and sound produce ideas about the "East," such as in Ang Lee and Tan Dun's *Crouching Tiger, Hidden Dragon*. We will also theorize how to read and write about K-, J-, and C-pop music videos especially for the performance of gender, sexuality, and global eclecticism. This course extends the intellectual, research, and writing skills introduced in Writing as Inquiry and requires no prior training in music performance or analysis. Throughout, students will pursue writing topics of their choice in a series of analytical essays demonstrating compelling arguments, nuanced readings of scenes, genres, and styles, an adroit use of rhetorical strategies for a variety of audiences, and the careful selection and framing of primary sources and scholarship. Pre-req for CCCF-SHU 101W: Must pass WRIT-SHU with a C or better. Students cannot register for more than one section of PoH. Fulfillment: Core Curriculum Perspectives on the Humanities.

CCCF-SHU 101W40

#### **Perspectives on the Humanities: Writing the World**

This globe-trotting course explores the politics of representation in English-language journalism and literature about the world outside of America. Drawing on both scholarly criticism and works of journalism and creative nonfiction, we will examine how American norms shape knowledge and literary production about the rest of the world. We will decenter the United States as the arbiter of the news media and publishing, comparing and contrasting works by American and non-American authors in and about 'Asia' and the 'Middle East.' Our travels will take us to countries such as China, Japan, India, Vietnam, Egypt, Lebanon, Iraq, and Iran. We will not only look at the place from where an author writes, but also from where the intellectual reads. How does the adage of 'Write what you know' hold up when a writer does not occupy the dominant positionality in the Anglophone world? How might we apply these concepts to problematize the ways in which we think and write about China and Chineseness? Students will write in a variety of public-facing critical, creative, and journalistic genres, including an op-ed, satirical essay, book review, and a decolonizing profile of Shanghai. Pre-req for CCCF-SHU 101W: Must pass WRIT-SHU with a C or better. Students cannot register

for more than one section of PoH. Fulfillment: Core Curriculum Perspectives on the Humanities.

CCCF-SHU 101W41

**Perspectives on the Humanities: Digital Identities**

Identity is often imagined as tied to the body—to the color of our skin, the sound of our accent, or the way that we inhabit gender. Yet in the digital domain, bodies become tenuous or even inexistent; writing—in text, sound, film, and hypertext—is everything. How then do individuals and communities use digital media to articulate their identities, tell their stories and imagine their futures? How do virtuality and multimedia transform identity formation, and what is the role of digital networks in creating new or reinforcing existing social groups? In this academic writing class, we will examine these and similar questions in digital fiction and nonfiction as we elaborate our research and analytical skills through the lens of theories of digital sociality, in-group formation, digital redlining, and algorithmic oppression. In so doing, we will sharpen our reading and writing skills across the various media of the digital: text, hypertext, image and sound. Prereq for CCCF-SHU 101W: Must pass WRIT-SHU with a C or better. Students cannot register for more than one section of PoH. Fulfillment: Core Curriculum Perspectives on the Humanities.

CCCF-SHU 101W42

**Perspectives on the Humanities: Nothing New Under the Sun?**

Nothing New Under the Sun? is an academic writing course that teaches critical research, writing, and thinking skills through investigating the concept and value of the “new.” Famously, innovation was already declared dead thousands of years ago with Ecclesiastes’s ancient assertion, “There is nothing new under the sun.” In fact, across literary, media, cultural, and theological structures, from teen rom-coms based on Shakespeare’s plays to major world religions’ reinterpretation of common biblical source texts, we can see recycling in action. On the other hand, we also find challenges to this narrative of the “same old” in theories of postmodernism, or new methods of structuring society like communism or democracy. In a city like Shanghai, there are things all around us that strike us as novel, from technology to buildings to fresh ways of interacting with each other. Or are these, too, in the words of contemporary poet Eileen Myles, just “old things, re-released”? Searching through comparative examples in literature, film, visual art, music, architecture, and religion, we will exercise our writing and critical interpretation skills in our attempt to get to the bottom of questions including: What makes something “new,” and can it still be done? What is it about humans that causes us to revisit the same ideas or structures? And what is the value of chasing the “new,” at its heart? This course will extend writing skills and concepts learned in Writing as Inquiry, focusing on critical theory, research, and academic writing and expression in the humanities. The primary assignments will be analytical essays and a digital expressions project. Prereq for CCCF-SHU 101W: Must pass WRIT-SHU with a C or better. Students cannot register for more than one section of PoH. Fulfillment: Core Curriculum Perspectives on the Humanities.

CCCF-SHU 101W43

**Perspectives on the Humanities: Attending to Attention - The Secret Method of the Liberal Arts**

A revolution is occurring in the ways we pay attention, demanding that we learn, unlearn, and relearn ways of attending across most aspects of contemporary life. To our aid, a liberal arts education trains students’ attention—liberally and liberatorily—to “cultivate and practice the kinds of attention that will make them intelligent observers, diligent critics, and thoughtful actors on the stage of human life” (Sullivan). This academic writing course teaches critical research and writing skills through exploring how different kinds of attention shape our various ways of knowing, thinking, and doing. Our inquiry-driven writing within the liberal arts tradition will organize our survey of various conceptions of attention and will aid our building of cutting-edge vocabularies for attention’s situational dynamics from the experienter’s point of view (e.g., the kind of attention you’re using while reading this). Guiding texts will span the humanities, sciences, arts, and the technological frontier, providing theories and case studies to help us ask: What are the means by which attention is formed in any given situation? How is attention constructed, structured, and variably reconfigured? Students will select situations of their interest where the type of attention used determines differences in outcomes. Writing and research assignments will scaffold the process of conducting attention analyses. The final essay culminates your work as a participant-researcher analyzing and creating modes of attention optimized for goals in a given situation. Ultimately, students will be learning two interrelated fundamental methodologies of the liberal arts: 1) the conventions of academic reading, writing, and researching, and 2) the foundational skills of attention that are implicit to all academic work, disciplinary knowledge, and social action. Prereq for CCCF-SHU 101W: Must pass WRIT-SHU with a C or better. Students cannot register for more than one section of PoH. Fulfillment: Core Curriculum Perspectives on the Humanities.

# Core Curriculum

## EXPERIMENTAL DISCOVERY IN THE NATURAL WORLD

CCEX-SHU 1

### Principles of Life - From Cells to Organisms

Principles of Life-From Cells to Organisms Fulfillment: Core Curriculum Science Experimental Discovery in the Natural World Courses.

CCEX-SHU 3

### Explore the Cell: from Gene to Protein

Explore the Cell: from Gene to Protein Fulfillment: Core Curriculum Science Experimental Discovery in the Natural World Courses.

CCEX-SHU 122

### Perception and the brain

How do humans and other animals obtain knowledge about the world? It is easy to take perception for granted, but complex processes (only partly understood) underlie our ability to understand the world by seeing, hearing, feeling, tasting, and smelling it. This is not because the scientific study of perception is new. In fact, perception has fascinated philosophers, physicists, and physiologists for centuries. Currently, perception is a central topic in psychology, cognitive science, computer science, and neuroscience. How do scientists approach perception? We seek to discover lawful relations between perceptual experiences and the physical world and to develop models of the processes and mechanisms in the brain that produce these connections. In this course, in the lectures, we will discuss fundamental problems in perception (primarily vision), and in the lab sessions, you will learn about standard experimental methods and their use in the study of perceptual processes and to give you first-hand experience in conducting original research. As part of these activities you will learn to write experimental reports and to think critically about the relation between theory and experiment. You will also be exposed to the use of computers in perception research. Indeed, there will be considerable use of computers in the course, with part of the goal being to provide you with basic computer skills. Pre-req: None.

CCEX-SHU 170

### While You Were Sleeping

In this course, we will explore the mysterious and largely uncharted world of sleep and dreams. We will question many of our most basic assumptions and biases about the role of sleep in our lives and discover the importance of sleep in optimizing our physical and mental health. This course will be broken into five major themes: (1) Defining sleep; (2) dreams; (3) the evolution of sleep; (4) sleep regulation; and (5) sleep disorders and treatment. The lab portion of this experimental discovery course will guide students through various aspects of the experimental process including informed consent, data collection and interpretation, and applying evidenced-based strategies to improve sleep. Prerequisite: None. Fulfillment: Core Curriculum Science Experimental Discovery in the Natural World Courses.

CCEX-SHU 203

### Energy and the Environment

This course explores the scientific foundations of current environmental issues and their implications for public policy. The syllabus is divided into sections that each examines a current environmental theme in depth. The first sections investigate the composition of the atmosphere and the chemical processes that cause air pollution, ozone depletion, and global warming. Moving to the study of water, the course explores the properties of this unique solvent and the effect of various aqueous pollutants. The course also includes an investigation of energy from chemical reactions, our continuing reliance on fossil fuels, and the potential of alternative energy sources. The laboratory experiments are closely integrated with the lecture topics and provide hands-on explorations of central course themes. Throughout the course we also will examine how scientific studies of the environment are intimately connected with political, economic and policy concerns. Fulfillment: Core Curriculum Science Experimental Discovery in the Natural World Courses

# Core Curriculum

## SCIENCE, TECHNOLOGY AND SOCIETY

The courses in this category emphasize the impact of science on society as well as cultural and historical reactions to scientific discovery. They focus on pressing world issues and current technology addressed by the natural sciences and mathematics.

CCST-SHU 132

### **Creativity Considered**

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We hear every day about the importance of creativity in our lives, careers, and societies --- its importance for personal development, for the generation of new ideas, forms, and expressions, for the work of organizations, large or small in scale, science and technology or arts and culture-focused, in the private or public sector. And yet, it is important to ask: Can creativity be usefully studied or is it, in fact, something best left to life, luck, or other factors that may determine one's abilities and opportunities in this area? The premise of this course is that, while not taking away from what can be called the magical aspect of creativity, we can benefit from considering creativity in some detail. Another premise of the course is that there is merit in considering creativity across very different areas of human enterprise --- science, art, business, government, and more. Implicit in this premise is the assumption that while creativity is manifested in many different ways, there are some common characteristics of creative work which we can identify and put into practice. A detailed consideration of creativity across various areas of human enterprise is the subject matter of this course. Prerequisite: None.



CCSF-SHU 101L

### Global Perspectives on Society

In this course, we will explore a set of timeless questions about how society is, or should be, organized, based on close examinations of diverse thinkers and writers from different times and different cultures. The questions raised in this course will engage the moral, social, and political foundations of human relationships, the principles according to which people assemble into societies of different scales, and the bases for interaction among societies in a world of accelerating interdependence. By engaging texts that explore these questions from multiple perspectives, students reflect on several overarching issues, including how different societies have organized their economic and political institutions, how those societies fashion both shared identities and hierarchies of difference, how people experience themselves as "individuals" or as members of a collectivity, how they experience both time and space, and how they engage with others both locally and globally. Over the semester, students develop skills that are central to a liberal arts education, including reading carefully and thoughtfully, considering questions from more than one perspective, participating in respectful and serious intellectual explorations of difficult topics, developing oral presentation skills, and writing essays that make effective and appropriate use of the ideas of others as they present the students' own ideas to different audiences of readers. Each week, students will meet twice as an entire class for lectures and once in smaller recitation sections led by one of New York University Shanghai's Global Postdoctoral Fellows. Students receive 4 credits for the lecture and recitation. Prerequisite for CCSF-101. Fulfillment: Core Curriculum Global Perspectives on Society.

CCSF-SHU 123

### Contemporary Chinese Political Thought

This course introduces students to perspectives on contemporary Chinese political and social thought as presented in academic publications, media reports, social commentary and postings on the Chinese Internet. It covers selected key topics in the disciplines of political, social, and cultural studies. It examines and compares Chinese and Western views on major developments and current issues. The course also introduces students to a variety of styles of writing and research methods as well as skills of cultural translation relevant to the study of contemporary China and Chinese thought. Fulfillment: Core Curriculum Social Science Perspective on China/Humanistic Perspectives on China; GCS Elective; Humanities Major Advanced Courses (17-18 Topic Courses); Social Science Major Focus Courses Political Science - 200 level.

JOUR-SHU 202T

### Journalism: Newsroom

This two credit course gives students practical experience in the real world activity of publishing news and information for audiences, specifically through NYU Shanghai's online student publication On Century Avenue. Students will be guided in the journalistic practice of preparing stories for publication for main and sub-sections of the website that cover on-going events and issues related to NYU Shanghai campus. The course will give students an opportunity to put into practice the theory and technical skills they have acquired during their Journalism course and/or in other Creative Writing courses. It will expose them to the realities and pressures of timely and time-sensitive news gathering as well as the publishing arts of content management and understanding audiences. They will have an opportunity to be journalists and contributors to the website. The Newsroom course will act as an ancillary production hub for the publication. In practice, students will write their own work and collaborate collegially to share ideas and the structure of their proposed stories to further shape them for publication. They will be expected to learn how to consult on story ideas and take direction and to act in a professional manner. They will experience a working newsroom environment that is overseen by the lecturer who will provide continual feedback on story development, editing, and publishing advice. The course outcomes are intended to give students a working knowledge of how an online newsroom functions and expose them to various journalism and content collection roles, challenges and setbacks. The personal rewards will come from influencing and contributing to published content and learning the importance and potential influence of media. The course structure will involve lectures and collaborative and on-going editorial workshops. There will be one class per week and the lecturer will be available at all other times to discuss individual story development. Assignments will consist of sourcing, writing, editing and publishing news stories and/or features for On Century Avenue. This course can be repeated for credits twice. The total completion allowed is 2 times and the total units allowed is 4 credits. Prereq for JOUR-SHU 202T is Journalism: Methods and Practice (001 or 002); or Writing as Inquiry; or their equivalents in New York or Abu Dhabi; or by instructor permission. Fulfillment: General Elective.

JOUR-SHU 203

### Journalism and Society in China

This four credit course examines the role and functions of journalists and the media in Chinese society as modern reporting moves into the digital media landscape. To provide context to the political and cultural environment of news-gathering, the course assesses the development of journalism in China through the 20th century from around the birth of the Republic of China (1911) and through to the modern era. It will examine the relatively free publishing environment for newspapers in the lead-up to establishment of the People's Republic of China (1949) and the imposition of government control thereafter. Through providing an understanding of the parallel publishing environment of institutional traditional media ownership and today's free-enterprise online media corporations, the unit studies how reporters operate in both. Students will gain an understanding of the strong nexus between government and media and the ever-present need for journalists to portray various aspects of Chinese ideology at the same time as functioning as news reporters. The portrayal of media as propagandist will be considered against the abiding devotion of journalists to lift the veils on truth. The roles, functions and rounds of journalism as practiced in China will be studied through class discussion and assignments and these will include reporting across all publishing platforms of politics, business, the environment and national issues. The impact of digital journalism will be an underlying theme through the course. The course structure will involve lectures, workshops, seminars, guest speakers and an industry visit. There will be two 3-hour classes per week. Assignments

will include a blend of in-class group and individual presentations and two written papers. Fulfillment: 1.Global China Studies elective in Chinese Media, Arts, and Literature 2.The Global Network Minor in Journalism Studies.

JOUR-SHU 9202

**Methods and Practice: Journalism**

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It provides an introduction to the work of the reporter, with particular focus on covering China, and offers students a chance to learn and practice basic journalism skills, including news writing, descriptive & feature writing, and writing for TV etc. Feedback on assignments is given in individual meetings. Visiting speakers and field trips also offer insights into the role of the journalist and the challenges faced. Prerequisites: None. Fulfillment: General Elective

SCA-SHU 9634

**Global Connections: Shanghai**

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Any writing on Shanghai today seems to run out of superlatives to describe the city's dazzling transformation, spectacular architecture, and booming economy. But is it really the Global City it strives to be? In this course we will explore this question by looking into the urban development of the city from its status as a relatively unimportant trading town to the world metropolis of today. Besides regular seminar classes, the course involves field trips and guest lectures, and each student has to do their own semester-long research project. Prereq for SCA-SHU 9634 is at least sophomores. Fulfillment: Core Curriculum Social Science Perspective on China/ Humanistic Perspectives on China; GCS Major Requirement (17-18 Digital China Studies/Global China Studies Electives) ; Humanities Major Advanced Courses (18-19 Topic Courses); Social Science Major Self-Designed/Urban Studies - 200 level.

## ECON-SHU 1

### Principles to Macroeconomics

Focuses on the economy as a whole (the "macroeconomy"). Begins with the meaning and measurement of important macroeconomic data (on unemployment, inflation, and production), then turns to the behavior of the overall economy. Topics include long-run economic growth and the standard of living; the causes and consequences of economic booms and recessions; the banking system and the Federal Reserve; the role of government policy; and international trade. Prerequisite: None. Fulfillment: Economics Major Required Economics Courses; Social Science Major Foundational Courses; Data Science Major Courses for Concentration in Economics.

## ECON-SHU 3

### Microeconomics

Economics studies how agents make decisions under conditions of scarcity and uncertainty. This course provides a rigorous introduction to economics, with special emphasis on microeconomics. It will introduce you to economics as a discipline and as a way of thinking. It will also provide you with a set of tools, which will be very useful in other economics courses. We will first study the behavior of individual consumers and firms. Then we will give you some insight into how markets work and whether market outcomes are desirable. We will also look at situations in which the firm is a monopolist, or competes with a limited number of rivals. Some key concepts we will introduce include economic incentives, marginal analysis, opportunity cost (which costs matter), market efficiency (what does it mean for a market to work) and strategic behavior (how to predict and respond to your rivals' decisions). The tools that you will be acquainted with in this class are fundamental for most upper division courses of the Economics major as well as classes in Finance, Accounting and Marketing. Prerequisites: Calculus (MATH-SHU 121 or 201) Fulfillment: Economics Major Requirements; IMB Major Business Elective; Social Science Major Foundational Courses; Business and Marketing Major Business Core Courses; Business and Finance Major Business Core Courses; Data Science Major Concentration Courses.

## ECON-SHU 202

### Intermediate Microeconomics

The course will cover a broad range of topics in macroeconomic theory, empirics and policy. Among the issues to be discussed are the business cycle theory, economic crises, economic growth, IS-LM model, open economy, inflation and unemployment, dynamic model of aggregate demand and supply, stabilization policy, government debt and budget deficits, money supply, central banking. The banking system: competition and stability, banking growth nexus, prudential regulation and the role of the financial sector in the macroeconomics model. Prerequisites: ECON-1 or Economics of Global Business (ECON major).

## ECON-SHU 210

### Topics in Macroeconomics: Market Design

The course is about design of markets, not only in the sense of auctions and matching markets, but also in the broader sense of designing allocation rules in general. We aim to understand why some markets needs to be designed, and what important design elements are. This is particularly relevant for the digital economy where market design is often programmed into smart contracts, and market participants may be computational agents. The course includes a series of assignments that builds towards writing a short research paper for the course. The topic of the research paper should be related to the material presented in the course, but must go into more depth with selected issues.

## ECON-SHU 216

### Introduction to Game Theory

This course introduces students to the basic concepts and tools of game theory and their applications to real-life situations. It starts with basic terms such as strategies, payoffs, and equilibrium, and then goes through different types of games, such as extensive form games, normal form games, dynamic games and games with incomplete information. The second half of the course covers a selection of topics closely related to the real world, such as cold war, voting, bargaining and auction. Students will be able to analyze the situation, frame it in terms of the tools discussed, and understand the strategies used in the interaction. Prerequisites: Calc (MATH-SHU 121 OR 201)

## ECON-SHU 225

### Advanced Economic Theory

Designed to introduce students to some of the main model-building techniques that have been developed by microeconomists. Intended for advanced undergraduates who have taken the necessary preparatory courses in economics and mathematics. Any of the following three basic topics may be covered. The first topic is the static theory of consumer behavior both in a certain world and in an uncertain world, including game theory. The second topic is the theory of general equilibrium. The third topic is the theory of dynamic optimization. In addition to the coverage of the economics, the advanced mathematical techniques that are needed to understand the material are reviewed. Prerequisites: Intermediate Micro AND (Math for Econ 1 OR Multivariate Calculus).

## ECON-SHU 238

### History of Modern Economic Growth: Exploring China From a Comparative Perspective

This course has two goals: 1) to provide understanding of economic development with applications to Chinese economy and Chinese institutions, and (2) to learn how to analyze major policies in China's economic development in both oral and written form. Since the economic reform in 1978 from a planned economy toward a market-oriented economy, China has experienced rapid institutional changes and achieved high growth rates. We will

start with the historical background of this transition process. We will then cover post-reform topics such as economic reform, the One Child Policy, political economy, media and internet control, labor market, migration and discrimination, environment and China in the global economy. Our collection of readings are from the exciting yet still growing literature on economic development of China. In particular, you will learn what's possible, interesting and convincing in empirical research on China. Prerequisite: ECON-SHU 3.

ECON-SHU 251

### **Economics of Global Business**

The objective of this course is to provide future decision-makers with a systematic understanding of critical aspects of economic development and the global business environment. We will examine the basic workings of the national economies (macroeconomics) and then explain the role of international trade and international finance. We show how the forces of globalization affect international business, down to the impact on the future careers of NYU students. The challenges presented by tepid economic growth in Europe, a soft landing in China, and the changing dynamics in the US, and the long run prospects for global economic growth and development are discussed.

ECON-SHU 260

### **International Trade**

This course will cover the basics of international trade theory and policy. It will introduce students to the main theoretical concepts in international trade, ranging from the Ricardian comparative advantage theory to the new trade theory under imperfect competition. Using the tools of microeconomic analysis, this course will explore the patterns of trade among countries, policies that impede or promote free trade as well as their welfare and distributional implications. Prerequisite: Introductory Microeconomics.

ECON-SHU 301

### **Econometrics**

The course examines a number of important areas of econometrics. The topics covered include regression analysis with cross-sectional data; classical linear regression model and extensions; model specification, estimation and inference; regression with qualitative variables; heteroskedasticity and GLS; serial correlation and heteroskedasticity in time series regression. In addition to covering the relevant theoretical issues, the course includes the application of these methods to economic data. Prerequisite: Statistics (BUSF-SHU 101 OR MATH-SHU 235 OR MATH-SHU 233 OR ECON-UA 18 OR STAT-UB 103 OR STAT-UB 1 OR MATH-GA 2901 OR SOCSC-UH 1010Q OR ECON-UA 20).

ECON-SHU 315

### **Competitive Analysis**

This course offers an economics approach to analyzing the way firms make marketing decisions and interact strategically with each other in the marketplace. The main goal of the course is to develop the basic intuition for pricing and other forms of strategic behavior on the part of firms. Prerequisites: Principles of Microeconomics or Microeconomics.

ECON-SHU 317

### **The Economics of Discrimination**

This research-focused seminar course will first cover applied microeconometrics with a strongly applied and empirical focus, and then introduce important theoretical and empirical papers analyzing and documenting different mechanisms of gender inequality. Topics covered will include micro-econometric research designs, theory and evidence about gender wage gaps, female educational attainment and human capital and family economics. If there is time, topics in gender and preferences will also be covered. This course is most appropriate for those with a strong grasp of microeconomics and econometrics, and with an interest in pursuing more advanced social science research projects on topics related to labor economics, inequality, and development economics. Economics majors and data science majors with a concentration in economics are particularly encouraged to enroll. Prerequisites: Econometrics (ECON-SHU 301) AND Microeconomics (ECON SHU 2 or 3 or 150).

ECON-SHU 342

### **Behavioral Economics**

This course explores the effects of psychological factors on economic behavior. We will analyze the observations from the real world that cannot be well explained by classical economic models, and enrich the standard model by incorporating psychological phenomena, such as bounded rationality, loss aversion, time inconsistency and social preferences. We will present both theoretical models and empirical evidence from experiments or real world data. Applications include marketing, asset pricing, game theory, consumption and savings, and public policy. Prerequisites: Microeconomics courses: ECON-SHU 3 and Statistics courses: BUSF-SHU 101 or MATH-SHU 20 or MATH-SHU 235 or MATH-SHU 170 or BIOL-SHU 42 or other equivalent courses in statistics.

ECON-SHU 360

### **Experimental Economics**

Predicated on the belief that economics, like other sciences, can be a laboratory science where economic theories are tested, rejected, and revised. Reviews the methodology of such laboratory experiments and investigates the use of experiments in a wide variety of fields. These include competitive markets, auctions, public goods theory, labor economics, game theory, and individual choice theory. Prerequisite: ECON-SHU 10 OR ECON-SHU 3.

ECON-SHU 400  
**Economics Capstone Seminar**

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Open to Senior Economics Majors Only.

ECON-SHU 416  
**Game Theory: Advanced Applications**

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This course introduces games of incomplete information and the applications. The first half of the course will review the basic theories, including normal form games, extensive form games, iterated dominance, and Nash equilibrium, with a focus on games with incomplete information. The second half will go through different topics and case studies of incomplete information, e.g. contract theory, auction, social learning, matching, etc. Students will acquire the basic concepts of these theories, and be able to model real-world situations with the language of game theory. Prerequisites: ECON-SHU 10 Intermediate Microeconomics (or students who took ECON-SHU 216, Introduction to Game Theory, may be admitted upon consultation with the instructor).

BPEP-SHU 9042  
**The Political Economy of East Asia**

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This course focuses on China's political and economic development over the last century and a half with particular attention to the last 33 years, the so-called Reform Period. Our three primary objectives are to (1) understand the historical trajectory of China's development path; (2) consider in what ways and to what degree the growth experiences of East Asia's high-performing economies helped inform China's economic policymakers decisions and shed light on the prospects for the long-term success of reforms in China; (3) assess the state of China's contemporary political economy. Prerequisite: Upperclass standing, with priority to Stern BPE Students.

EENG-SHU 251

## Circuits

This course covers Passive DC circuit elements, Kirchoff's laws, electric power calculations, analysis of DC circuits, Nodal and Loop analysis techniques, voltage and current division, Thevenin's and Norton's theorems, and source-free and forced responses of RL, RC and RLC circuits. Prerequisite: MATH-131 or MATH- 201.

EENG-SHU 400

## Senior Capstone Design Project I

The goal of The Capstone Design Project is to provide students with a major design experience that leverages the knowledge and skills acquired through their undergraduate studies and co-curricular experiences. Its structure includes a process of design with measurable metrics, and incorporation of appropriate engineering standards and multiple realistic constraints. Emphasis is placed on clearly framing the design problem and following the design process to result in an optimized design solution. Students are encouraged to build prototypes of their designs and seek validation of their solutions through simulations and experiments, as appropriate. The Capstone Project aims to be collaborative and trans-disciplinary across several engineering streams. The emphasis is on students applying the design process to solve real-world problems in a 21st century, global context. The projects address engineering and technology topics that overlap with the sciences, social sciences, liberal arts or business. The Capstone provides an opportunity to integrate technical, human, aesthetic, business and ethical concerns with engineering design. Students practice critical skills in communication, team-building, and project management. There is a mid-semester review of the projects. Students complete their design, as well as build and test their prototypes, if applicable, in spring semester. The senior year culminates in a comprehensive project report and design review by a committee of faculty and other professionals. Senior Capstone Design Project I (ENGR-AD-400) and Senior Capstone Design Project II (ENGR-AD-401) both consist of two, seven-week modules. Module I, in the fall semester, has a lecture and a project component focusing on the design process, problem definition, project management and Ethics. Module II in the fall is focused on creating the design solution, which is implemented in Module III and tested and validated in Module IV. Prerequisite: Senior Standing.

EENG-SHU 997

## Electrical and System Engineering Independent Study

Prerequisite: permission of the department. Fulfillment: EE Elective.

EAP-SHU 100K

## English for Academic Purposes: Cultivating Minds

The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments and an experiential learning project outside the walls of the university. The courses are designed to help you acquire skills that can also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will explore learning and the contexts in which learners are situated as they strive to get an education. A closer look at learning theories and motivation will be the perfect starting point for the semester-long experiential learning project which requires students to engage with a local learning organization, Stepping Stones, both as volunteer English teachers and observers. Students in the course will be presented with a variety of videos and short excerpts of readings on learners, learning, and education in order both to help them become better learners themselves and to evaluate the learning experiences of others. Moreover, they will have a chance to become volunteer teachers themselves, applying what they learn to design learning experiences for others. This will require a time commitment of at least 10 hours of teaching or the observation of teaching over the semester.

EAP-SHU 100L

## English for Academic Purposes: Utopias in Society

The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments, and an experiential learning project outside the walls of the university. This course is designed to help you acquire skills that can also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will explore the concept of utopia, or the perfect society, using historical examples. We will examine these attempts, most of which failed, to create the perfect society through the lens of sociological theory. We will consider how societies are initially conceived by their creators, and the factors that determine a society's success. In order to compare our findings to present-day societies, we will also be engaging with and analyzing the not-for-profit and charity organizations operating in Shanghai today. Through this experience outside the walls of the university, you will consider further how societies can work toward equity among its citizens. A major component of this course will be a group project that will ask you to design a utopia based on ideas addressed in class.

EAP-SHU 100M

## English for Academic Purposes: Hacking Happiness: Positive Psychology and Its Critics

The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments, and an experiential learning project outside the walls of the university. This course is designed to help you acquire skills that can also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will investigate what it means to be happy. When asked what they want most in life, a majority of people will respond, "To be happy." The founding document of the United States even lists "the pursuit of happiness" as one of the three most basic human rights. But what, exactly, is happiness? Is it a temporary state, a predisposition, or even a skill? Is contentment something we can actively pursue, a condition to be achieved through the help of specific habits and practices? Yes, claim the advocates of the positive psychology movement, with ample research findings to support their conclusions. In this course, we will try out some of their recommended techniques and document the results. We will also examine the growing body of criticism that questions the premises of this field. Is a sense of well-being and fulfillment really something that can be chosen or engineered? Are there more meaningful and satisfying long-term life goals than happiness? What are some of the unintended consequences of treating happiness as a character virtue or an end-state, and whose interests are being served when your distress and alienation are blamed on your own private personality flaws? Positive psychology is only 23 years old, but religious and philosophical traditions around the world have been producing what we would today call "self-help" teachings and manuals at least since the Axial Age. Join us to explore what happens when we put ancient advice into dialogue with a modern (and not so modern) complaint.

EAP-SHU 100N

## English for Academic Purposes: Fashion Consciousness

The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. In this course, you will engage with content relevant to fashion and fashion industry individually and in groups, completing a variety of communicative tasks and an experiential learning project outside the walls of the university. This course is designed to help you acquire skills that can also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will investigate the complex world of fashion. Fashion is everywhere. It is one of the main ways in which we present ourselves to others, signaling what we want to communicate about our cultural and subcultural allegiances, our mood and thinking, professionalism, and even wealth, sexuality, and political allegiances. It is also a global industry with huge economic, cultural, and political impact on the lives of all of us who

make, sell, wear or even just watch fashion. The aim throughout is to present a comprehensive but also accessible and provocative analysis on many different aspects of fashion. These include, for example, the major events in the history of fashion, how arts and popular culture influence fashion and how fashion shapes global culture and arts, how clothes mean different things in different parts of the world, the links between media promotion and mainstream fashion retail, the power of cosmetics, the rise of celebrity branding, the cult of thinness, and age, gender and national factors in fashion consumptions. Through studying authentic lectures, participating in the discussions, and conducting the project around these topics, you will acquire academic skills that can be transferred to your future professional and personal lives and develop interest in issues that cross disciplines.

EAP-SHU 100P

**English for Academic Purposes: Artificial Intelligence: Exploring Opportunity, Assessing Risk**

The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments and an experiential learning project outside the walls of the university. The courses are designed to help you acquire skills that can be also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will investigate Artificial Intelligence (AI); its origins, types and applications together with its current and future impact on humanity. The course will be divided into 5 modules addressing education, work, health, the media and the future implications of a digitized planet. Students will also conduct research into the specific ways in which AI is changing the nature of society and the associated ethical implications

EAP-SHU 100Q

**English for Academic Purposes: Digital Identities in Modern Public Spheres**

The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments and an experiential learning project outside the walls of the university. The courses are designed to help you acquire skills that can be also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. The pervasiveness of our ever-changing media and communication landscapes offer both innovation and complication for the content and interpretation of our messages. Using the framework of the “public sphere”, virtual realms of social life where society’s problems are open for discussion, we will consider how various digital platforms (news feeds, blogs, chat groups, social media platforms, etc.) control our worldview and influence our evolving selves. Additionally, we will examine how distinctive identities (gender, social class, race, nationality, sexuality) are formed, developed, and expressed via networks (online and in person). Across the semester, you will conduct an investigation of how the concepts of identity (personal) and community (collective) are integrated into the digitally mediated culture. After being introduced to rhetorical theories and concepts, you will be asked to apply them to the analysis and exploration of a variety of online platforms, technologies, and communities. Overall, through this course, learners will gain a better understanding of the power of mass digital communication and how to use it while navigating through various networks.

EAP-SHU 100R

**English for Academic Purposes: (Un)Sustainability**

The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments and an experiential learning project outside the walls of the university. The courses are designed to help you acquire skills that can be also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. We will inquire into the multidimensional aspects of sustainable development, focusing on the tools, metrics and practical pathways the world is currently exploring. In addition, we will investigate various success indicators for sustainable development. (Un)Sustainability views sustainable development solutions in the context of a range of subfields in addition to sustainability itself, including climate change and political action, and will afford learners the opportunity to carry out a team-based project in relation to the issues posed by this rich interdisciplinary terrain. This course encourages you to consider your role as a responsible 21st century global citizen and promotes analytical and reflective thinking on this role as it relates to global sustainability, including the United Nations’ Sustainable Development Goals (SDGs) set in 2015. The SDG’s are a collection of 17 global goals covering social and economic development issues including poverty, hunger, health, education, climate change, gender, equality, water, sanitation, energy, urbanization, environment and social justice. Through active participation in educational programs and experiential learning, students will increase their knowledge and understanding of the societal issues that EAP 100 strives to address. Therefore, this course includes a 4-5 hour integrated volunteering experience within the local non-profit community and 2-hours of attendance at an NYUSH student club community engagement event. EAP 100 works closely with the Shanghai Service Corp and NYUSH student clubs to provide a variety of charities and community groups to join. The Service Corps provides needed support to nonprofit agencies serving the environment, at-risk youth, and underserved communities for youth and the elderly. Student clubs and organizations are driven by student leaders pursuing personal and professional passions, polishing transferable skills, and promoting learning, diversity, and community.



EAP-SHU 10053

**English for Academic Purposes: Human Ingenuity**

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The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments, and an experiential learning project outside the walls of the university. This course is designed to help you acquire skills that can be also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will explore the ways in which human creativity and innovation affect science, organizations, and society at large. The reasons humans create and innovate will be at the center of the course, as well as the consequences and impacts of creation and innovation. For many organizations, a key challenge is bringing in “the new” and managing the process of improvement. They need to know whether ideas change incrementally or whether they are prone to more radical improvements, as well as whether or not the generation of new ideas is the result of internal and external influences. Overall, students will consider questions such as the nature and importance of innovation, the processes by which this takes place in the scientific world, and how individuals and organizations cope with change and new demands

EAP-SHU 10054

**English for Academic Purposes: The Greater Good for FoS students**

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The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments and an experiential learning project outside the walls of the university. The courses are designed to help you acquire skills that can also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will explore contemporary issues in global public health through a central theme of ‘the greater good,’ a concern for the collective, in issues such as climate change, food security, and population control. It is easy for such challenges to remain abstract, and to imagine teams of experts in far-away places working to address them, and this distance tends to blur the role of the individual. We will examine the tension between individual choice and collective good, between local action and global impact, which runs through a number of global public health topics and manifests across the world in different ways. Additionally, the course will ask you to view these topics with a critical eye through an interdisciplinary lens, applying insights from environmental science, public policy, business, and health. Overall, learners will consider questions such as who stands to benefit from global health policies and initiatives, what is at stake in specific global health issues, and how such issues are being explored globally and locally, just beyond the walls of the classroom in Shanghai.

EAP-SHU 100T

**English for Academic Purposes: The Greater Good**

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The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments and an experiential learning project outside the walls of the university. The courses are designed to help you acquire skills that can also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will explore contemporary issues in global public health through a central theme of ‘the greater good,’ a concern for the collective, in issues such as climate change, food security, and population control. It is easy for such challenges to remain abstract, and to imagine teams of experts in far-away places working to address them, and this distance tends to blur the role of the individual. We will examine the tension between individual choice and collective good, between local action and global impact, which runs through a number of global public health topics and manifests across the world in different ways. Additionally, the course will ask you to view these topics with a critical eye through an interdisciplinary lens, applying insights from environmental science, public policy, business, and health. Overall, learners will consider questions such as who stands to benefit from global health policies and initiatives, what is at stake in specific global health issues, and how such issues are being explored globally and locally, just beyond the walls of the classroom in Shanghai.

EAP-SHU 100U

**English for Academic Purposes: Money Stuff**

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The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments and an experiential learning project outside the walls of the university. The courses are designed to help you acquire skills that can be also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will investigate the world of money and the ideas and practices of the global financial system. Using a daily financial column, as well as other videos, talks, lectures, podcasts, and readings, we will examine what money is and explore current issues in the financial world. Specifically, this course will investigate the historical uses and roles of money in a macro sense; the roles technology has played and will play in the financial world; and what the roles and purposes of the financial sector are, and how we evaluate and regulate what it does and how it affects our world. Concurrent with our study of the hows and whys of finance, we will also critically address moral and ethical issues around global finance, and how it affects the people and societies of the world. Overall, through this course, learners

will broaden their understanding of finance and develop the tools and skills to critically think about and evaluate money stuff in the world.

EAP-SHU 100V

#### **English for Academic Purposes: The Science of Friendship**

The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. This course will be a discussion-based seminar. As such, you will be required to read and prepare for class in advance—with the intention to actively listen and participate in group and class discussions. You should be prepared to think critically about the topics by applying, critiquing, analyzing, and synthesizing information. In addition, you will be conducting a project outside of class that is designed to foster engagement with the larger Shanghai community. The course is designed to help you acquire skills that can be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, in this course, we shall examine a relatively new area of scientific inquiry: friendship. Neglected in favor of studies of familial relationships and sexual relationships, scientists are now looking to better define and explore the science of friendship. During the recent global pandemic and social distancing efforts, the psychological and physical effects of loneliness—perhaps the opposite of friendship—have been felt worldwide further highlighting the importance of understanding the connection between friendship and our overall well-being. Technology such as WeChat, Zoom, and FaceTime has allowed us to stay connected, but has also altered the definition and structure of friendship. This course will be truly interdisciplinary in nature examining friendship through the lenses of biology, sociology, and psychology, as well as looking at the impact of technology on how we define and perform friendship. You will be asked to take the role of a scientist examining your personal connections and the environment around you to collect data, explore the elements that determine who you are friends with and why, and, hopefully, to create stronger, more rewarding social bonds.

EAP-SHU 100W

#### **English for Academic Purposes: Negotiating Self and Other**

The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative and reflective tasks, and an experiential learning project beyond the walls of the university. The course is designed to help you acquire skills that can also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. The “self” is a natural place to begin. The problem is that this is all-too-often simply taken for granted. What are selves? Are we what we say we are? But what about the way we appear to others? An important constraint on what we may become is our membership in various communities. You will be presented with a variety of sources that may include video, audio, readings, and advertising materials in order to assist you in forming and formulating your views about the process of negotiation between self and other in culture and society. Some of the subthemes that will be discussed will be self-concept and identity construction, culture and sub-culture, minority groups, gender identity, and material and consumer identities.

EAP-SHU 100X

#### **English for Academic Purposes: The Final Boss: Defeating Social Issues in Gaming**

The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments, and an experiential learning project outside the walls of the university. This course is designed to help you acquire skills that can be also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, through game-play and observation assignments, we will consider how games can operate as tools of propaganda or social-critique and how these social issues affect the players. Contrary to public opinion, it is not just “all fun and games.” Whether table-top, deck-building, MMORPG, mobile or on the playground in the school-yard, most games tell a narrative story. That narrative is a product of a real-world society. The beliefs, values, stereotypes, politics, and histories of each play out in the “Magic Circle” and are often used to drive the narrative of the story. You will be asked to think critically about the narratives created in some of your favorite games and others you’ve never played before. Designed with novice players in mind and structured as a game, you must complete each level of the course project to beat the final boss. Are you ready to play?

EAP-SHU 100Y

#### **English for Academic Purposes: Food for Thought: Eating Our Way to a Sustainable Future**

The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments, and an experiential learning project outside the walls of the university. This course is designed to help you acquire skills that can be also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will investigate food; its production and consumption and the challenges of feeding a growing global population. The course will be divided into 5 modules addressing food security, sustainability and waste as well as the politics of food and what the future might hold in terms of diet. Students will also conduct research into the factors that

influence both our current food choices and those of the future. Prerequisite: None.

EAP-SHU 100Z

**English for Academic Purposes: Governing & Governance: Impacts on Societies Businesses and People**

The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments, and an experiential learning project outside the walls of the university. This course is designed to help you acquire skills that can also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will explore the complex world of rules, laws, governments, and economic standards. The rules to this game we call life. There are rules. As humans, we made most of them. And we tend to like our artificial constraints too. In fact, we have continuously chosen organization, structure and predictability over chaos. But these systems are manufactured, and as such, they exist in a paradox of both strength and fragility. A country's currency, for example, has value unless its government begins to fail. Laws are respected until they're not. And businesses have worth until people believe they don't anymore. Given such dynamics, how are governments, as well as businesses, able to exist and function effectively? And how are so few people able to wield control over so many others? This course will examine such phenomena among societies, governments, businesses, as well as those on the receiving end of such controlling powers.

EAP-SHU 101A

**English for Academic Purposes: Crime, Punishment and Atonement**

This 101-level English for Academic Purposes (EAP) course is designed to help you continue to develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. At the 101 level students are encouraged to gain control over facilitation of group discussions as well as the other academic communicative skills introduced at the 100-level. These academic skills can also be transferred to future professional and personal endeavors. As in the 100-level course, the thematic, content-based EAP seminar, aims to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. What is a crime? This course will analyze the qualities of and relationship between criminality, discipline, and forgiveness through an assortment of cultural lenses. A wide range of human behavior across history has crossed the line between acceptable and intolerable and back as related to a variety of factors. By recognizing that the concept of illegal behavior shifts, expands, and retracts with time and across societies, students will explore how individuals, communities, and institutions perceive and react to various offenses and offenders. In this seminar-centered course, students will select relevant case studies to extend the discourse by examining reactions to crime and criminal behavior across select historical and social timelines for contrast, comparison, and critique. Across the semester, students will conduct investigations of how we, as a society, judge, punish, and forgive select categories of crimes and criminals. This course also includes analyses of contemporary issues regarding criminal justice reform, recidivism, and crime-related public policy. The ethics and implementation of punishment, forgiveness, restitution and reconciliation will be reviewed and contextualized to offer students a complete picture of the function and flaws of observed justice

EAP-SHU 101B

**English for Academic Purposes: Online Video, The Visual and the Social**

This 101-level English for Academic Purposes (EAP) course is designed to help you continue to develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. At the 101 level students are encouraged to gain control over facilitation of group discussions as well as the other academic communicative skills introduced at the 100-level. These academic skills can also be transferred to future professional and personal endeavors. As in the 100-level course, the thematic, content-based EAP seminar, aims to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course is designed to give students an appreciation of the rise of online video and its implications (both positive and negative) on society at large. Through a mixture of prepared academic lectures and readings, plus a healthy dose of online video media students will watch and analyze, the course will examine the characteristics and features of this media that make it different from other video and also explain its ability to speak to so many people in different ways. Furthermore, the course will use design theories and practical advice from actual online videographers to help students gain an elementary understanding of the successful production techniques necessary for this media. Students will hopefully walk away from the course with the necessary skills to be successful at NYU and both a critical eye of online video and ideas and some practices on how to best communicate in this media.

EAP-SHU 101C

**English for Academic Purposes: Intercultural Communication**

This 101-level English for Academic Purposes (EAP) course is designed to help you continue to develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. At the 101 level students are encouraged to gain control over facilitation of group discussions as well as the other academic communicative skills introduced at the 100-level. These academic skills can also be transferred to future professional and personal endeavors. As in the 100-level course, the thematic, content-based EAP seminar, aims to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. In this course, you will be given the opportunity to 'master the skills of cross-cultural effectiveness,' a central part of the mission of NYU-Shanghai. These are perhaps the most important goals that you can set for yourselves in today's global world where people from disparate cultures must come together to solve the big problems of the age. In order to become effective in communicating across cultural boundaries, one must first

'know thyself' and the way that cultural self is perceived by others. Just as a fish in water is not aware of the water, it is difficult to see the always shifting cultural contexts in which global citizens "swim." You will increase your ability to recognize 'intercultural variables' and disparate 'communication styles,' conceptualize and practice intercultural communication and etiquette that is both verbal and non-verbal, and question assumptions you have about communication and culture. You will also be prompted to develop your own set of intercultural values in light of what you have learned.

EAP-SHU 101D

### **Are You Ready To Rock?**

This 101-level English for Academic Purposes (EAP) course is designed to help you continue to develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. At the 101 level students are encouraged to gain control over facilitation of group discussions as well as the other academic communicative skills introduced at the 100-level. These academic skills can also be transferred to future professional and personal endeavors. As in the 100-level course, the thematic, content-based EAP seminar, aims to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this EAP seminar is a short survey of pre-rock and rock history that explores the main eras and key events in rock and pre-rock history mainly within 20th and 21st century United States. Traditional African music and nineteenth century American music, jazz, blues, country music, rock and roll, hip-hop, electronic music, punk, metal and modern-day hits will be investigated with a focus on the social and historical elements involved. Other themes include politics, economics, technology, race and ethnicity as they relate to the songs we discover. We will also review live concerts and rate air guitar championships. Are you ready to rock?

EAP-SHU 101E

### **Animals and Human Society**

The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments, and an experiential learning project outside the walls of the university. This course is designed to help you acquire skills that can be also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will explore the relationship between humans and non-human species from a sociological viewpoint. Topics include: the history of animal-human relations; the moral status of animals; how gender, class, and race-ethnicity impact our dealings with animals; zoos and shelters; the relationship between violence toward animals and toward people; animal rights movements; animal therapy; and the question of whether animals are part of society. In order to contextualize these ideas, students will engage in a research project that involves interviewing an expert on one of these topics. Through this experience outside the walls of the university, you will consider further these questions surrounding animals and humans.

EAP-SHU 101G

### **English for Academic Purposes: Cultural Representation, Appropriation and Distortion**

The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments, and an experiential learning project outside the walls of the university. This course is designed to help you acquire skills that can be also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will explore the ways in which cultures and subcultures define themselves, are defined by others, and the cultural overlapping that exists among them—for better or worse? This course provides a cross-examination of culture itself, interweaving aspects of anthropology, politics, history and sociology in its attempt to deconstruct traditional paradigms. Students will critically examine various histories and perspectives in search of greater clarity and 'truths' as they challenge their own preconceptions and assumptions. This course ultimately aims to effect greater awareness, tolerance, and insight to students as they engage with our complex, yet interconnected human world from the inside out, and from the past, forward.

EAP-SHU 101H

### **English for Academic Purposes: Smart Cities/ Smart Lifestyles**

This 101-level English for Academic Purposes (EAP) course is designed to help you continue to develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. At the 101 level students are encouraged to gain control over facilitation of group discussions as well as the other academic communicative skills introduced at the 100-level. These academic skills can also be transferred to future professional and personal endeavors. As in the 100-level course, the thematic, content-based EAP seminar, aims to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will investigate the concept and framework of smart cities we are now living in and explore how smart cities come to change our lifestyles. Through a five-pronged framework that includes 1) technology, 2) people, 3) institutions, 4) energy, and 5) data management, learners will examine many aspects of smart cities. These will include the way smart cities are conceptualized, core factors for a successful initiative, and the ways in which a smart city promotes life quality via intensive uses of information and communication technologies. Students will be encouraged to link their own living experiences of, for example, transportation (e.g., ride sharing), healthcare (e.g., mobile clinic), education (e.g., online learning), public safety (e.g., body and dashboard cameras), and housing (e.g., Airbnb), with the issues discussed in the course. Connections will be made to real-world examples of

smart cities, such as Shanghai, New York City, Dubai, London, etc. Overall, through this course, learners will broaden their understanding of areas of the urban experience central to their lives and develop the tools and skills to critically think about this nexus of ideas

EAP-SHU 101J

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**English for Academic Purposes: What's So Funny? Taking Humor Seriously**

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This 101-level English for Academic Purposes (EAP) course is designed to help you continue to develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. At the 101 level students are encouraged to gain control over facilitation of group discussions as well as the other academic communicative skills introduced at the 100-level. These academic skills can also be transferred to future professional and personal endeavors. As in the 100-level course, the thematic, content-based EAP seminar, aims to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will investigate topics such as what makes a particular incident funny, why we laugh at some remarks but not others, what is happening in the brain when we laugh, and whether or not there a way to predict what people will find comical. Attempts to answer these surprisingly complex questions have given rise to the rapidly expanding interdisciplinary field of humor studies. We will test various theories of humor to see how well they hold up; take a close look at different genres of humor such as jokes, puns, teasing, irony, parody, dark humor, visual humor, and the absurd; explore the cognitive and social processes involved in the perception and production of humor; try to understand when and why humor does or does not translate well across cultures; study some applications of humor in advertising, education, medicine, business management, and other fields; and consider which factors can render humor ineffective, unintentional, or unethical. Overall, through this course, students will examine the major findings of humor research to date and investigate some of the many mysteries that remain.

EAP-SHU 101P

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**English for Academic Purposes: Artificial Intelligence: Exploring Opportunity, Assessing Risk**

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The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments and an experiential learning project outside the walls of the university. The courses are designed to help you acquire skills that can also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will investigate Artificial Intelligence (AI); its origins, types and applications together with its current and future impact on humanity. The course will be divided into 5 modules addressing education, work, health, the media and the future implications of a digitized planet. Students will also conduct research into the specific ways in which AI is changing the nature of society and the associated ethical implications.

EAP-SHU 101S4

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**English for Academic Purposes: The Greater Good for FoS Students (2-credits)**

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The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments and an experiential learning project outside the walls of the university. The courses are designed to help you acquire skills that can also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, this course will explore contemporary issues in global public health through a central theme of 'the greater good'; a concern for the collective, in issues such as climate change, food security, and population control. It is easy for such challenges to remain abstract, and to imagine teams of experts in far-away places working to address them, and this distance tends to blur the role of the individual. We will examine the tension between individual choice and collective good, between local action and global impact, which runs through a number of global public health topics and manifests across the world in different ways. Additionally, the course will ask you to view these topics with a critical eye through an interdisciplinary lens, applying insights from environmental science, public policy, business, and health. Overall, learners will consider questions such as who stands to benefit from global health policies and initiatives, what is at stake in specific global health issues, and how such issues are being explored globally and locally, just beyond the walls of the classroom in Shanghai.

EAP-SHU 101V

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**English for Academic Purposes: The Science of Friendship**

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The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. This course will be a discussion-based seminar. As such, you will be required to read and prepare for class in advance—with the intention to actively listen and participate in group and class discussions. You should be prepared to think critically about the topics by applying, critiquing, analyzing, and synthesizing information. In addition, you will be conducting a project outside of class that is designed to foster engagement with the larger Shanghai community. The course is designed to help you acquire skills that can be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. Specifically, in this course, we shall examine a relatively new area of scientific inquiry: friendship. Neglected in favor of studies of familial relationships and sexual relationships, scientists are now looking to better define and explore the science of friendship. During the recent global pandemic and social distancing efforts, the psychological and physical effects of loneliness—perhaps the opposite of friendship—have been felt worldwide further highlighting

the importance of understanding the connection between friendship and our overall well-being. Technology such as WeChat, Zoom, and FaceTime has allowed us to stay connected, but has also altered the definition and structure of friendship. This course will be truly interdisciplinary in nature examining friendship through the lenses of biology, sociology, and psychology, as well as looking at the impact of technology on how we define and perform friendship. You will be asked to take the role of a scientist examining your personal connections and the environment around you to collect data, explore the elements that determine who you are friends with and why, and, hopefully, to create stronger, more rewarding social bonds.

EAP-SHU 101W

#### **English for Academic Purposes: Negotiating Self and Other**

The freshman English for Academic Purposes (EAP) course is designed to help you develop the high-level language, communication, and critical thinking skills you need to be successful in an English-speaking university. While the primary emphasis is on speaking and listening, you will also practice reading and writing. You will engage with content individually and in groups, complete a variety of communicative tasks, reflective writing assignments, and an experiential learning project outside the walls of the university. This course is designed to help you acquire skills that can be also be transferred to your future professional and personal lives, and to help you cultivate an interest in issues that cross disciplines, an important part of a well-rounded, liberal arts education. The "self" is a natural place to begin. The problem is that this is all-too-often simply taken for granted. What are selves? Are we what we say we are? But what about the way we appear to others? An important constraint on what we may become is our membership in various communities. Students will be presented with a variety of texts (written and visual, including video, audio clips, and possibly print advertising) in order to assist them in forming their opinions about the process of negotiation between self and other in society. Moreover, the concept of 'negotiation' itself will be highlighted and explored in this context. Some of the subthemes that will be discussed will be self-concept and identity construction, culture and sub-culture, treatment of minority groups, gender identity, and material and consumer identities.

CRWR-SHU 159

#### **Introduction to Creative Writing**

This workshop course offers a broad introduction to the art of capturing the world around you in your own original fiction and poetry. Through close readings of classic and contemporary examples, intensive in-class workshops, and vigorous revision, students will learn to make their stories and poems live on the page through attention to plot, character, dialogue, language, heartbreaking images and the mystery of the perfect line break. Prerequisites: None. Equivalency: This course counts for CRWRI-UA 815 Creative Writing: Introduction to Fiction and Poetry. Introduction to Creative Writing is a requirement for all intermediate/advanced workshop classes.

CRWR-SHU 161

#### **Introduction to Creative Writing: Literary Translation**

Creative writing and literary translation are deeply connected. Many of our greatest literary texts come to us through translation, and writing your own fiction, creative nonfiction, and poetry often means writing with a sharp awareness of cultural and linguistic richness and diversity (in other words, writing with an awareness of how translation shapes us and our writing). In this course, you will explore creative writing and translation together, working to translate exemplary samples of poetry and creative prose as a way of learning and practicing craft in several fundamental genres and forms. You will then take what you learn about craft and form to write and workshop your own original creative writing and co-translations of fellow students' creative work. We will work primarily in English and Chinese, though texts written in other languages will provide models and examples for discussion and practice. This course may be used to fulfill the prerequisite requirement for intermediate Creative Writing workshops. Prerequisite: None. Fulfillment: General Elective.

CRWR-SHU 170T

#### **Topics in Creative Writing: Creative Translation The Art of Literary Translation**

This introductory course welcomes all students with an interest in language as a medium of creative expression. Unlike other creative writing classes, here the emphasis is on writing in and across multiple languages rather than on writing in one language. This does not mean students must be competent in more than one language or have previous creative writing experience, only that students have both a strong interest in creative writing and a deep curiosity about how much of the great writing that helps shape our experience of the world comes to us through translation in one form or another. Students will work individually and in small teams to translate exemplary short works of prose and poetry into English (primarily but not necessarily exclusively from Chinese; depending on student interests and backgrounds we may also translate into Chinese or other languages). Students will also write their own short creative poetry and prose, and work together to translate one another's work into at least one other language. We will often work with cribs — basic rough translations that require further careful work as a reader, researcher and a creative writer to render as texts that succeed in a new language. Students will study basic translation theory and concepts, then work to put those concepts into practice as translators and as critical readers. We will discuss ethical questions that arise when we bring work from one culture into another, as well as the increasing importance of helping people from different cultural backgrounds understand

CRWR-SHU 207

#### **Introduction to Screenwriting**

Introduction to Screenwriting examines the principles of story structure through the close analysis of classic and contemporary screenplays. Using Robert McKee's *Story* and Paul Gulino's *The Sequence Approach* as primary texts, students will learn the basic mechanics of character, genre, theme, act design, scenecraft, and dialogue. Lectures will blend dramatic theory with practical examples from each week's screenplay. Students are expected to complete a

logline, a synopsis, a scene by scene outline, and the first act of a feature-length script. Writing workshops and peer review are integral to the development of the course. Prerequisite: Introduction to Creative Writing or Junior/Senior standing

CRWR-SHU 209

### **The Art of the Personal Narrative**

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In this intermediate creative writing workshop, students will explore how writers articulate a unique "I," drawing directly from personal experience. Students will write their own narratives across several genres and in several modes, working at times from immediate observation, at others from memory, sometimes drawing upon research, and often using techniques of fiction and poetry to inspire creative writing that can push the personal essay and memoir in the direction of inspired fiction, poetry, and cross-genre experimentation. In addition to developing their own writing projects, students will read and analyze a range of exemplary texts in which writers use the "I" as point of departure for writing about the world—moving beyond narrow exploration of the "self" into dynamic engagement with others and with the environment, with history, the city, travel—and anything and everything else a great writer can make us care about. Students must have completed Introduction to Creative Writing or be of junior or senior standing to enroll in this course.

CRWR-SHU 220

### **Intermediate Creative Writing Craft Course**

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In this intermediate craft course, we will investigate how the teller shapes and powers the story. Along with critical texts, we will read fiction told in a variety of perspectives, including stories that aren't easily categorized. How does a narrator reveal herself? How is narrative perspective developed, maintained, and broken? When is intimacy created with the reader, or distance from him, and why? Students will write their own stories in an experimental array of perspectives—from the third-person omniscient we associate with Dickens, to the unreliable first-person beloved by fans of J.D. Salinger, to the less traditional second person found in Lorrie Moore's work. Alongside discussions of narration, we will continue to practice additional craft elements: plot, characterization, imagery, among others. Students will be required to complete a substantial fiction project, but may also experiment with other or hybrid genres as part of their work for the course. This is a course for students who love to read, who are committed to the practice of writing creatively, and who aim to become better creators and analyzers of stories. This is also workshop, and we will share our creative work and respond to the work of others in a writing workshop setting. This course is open to juniors and seniors and to those who have completed the introductory creative writing course.

CRWR-SHU 221

### **Intermediate Poetry Workshop**

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In this intermediate creative writing workshop, students will explore the possibilities of poetry by writing and sharing their own work while also engaging with exemplary works by great poets from a range of traditions, background and times, with a practical emphasis on contemporary poetry and its many vibrant modes and methods. At times, students will experiment with age-old forms such as the sonnet, haiku and sestina; at other times students will pursue the possibilities of contemporary performance poetry and spoken word, Modernist collage and pastiche, postmodern hybrid poetics, and emergent digital poetics. The goal for each student will be to create a body of work that draws on knowledge of traditional forms while also speaking directly to the unique circumstances of our times — and each individual poet's experience. Prerequisites: Students must have either 1) completed an Introduction to Creative Writing Course (CRWR-SHU 159 or CRWR-SHU 161) or 2) be of junior or senior standing.

CRWR-SHU 245

### **Intermediate Fiction Workshop: Speculative Fictions**

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Science fiction, fantasy, horror, weird fiction, alternative histories—all fall under the heading of speculative fiction. This class has three basic components: 1) reading and discussing a focused set of works of speculative fiction (and watching a few films), framed by a set of critical texts; 2) research; and 3) frequent writing exercises and assignments, culminating in a semester project. Students will read and discuss to understand better how speculative fiction works, both in terms of basic narrative techniques common to all fiction as well as with regard to challenges, such as worldbuilding, that may be considered unique to speculative fiction. Students will conduct research necessary to both better understand those texts and their authors' techniques and thinking, and to do work necessary to support their own creative experiments in writing their own speculative fiction and/or critical work (research is a big part of the successful speculative fiction writer's practice). All students will begin their writing process by generating a range of story ideas by way of writing experiments and assignments before committing to a semester project. Once students have settled their semester projects, they will conduct research alongside the drafting of scenes for their final project, with the research helping them understand and begin to build a speculative world. Students will write a focused research paper as well as a creative work — most likely a short story, perhaps an episode of a larger envisioned project — informed and shaped by the research they conduct. Students are welcome to work to incorporate the work they do in this class into IMA or creative writing projects that exceed the scope of this class (so, for instance, IMA students might work to integrate their work for this class into their interactive projects).

CRWR-SHU 248

### **Writing the Novella**

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Too long to be a short story and too short to be a novel, the novella has been described by Stephen King as a country with "ill-defined" borders situated between "two more orderly regions." The novella's intermediary length can make it less palatable to magazine editors and book publishers alike, but in spite of its perceived lack of commercial viability many of our most enduring stories are novellas—Heart of Darkness, The Turn of the Screw, The Metamorphosis, Animal Farm, and A Christmas Carol, to name just a few. In this course, geared toward intermediate and advanced fiction writers, we explore the exciting possibilities of the form through our readings and work on



novellas of our own. By the end of the course, students will have read a wide range of novellas by international authors such as Saul Bellow, Robert Bolaño, Eileen Chang, Anton Chekhov, Elena Ferrante, Neil Gaimin, Yasunari Kawabata, and Alice Munro. They will also have completed a significant portion of their own novellas, gaining a deeper understanding of what Ian McEwan calls “the modern and post-modern form par excellence.” Prerequisite: Introduction to Creative Writing, or junior or senior standing Fulfillment: This course will fulfill one of the two the Intermediate Workshop components for the creative writing minor. In addition, it can be used as a Humanities Topics course.

CRWR-SHU 260T

#### **Writers on Writing**

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The premise of this course is that gifted writers highly conscious of their craft teach us more pointedly about creative writing when, juxtaposed to the creative work of each, we hear, see and experience what each identifies as fundamental to his or her writing practice — whether technique, discipline, recurrent battle, avenue of inspiration, self-imposed rule or other. This course looks to such writers as guides from whom we may learn by studying the steps they have taken over time to develop and hone their craft. The course typically (but not always) pairs, each week, one or two pieces of an author’s creative work with another that reflects critically on some aspects of their writing practice, and on the craft of writing. In essence, this is a hybrid course that blends study of creative work with that of writers’ critical self-reflection. Students also pursue their own creative writing projects, reflecting critically on their own process along the way. The course readings draw from multiple cultures, literary traditions, and genres including the short story, flash fiction, the novella, the essay, memoir, diary, children’s literature and poetry. Prerequisite: Writing as Inquiry WRIT-SHU 101/102 OR CRWR-SHU 159 Introduction to Creative Writing OR CRWR-SHU 161 Introduction to Creative Writing: Literary Translation Focus Fulfillment: This course counts as one of the three intermediate/advanced creative writing workshops required for completion of the Creative Writing Minor.

WRIT-SHU 101

#### **Writing as Inquiry: WI**

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Critical inquiry is the heart of a liberal arts education, and writing is this inquiry manifested on the page. In NYU Shanghai’s first-year writing course, students will read texts and respond by writing their own. In doing so, they will add their critical perspectives to ongoing academic and public conversations. Students will work to write sophisticated and cogent prose, and learn to effectively incorporate written texts in the development of their own arguments. Class discussions will include strategies for every step of the writing process—from invention and organization to research and revision. In a workshop setting, students will analyze the work of their peers and respond to feedback on their own writing. By the end of the course, students should be able to dissect difficult textual material, recognize rhetorical strategies and genre conventions, and build clear and convincing arguments that matter both within and beyond academic contexts. In WI, we will spend additional time focusing on areas of rhetoric, grammar, and style that are relevant to second language writers.

WRIT-SHU 102

#### **Writing as Inquiry: WII**

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Critical inquiry is the heart of a liberal arts education, and writing is this inquiry manifested on the page. In NYU Shanghai’s first-year writing course, students will read texts and respond by writing their own. In doing so, they will add their critical perspectives to ongoing academic and public conversations. Students will work to write sophisticated and cogent prose, and learn to effectively incorporate written texts in the development of their own arguments. Class discussions will include strategies for every step of the writing process—from invention and organization to research and revision. In a workshop setting, students will analyze the work of their peers and respond to feedback on their own writing. By the end of the course, students should be able to dissect difficult textual material, recognize rhetorical strategies and genre conventions, and build clear and convincing arguments that matter both within and beyond academic contexts.



GCHN-SHU 110

**The Concept of China**

What do people think they are talking about when they refer to “China”? Does the term refer to a geographical, cultural, political, hybrid, or other type of entity? How and why has that changed both within China and outside China? This course is about reality and representation; it will address both the shifting geographical, political, cultural and human reality of “China” and what “China” meant to both inhabitants and outsiders in different periods and in different contexts. The goals of the course are 1) to deepen understanding of the history of China and the role of the past in the present 2) to introduce different ways of thinking about China in the world and the world in China, 3) to learn to distinguish between opinion, hypothesis and fact in historical inquiry; 4) to reinstate a concept of China as dynamic, varied, and interactive. Prerequisite: None. (This may be used as a survey course in the Humanities.) Fulfillment: Core Curriculum Humanistic Perspectives on China; GCS Major Requirement; Humanities Major Other Introductory Courses (18-19 Critical Concepts Core Course/Survey Courses).

GCHN-SHU 156

**History of Chinese Art**

This course surveys art, visual culture, and material culture in China from the Neolithic to the end of the 19th century. Approximately one-third of the lectures will be organized based on the different mediums used in art, such as ceramics, jades, bronzes, and sculptures. Some lectures are designed to contextualize art into separate functions, such as for funerary and Buddhist rituals. The rest classes stress the difference in patronage, such as imperial art and literati art. Particular attention will be paid to understanding objects within their original social and cultural contexts. We will also relate individual artworks to a broad cultural background, highlighting the influence of various religions, philosophies, and politics. The goal of this course is to familiarize students with the diverse body of artwork produced in premodern China, as well as to consider the role art has played in representing or negotiating identities, religions, history, and politics. Students will be trained in various art historical methodologies and will deepen their knowledge about one aspect of Chinese art history through a group curatorial project. This course satisfies CORE CA/HPC; GCS Chinese Media, Arts and Literature; Old Humanities Major Requirements: Survey Course; New Humanities Major Requirements: Introductory Course. (18-19 Survey Courses).

GCHN-SHU 164

**The History of the Silk Road**

The Silk Road has been a museum exhibition sensation as well as inspiration for Indiana-Jones-type of adventures, ever since the name was coined in 1877. As appealing as the name is in all kinds of media, it is never quite clear what the Silk Road actually entails. What does it mean to you, for instance? Searching for an answer, you will encounter numerous websites, books, scholarly and popular articles, or TV documentations that seek to unravel its many mysteries and even travel agencies that aim at revealing its myths. By consulting archaeological as well as written sources this course is going to evaluate all aspects of early Silk Road history – trade, travel, war, religion, ideologies, and cultural exchange – from its earliest age through the Mongolian Era (13th century). The main goal is, however, not to look at every aspect in isolation as it is often done, but to bring them all together. This way it will become clear that actual reality was considerably more complex than is generally claimed. Only the interplay of several factors allowed The Silk Road to become a pre-modern ‘success story’ probably only rivaled by the internet. Prerequisites: None. (This may be used as a Survey course in the Humanities OR Global China Studies Geographies.) Fulfillment: Core Curriculum: Social Science Perspective on China / Humanistic Perspectives on China; GCS Major China and the World / Chinese Geographies (17-18); Humanities Other Introductory Courses / Survey Courses (18-19).

GCHN-SHU 165

**China and the Islamic World, c. 600AD-Present**

One of the most significant geopolitical shifts of recent years has been China's increased interest and involvement in the Islamic world, from Afghanistan to Africa. However, although such connections are not new, scholars have rarely examined the long history of contacts between the Sinic and the Islamic worlds comprehensively and systematically. Assembling a wide array of primary and secondary sources on different forms of Sino-Islamic encounters, this course introduces the major events, issues, and peoples that are involved in the complex relations between them. In-depth discussions of these topics will not only provide students with new perspectives on the histories of the Islamic world and China respectively, but also historical insights to gain a deeper understanding of the newly revived Sino-Islamic relations and the emerging China-US-Middle East triangular relationship in the twenty-first century. This course welcomes all students interested in histories of the Islamic world and China. No special background is required, though of course some knowledge of the history of China and/or the Islamic world will be a plus. Although it is a seminar course (we meet once weekly), a fifteen-minute mini-lecture in each class will provide students with basic background knowledge and set the context for the following week. We will then devote ourselves to discussion of the assigned readings. Pre-requisites: None. (This may be used as a topic course in the Humanities.) Fulfillment: Core Curriculum Humanistic Perspectives on China; GCS China and the World/ Electives; Humanities Major Other Introductory Courses (18-19 Topic Courses/ Survey Courses).

GCHN-SHU 233

**Foreign Societies in Classical Chinese Writing**

This is a Classical Chinese class that covers writings on foreign societies in history. In this class, we will see how people used Classical Chinese to make records of foreign societies, descriptively or imaginarily. We will follow pilgrimages to India as well as adventures in Vietnam; we will encounter child-eating Dutch cannibals as well as people from the Country of Dogs. Beneath this exotic surface, we will examine the underlying schemes and tropes that are often used to describe foreign people and polities in Classical Chinese writing. In this way, we will

know what to expect when we read a text of similar genre. Because this is a Classical Chinese class, we will learn how to use grammar and context to parse difficult passages: we will learn basic tactics to unpack sentences when their structures are unclear or the words' meanings are opaque. These tactics are especially crucial when one encounters an unfamiliar text without any outside help. Prerequisite: CHIN-SHU 402 (Classical Chinese II) or equivalent; OR Instructor Permission (contact Professor Zhao Lu, lz69@nyu.edu)

GCHN-SHU 234

#### **Dunhuang and Its Global Connections**

Dunhuang is not only the "Pompeii of China" that in modern days attracts a huge amount of tourists; it was also one of the most metropolitan cities in the ancient world, comparable with Rome, Alexandria, or Constantinople. How could an inland city be so cosmopolitan? What makes the place a city of art? And how did this once fashionable city fade away, and then reappear as a complex of archeological sites? In this class, we will focus on one of the biggest archeological discoveries in the 20th century: Dunhuang. In addition to how Dunhuang was discovered, we will explore the main elements that vitalized Dunhuang as a metropolitan city: art, religion, language, literature, and technology. We will further examine the lifelines that brought these diverse cultural elements into Dunhuang from China, India, Central Asia, etc. As part of the class, we will also take a field trip to Dunhuang and nearby sites to physically experience the connectedness of Dunhuang. We will closely examine the murals, caves, and the city layouts so that we can reconstruct what it was like to live in the ancient Dunhuang. In other words, you get to be in the art world of Dunhuang. Pre-requisite: None.

GCHN-SHU 243

#### **Chinese Environmental Studies**

As the 21st century began, pundits debated whether, like the 20th, it would also be "America's century," whether China's remarkable economic rise would make it "China's century," or, perhaps, one seeing the development of "Chimerica." At the same time, it was also said that environmental limits to development will be the primary shaper of countries and their fortunes—with China (and India), with huge population and rapid development, and the U.S., with high per capita consumption, as keys to the future of the planet. This course will study China's environmental challenges and governance in the context of America's own environmental challenges and governance system, and in the context of the challenges to the two countries as the primary sources of the world's greenhouse gas emissions. We will consider how developments may shape business, government, and culture, and the ways in which China and America may learn from one another. Prerequisite: None. This course can satisfy STS or SSPC core requirement.

GCHN-SHU 250

#### **Geographies of China**

Our goal is to map China. But rather than making maps through calculations or grids, we will be mapping China conceptually and theoretically. This is to say that in studying China's regions, physical geography, political territories, cities, counties, and people, our goal is to develop skills for thinking about China spatially. With thousands of years of recorded history and a political system oriented to progress and national development, China is often imagined in terms of linear time. However, from ancient walled cities to the Mao-era work-unit system to the more recent migrations of rural labor, understanding how political, commercial, and social spaces are organized is essential for understanding China's past and present. pre-req: None. Fulfillment: GCS elective The Politics, Economy, and Environment of China; Social Science Focus Environmental Studies 200 level; Humanities Critical Concepts or Topic/ Interdisciplinary or other Advanced course; CORE SSPC.

GCHN-SHU 255

#### **Eat, Pray Ponder: Chinese Intellectual Culture through the Age**

This is a class about what Chinese people think and believe, and how they perceive the society to which they belong. The class will cover a wide range of material from Shang oracle bones, Confucianism, Legalism, Taoism, Buddhism, and various folk religions, to 20th-century debates on Western thought and Communism. This class highlights three general concerns: 1) although we will cover the main categories of Chinese thought (e. g. Confucianism, Taoism and Buddhism), we will emphasize the diversity of thought both within and outside those larger categories; 2) we will make clear that people's beliefs and thought changed frequently over time and space, and 3) we will examine how socio-economic conditions and the media used to convey ideas affect people's intellectual world and vice versa. No Chinese is required. Prerequisite: None.

GCHN-SHU 263

#### **Voices from the Margin: Modern Chinese and Sinophone Writers**

The literary scene in the modern and contemporary Chinese-speaking world is diverse, vast, and challenging for the migrant and exilic minds whose creative energies are often driven by their poignant insights to the turbulent events around them. Working in, outside, and between places like mainland China, Taiwan, Hong Kong, America, and parts of Southeast Asia, Chinese-language writers ask questions about nationalism, tradition, ethno-linguistic politics, and cultural authenticity. They speak from and across multiple cultural margins to probe the nature of modernity, cross-cultural contact, and otherness amid the global flows of labor and ideas. This course invites students to participate in the ongoing discursive and historiographical debates over the study of "modern Chinese literature" through a fast-emerging transnational and comparative perspective. Reading stories, novels, and essays by both established and marginalized writers, we place the traditional nation-based rubric of Chinese literary studies in critical dialogues with a set of jarring historical contexts: Euro-American imperialism, Chinese emigration and their settler-colonial history, the post-1949 political split, and global decolonization movements, among others. (This may be used as a topic course or literary interpretation in the Humanities.) Prerequisite: None.

GCHN-SHU 264

#### **Chinese Migrant and Diasporic Networks**

This course introduces students to the history and cultural formations of worldwide Chinese migrations and diasporic communities, including change over the last two centuries and evolving global diasporic relationships and interactions. Some topics of interest include Zheng He's legendary maritime travels on the imperial treasure fleets, the opium trade and its implication for early transnational Chinese capitalism, labor migration and exclusion in North America, socio-political and cultural indigenization of Chinese communities in Southeast Asia, and the coolie trade in the Caribbean region. Materials of study include history, essay, literature, and film. Prerequisite: None. (This may be used as a topic course in the Humanities.)

GCHN-SHU 265

#### **Women in China: From May 4th to Me Too & Beyond**

This course focuses on the lives of women in China over the past century. Through a range of sources students will examine the advances made, and challenged encountered, by women in China. Students will analyze the impact, and often unforeseen consequences, of state political, economic and social policies, on women's lives. In addition to documenting the many major improvements in the quality of most women's lives, the course will also address the challenges that women continue to face, such as the ongoing influence of traditional sexist values, trafficking of women, high-suicide rates, domestic-violence, and work-place gender discrimination and harassment. The course will conclude with an examination of different imaginings of the long-term impact of China's critical demographic gender imbalance. As much as possible the experiences of women from a range of backgrounds, including different socio-economic, regional, ethnic, and religious backgrounds, will be incorporated into the course. Sources will include government policies, memoirs, short stories and science fiction, films, and academic books and articles. Prerequisite: None. Fulfillment: Core Curriculum: Humanistic Perspectives on China; GCS Elective: The Politics, Economy, and Environment of China

GCHN-SHU 267

#### **The Cultivated City**

This class examines the idea and practices of 'cultivation' in relation to the challenging environment of the 21st century city. Through field trips, readings and discussions, the class explores the concept of cultivation, and how it can be used as a basis for researching the urban ecology of Shanghai, both as a past and future city. The class incorporates a major project in the digital humanities, in which students use the tools of interactive media (audio, video and cartographic technologies) to research, map and narrativize the ways in which architects, designers, artists and intellectuals engage with the traditions of cultivation in order to imagine and recreate the future metropolis.

GCHN-SHU 275

#### **Memory Politics in China**

From historical television series, to claims of a "5000 year-old culture," to arguments bolstering territorial claims, in China history seems ubiquitous in contemporary life. In this class, explore the present-day politics of the past in China through film, fiction, music, food, urban sites, and contemporary controversies in the news. Analyze "memory politics" using major theoretical approaches to memory and history: collective memory, psychoanalysis, trauma, nostalgia, and consumption. Place China in global context through case studies on colonialism, world war, and international espionage. Visit and interpret three Shanghai sites: the new Municipal History Museum, an Anti-Japan War memorial park, and a Cultural Revolution restaurant. Produce a portfolio of writing on sites and objects that invoke memory in China and beyond. Prerequisite: None.

GCHN-SHU 283

#### **Reading and Viewing Modern China**

This is a bilingual and multimedia course designed to help students in reading, translating and critiquing primary source-based cases in modern Chinese history. For this, several sets of original documents covering different periods and events and reflecting different perspectives will be selected, and related documentary films will be shown and discussed in class. High competence in Chinese and instructor permission are required to take the course. Pre-requisites: Fulfillment of EAP 100 OR instructor's confirmation of adequate language competency for the course through a pre-enrollment test. Please contact the instructors for more information.

GCHN-SHU 316

#### **Chinese Art and Architecture in Cross-cultural Contexts**

This course is a research seminar that prepares the students for researching, translating, and critical writing in Chinese art and architecture in a cross-cultural context. The first half of the semester will progress with different topics, including, but not limited to, landscape paintings, Buddhist art, ceramics, and gardens and architecture. To tackle research questions and problems in these fields, the students will get familiar with Chinese collections of major international museums and online Chinese art and architecture databases. They have to discuss and debate over terms from Chinese primary sources translated into English. They will also present their critiques on scholarly works focusing on cross-cultural approaches and methodology. The second half of the course allows students to make progress on a research project. They may choose a specific cross-cultural issue in Chinese art/architecture or opt to critique a historian's work from a cross-cultural perspective. Upon completing the course, the students will expand their knowledge in Chinese art and architecture from a global perspective and enhance research and critique skills to serve more humanistic disciplines. Prerequisite: One advanced level class in GCS, Humanities, Art, or IMA; language prerequisite: Intermediate II. Fulfillment: GCS Major Requirement Chinese for Advanced Undergraduate Research For Advanced GCS Track.

GCHN-SHU 351

### **Buddhism, Nature and Technology in the Chinese World**

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This course explores the interplay of Buddhism, nature and technology in in the Chinese world. In the first part, we will examine Buddhist-inspired worldviews that saw human beings as an integral part of a cosmos dominated by nature. In the second part, we will focus on Chinese Buddhist representations of nonhuman animals and human-animal relations. In the third part we will analyze Buddhist-inspired technology, in the sense of an application of knowledge that connects us inter- subjectively and with the material world. We will focus on Buddhist- inspired non-human actants, artifacts, hermeneutics textual forms, infrastructures, and so on that have extended human capacities. In the final part we will focus on Shanghai and the Buddhascapes of the modern Chinese city. Prereq for GCHN-SHU 351 is GPS and WAI.

GCHN-SHU 400

### **Global China Studies Senior Capstone Seminar I**

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Fall Semester: Methodologies in China Studies; Spring Semester: Research Project Seminar. The first semester of this two-semester capstone course will focus on examining the importance and shortcomings of Chinese primary sources and data, familiarizing with and learning how to access and use key archives, museums, libraries, research tools, databases, and digital websites, and analyzing some of the pivotal books and articles on China. Students will also draft a research proposal, with a preliminary bibliography, and identify a faculty mentor for the second semester of the capstone course. During the second semester, students will work primarily with their respective mentors, but are required to also participate and make presentations at a weekly research seminar. Those opting for Advanced GCS major must demonstrate competency in reading and analyzing Chinese language sources. Prerequisite: Senior Standing GCS Major. Major Fulfillment: GCS Two-semester Capstone Course.

GCHN-SHU 401

### **Global China Studies Senior Capstone Seminar II**

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Fall Semester: Methodologies in China Studies; Spring Semester: Research Project Seminar. The first semester of this two-semester capstone course will focus on examining the importance and shortcomings of Chinese primary sources and data, familiarizing with and learning how to access and use key archives, museums, libraries, research tools, databases, and digital websites, and analyzing some of the pivotal books and articles on China. Students will also draft a research proposal, with a preliminary bibliography, and identify a faculty mentor for the second semester of the capstone course. During the second semester, students will work primarily with their respective mentors, but are required to also participate and make presentations at a weekly research seminar. Those opting for Advanced GCS major must demonstrate competency in reading and analyzing Chinese language sources. Prerequisite: Senior Standing GCS Major AND completion of GCHN-SHU 400.

GCHN-SHU 997

### **Global China Studies Independent Study**

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Course Repeatable for Credit. Only for NYU shanghai major students. Permission of Area Leader required; go to the following link to print out the Independent Study request form: <https://shanghai.nyu.edu/academics/registration/independent-study-forms>

RELS-SHU 9270

### **Religion and Society in China: Ghosts, Gods, Buddhas and Ancestors**

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This course is a survey of the major historical and contemporary currents of China's religious thought and practice, including Buddhism, Confucianism, Daoism and "popular religion". It will focus on the interactions between such teachings and practices, as well as on the role of religion in Chinese society. You will study topics such as divination, visual culture, ritual, ancestor worship, morality, longevity techniques, healing practices and meditation. A selected number of primary and secondary sources will be discussed in each lecture; documentary films and visits to religious sites will be also key constituents of the course. Please note if you miss the first class of the term, you will need to contact the instructor to determine if you can still remain enrolled in the course. Fulfillment: Core Curriculum Social Science Perspective on China; GCS Elective; Humanities Advanced Courses (18-19 Topic Courses).

HUMN-SHU 168

## **Penning the Self(ie): Orality, Literacy, Digitality, and the Literary Subject**

Phone in hand, questions loom in our head: is digital technology destroying memory, communication, and interpersonal relationships? Will our kids read and write cursive? Is print media disappearing? The notion of writing as a technology seems far removed from our fast-paced, digital world; but it was not so long ago that writing constituted a technological advance that permeated Western societies. This course examines key moments in writing's history in order to understand its role in shaping the literary subject. We trace the shift from oral to written traditions in romance and courtly literature, then turn to the printing press, copyright and intellectual property, and conclude by examining how our relationship to writing in the past can inform our relationship to digital media in the present. Throughout the semester, students engage in an experiential learning project where they create a hero/ine whose story evolves from oral tradition, to written romance, to social media subject. Prerequisite: None

HUMN-SHU 180

## **Korean Culture and Society through K-pop**

Considers the trajectory of changes in the production, circulation, and reception of Korean popular music from the turn of the twentieth century to the latest K-pop hits across successive political, social, and economic junctures, with regard for major themes such as nationalism, race, gender, technology, and globalization; and investigates music culture in relation to hybridity, authenticity, transculturation, cyber-culture, and fandom, among other subjects Prereq: None Fulfillment: Humanities Major Other Introductory Courses (18-19 Topic Courses).

HUMN-SHU 185

## **Gender and Migration in Islam**

This course provides an introduction to the development of gender in Islam as it relates to women's migration and movement across regions. We will analyze fiction narratives, poetry and plays that thematize the experiences of Muslim women as migrants. The migrant condition of women lends deeper insights into historical conditions such as imperialism, globalization, connected with themes like religion and religious beliefs. Prerequisite: GPS or lower-level Humanities Course

HUMN-SHU 200

## **French Cinema: The Birth of the Seventh Art**

In 1895, when Auguste and Louis Lumière held their first private film screening in Paris, they could not have foreseen the pervasive role that cinema would one day play in our homes and our hearts. This introduction to French cinema traces the seventh art from its inception to the present day, focusing on pioneers of French cinema, surrealist film, the influential New Wave movement, and contemporary filmmakers. In addition to the films that you will watch in and out of class, you will explore a variety of theoretical approaches to cinema and develop skills in film analysis through readings and class discussions. Films will be screened in French with English subtitles. Coursework will include several short writing assignments and film analysis projects. Course Repeatable for Credit. This course satisfies Old Humanities Requirements: Survey Course; New Humanities Requirements: Introductory Course.

HUMN-SHU 214

## **European Thought and Culture: 1750-1870**

Study of major themes in European intellectual history from the end of the Enlightenment to the last decades of the 19th century, considered in the light of the social and political contexts in which they arose and the cultural backgrounds that helped shape them. Topics include romanticism, liberal and radical social theory, aestheticism, the late 19th-century crisis of values, and the rise of modern social science. Prerequisite: None. This course satisfies Old Humanities Requirements: Topic Course; New Humanities Requirements: Advanced course.

HUMN-SHU 229

## **Masters of Asian Cinema**

This course introduces students to the basic concepts and methods in film studies by focusing on a select number of eminent auteurs in Asian cinemas. Our objectives are many: first, we situate within their particular socio-historical contexts the masterworks by master-directors like Akira Kurosawa, Yasujiro Ozu, Zhang Yimou, John Woo, Wong Kar-wai, Hou Hsiao-Hsien, Sanjay Leela Bhansali, Mani Ratnam, and Deepa Mehta. In doing so, we learn the divergent developments between and within Japanese, Chinese, and South Asian film industries. We then analyze how these directors make various stylistic choices to address issues of kinship, nation, gender, historical memory, modernity, and globalization. Against the background of 20th century cross-cultural encounters, we also study the contributions of these auteurs to world cinemas and the cross-fertilization in style between these film masters.

HUMN-SHU 231

## **Contemporary Art and Theory in North America and Europe**

This course traces movements in North American and European art from 1945 to the present. Through a study of primary and secondary texts, artwork examples, and historic context students will explore how artists went beyond primarily object-based art and how institutional frameworks, media, politics, and social relations, informed contemporary art practice. The different ways artists engage with notions of space will also be examined. At the end of this course, students should be able to identify contemporary art movements, key artists,

and relevant artworks. They should also be able to articulate the conceptual and visual strategies employed in these works and have a basic knowledge of the milieu in which they were produced.

HUMN-SHU 235

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**In Conversation: Black and Chinese Artists**

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This course is a comparative study of the way a group of Black and Asian artists engaged with white western racism. As an advanced interdisciplinary seminar, this course is on the one hand intellectual, examining the historical subjugation of Black and Asian peoples to white peoples, and on the other hand practical, offering examples and exercises for artistic negotiation, resistance, and rebellion against racial hierarchies. Prereq: None. Fulfillment: Humanities Major Advanced Courses (18-19 Topic Courses).

HUMN-SHU 240

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**Gender, Sexuality, and Culture**

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This course invites students to think about some of the most carefully controlled but also fervently sought-after questions since the time of Plato: what is the difference between gender and sex? What is the relationship between our gendered bodies, behaviors, and identities? How does sex, something we do, translate to the discourse of sexuality, something we talk about? What is the measurement of normality? If art indeed imitates and even changes life, in what ways do images of gender performance in literary and visual culture also reproduce and perhaps reshape our own experiences as gendered and sexed beings in a society? What can gender and sexuality tell us about the construction of culture, its boundaries, and its "outlaws"? Through the reading of philosophical, literary, historical, medical, and visual texts, and through discussions of case studies in mass media, we learn to see gender and sexuality as an evolving historical phenomenon rather than essentialist notions. We ask how the development of human interest in sexuality coincides with the burgeoning of governing techniques in modern times to police and promote sex simultaneously—as desirable and useful on the one hand, but also forbidden and harmful on the other. Lastly, as humanists, we ask how the boundary of our body (that is, our inside and outside in the most literal sense) is marked less by our blood cells, skin pores, or molecules than by our use of language.

HUMN-SHU 271

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**Humanities Research Lab: Study Immigrant Cities**

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Fulfillment: Humanities Major Other Introductory Courses (18-19 Digital Approaches Core Course/ Topic Courses).

HUMN-SHU 284

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**Modern European Philosophy**

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An examination of major philosophical ideas and texts in Europe in the 17th and 18th centuries, from the scientific revolution to the beginning of German Idealism, including works by Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, and Kant. Prerequisite: None. This course satisfies Old Humanities Requirements: Topics Course; New Humanities Requirements: Introductory Course.

HUMN-SHU 366 (formerly 266)

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**Shanghai Stories**

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This course provides an introduction to the history and culture of Shanghai through the eyes of fiction writers. We will read short stories (in English translation) by Chinese, British, American, Japanese, French, Polish, and South African writers who lived in the city between 1910 and 2010. Their stories will take us on an imaginary city tour through time and space: from businessmen, politicians, and prostitutes gathering in the nightclubs of the old Bund, to Jewish refugees struggling to find a home in the poor shikumen neighborhoods of Hongkou, to teachers and students fighting political battles at the university campuses during the Cultural Revolution, and young urban youth pursuing cosmopolitan lifestyles in the global city of today. The course also includes trips to various places featured in the stories and guest lectures by some of Shanghai's most famous writers today. Fulfillment: Core Curriculum Humanistic Perspectives on China; GCS Elective; Humanities Major Other Introductory Courses/ Other Advanced Courses (18-19 Topic course).

HUMN-SHU 400A

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**Humanities Capstone Seminar I**

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Fall Semester - Part I: Students design and conduct an independent research project in their area of focus using the theories and methods with which they have become familiar over the course of completing the major. Open only to Humanities majors in the senior year. Fulfillment: Humanities Major Capstone.

HUMN-SHU 401

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**Humanities Capstone Seminar**

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Students design and conduct an independent research project in their area of focus using the theories and methods with which they have become familiar over the course of completing the major. Open only to Humanities majors in the senior year.

HUMN-SHU 997

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**Independent Study I - Humanities**

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Students are permitted to work on an individual basis under the supervision of a full-time faculty member in the Humanities discipline if they have maintained an overall GPA of 3.0 and have a study proposal that is approved by a Humanities professor. Students are expected to spend about ten to twelve hours a week on their project for 4

credits.

HIST-SHU 101

### **Foundations: What is History**

This course provides an introduction to a range of theoretical frameworks and methodologies that have influenced the academic study of history, including microhistory, global history, histories of gender and race, and subaltern/post-colonial historical studies. We will interrogate the key categories of historical temporality and geography by questioning how historians impose temporal and spatial boundaries around their research, as well as ways to expand or dissolve those boundaries. We will also examine how historians construct historiographical debates around particular research themes, such as the changing meaning of national histories. The aim is to acquire knowledge of a variety of historical approaches at work when reading both historical scholarship and historical source materials. Prerequisites: None. Fulfillment: Humanities Major Introductory Courses (18-19 Critical Concepts Core Course).

HIST-SHU 130

### **Western Culture is not I, II, III: Arab-Islamic Influences on the West**

This course utilizes multidisciplinary sources of evidence to address Arab-Islamic knowledge and culture, the influences that they had on medieval and early modern Europe, and that they continue to have today, while questioning why many Western scholars have minimized Arab-Islamic contributions in favor of "Western Exceptionalism" narratives. By exploring cross-cultural transmissions of knowledge, students are encouraged to think critically about how ideas and technologies evolve as they are adopted by individuals and groups in order to suit their personal and cultural needs. Prerequisite: None. Fulfillment: Humanities Major Other Introductory Courses (18-19 Survey Courses).

HIST-SHU 145

### **Food & Drugs in Chinese History**

The goal of this course is to examine Chinese society and culture through the lens of the consumption of food and drugs and to elucidate the central role played at different times by food and drugs in Chinese culture and its representations. We examine the role of food and drugs in Chinese social, cultural, economic, and political history, with an emphasis on the pre-modern period. Topics may include the relationship of health and diet; food in religious and ritual practice, gastronomy, consumption and the material culture of food including food as gift; regional cuisines; restaurants and catering; vegetarianism; famine and cannibalism; imperial dining practices; food identity; and global notions about Chinese food. Fulfillment: Core Curriculum Social Science Perspective on China/Humanistic Perspectives on China; GCS Elective; Humanities Major Advanced course (18-19 Topic Courses).

HIST-SHU 153

### **History of Modern China Since 1840**

This course covers the history of China focusing on the past two centuries and especially the 20th century, when China underwent several major revolutions. We will follow chronologically the development of China starting with the foundation and consolidation of its last major dynasty, the Qing in 1644, moving through the collapse of the dynastic system and the rise of the first Republic of China in 1912, continuing through the Nationalist Revolution of 1927, and ending with discussions of the formation and development of the People's Republic of China since 1949. Large themes that run through the course include the impact of Western colonialism on China, the role of internal rebellions and wars in giving rise to new political and social formations, the impact of Japanese aggression on China's state and society, the Nationalist and Communist Revolutions, and the endurance of the centralized Chinese state. Two excursions to historic sites in Shanghai will reinforce students' knowledge and understanding of the subject matter while also highlighting the important role of Shanghai in modern Chinese history.

HIST-SHU 156

### **Europe since 1945**

Covers the impact of World War II, the postwar division of Europe, the onset of the Cold War, the economic recovery and transformation of Western Europe, Stalinism in Eastern Europe, the 1960s and events of 1968, the origins and development of the European community, and the cultural and intellectual life of European nations in this period. Ends with a discussion of the Eastern European revolutions of 1989 and their significance, together with the reunification of Germany, for the future of the continent. Prerequisites: None Fulfillment: Humanities Major Other Introductory Courses (18-19 Survey Courses).

HIST-SHU 200

### **Topics in History: Aliens Since 1897**

Whether intelligent life exists outside the confinements of planet Earth is an old question to which an abundance of new answers has been given over the course of the twentieth century, from philosophy, religion and science fiction to anthropology, communication studies and astrophysics. Located at the intersection of cultural history, the history of science and technology, literary studies and film, this class charts the manifold figurations of the alien since its modern invention in 1897. Individual sessions will be devoted to invasions from Mars and Venus, H. G. Wells and Liu Cixin, UFO sightings and alien encounters, but also to the search for extraterrestrial intelligence, NASA's Voyager missions, the making of astrobiology into a scholarly discipline, the so-called Plurality of Worlds and Rare Earth controversies and many other aspects of modern extraterrestrialism. Ultimately, humankind's self-understanding as a species is defined, tested and exposed when confronted with radical alterity, be it real or imagined. This is an advanced undergraduate seminar with a research focus and a maximum of 15 students. It is open to juniors and seniors who have taken at least one history class; freshmen and sophomores must get instructor approval.

This course provides a broad introduction to the economic, political, social and cultural history of Europe since 1900. Following the most violent conflict in human history during the first half of the twentieth century, Europe's postwar reconstruction was based on a principle of peace through prosperity and the political ideal of an 'ever closer union'. In recent years, however, the combined economic and migrant crises have put this postwar consensus to a test. Analyzing a wide array of primary materials including autobiographical writings, newspaper articles, statistics, images, film and sound, the seminar will familiarize students with key themes and problems of modern European history and historiography. Individual sessions examine fin-de-siècle culture and modernity; imperialism and colonialism; the causes, experiences and effects of the First and Second World Wars; the Holocaust; the so-called Europeanization of Europe and its role in the Global Cold War; the crisis-ridden 1970s; the revolution of 1989 in Eastern Europe; and the crucial question of whether a distinctive European identity and sense of community have developed since the post-war period that can withstand the entangled crises of the early twenty-first century. The class includes field trips to selected sites in Shanghai entwined with European history. Previous knowledge or experience is welcome but not required

This class will examine the changing nature of death, dying and grief since the late 19th century by focusing on modern wars as instruments of change. As both the number of mortalities and the manner of death changed, so too did private and public ways of dealing with death. Societies around the world modified their understandings of death and created new ways of dealing with the dead, in body and in spirit, as wars became deadlier and dying assumed an increasingly unfamiliar shape. Some of the questions we will consider in this class include: -how is death represented in social memory during and after war? -the changing ways of dying - what is a "good" death and what is a "bad" death on the battlefield and at home? -how has the act of killing changed and how does it influence our understanding of death? -how mourning practices change, both in the private and public sphere, as a consequence of war -how do national commemorative practices interact with our private understandings of death and dying? -in what kinds of spaces do the living and the dead interact? -what elements of modern war foster these changes? Do all wars shape death and dying in the same way? What common features exist and what elements are culturally specific? Pre-requisites: Not open to first-year students. Fulfillment: Humanities Major Topic Courses (18-19).

Examines key themes in the social history of New York City: the pattern of its physical and population growth, its social structure and class relations, ethnic and racial groups, municipal government and politics, family and work life, and institutions of social welfare and public order. Pre-requisites: None. This course satisfies Old Humanities Requirements: Digital Approaches or Topic; New Humanities Requirements: advanced course.

China at the Center? An Exploration of Chinese Foreign Relations from Pre-imperial to Late Imperial Times The main title of this course is an allusion to a book authored by Mark Mancall in 1984. However, there are some crucial differences between his approach to Chinese foreign relations and the subject of this course. Mancall has claimed - as have so many scholars before and after him - that Chinese interactions with the outside world were dictated by an ideology that saw China's culture as superior to the surrounding 'barbarians.' This concept is now widely known as the so-called 'tributary system.' We are going to explore whether such assertions indeed have any merit. One little hint: things might not have been as easy as they appear at first glance. Over the course of the semester we will be tracing Chinese foreign relations from roughly the 6th century BCE (was there even a 'China' that could set itself apart from the 'other?') through the 19th century CE, that is to say the period when the Qing dynasty (1644-1911) was forced to interact with western powers such as the British Empire. Even today when there seems to be an abundance of media coverage, the meanings of bilateral or multilateral exchanges take quite some effort to deduce; too many details remain hidden from the public eye. The (ancient) past, of course, is even less generous with data. Nevertheless, there is plenty of information to be had; we just have to look for it. Thus, participants in this course will have the opportunity to immerse themselves in various kinds of sources: historiographical records, material culture, or personal diaries to name but a few. In doing so, our main objective will be that we develop a critical, analytical attitude toward said sources that will ultimately lead us to a more nuanced understanding of Chinese dealings with the outside world. Fulfillment: Core Curriculum Humanistic Perspectives on China; GCS China and the World (17-18 Chinese Geographies/ GCS Electives).

While global citizens have long been concerned about conserving and rationing our use of fossil fuels, the same cannot be said for an even more precious resource - water. Only in the last few years have government agencies, NGOs, and the market begun to tackle the problem of dwindling water resources. The current statistics and projections are dire. If we do not come up with new technologies to conserve water and use it more efficiently, more people will be without clean water or enough food. The United Nations estimates that by 2030 as many as 4 billion people will not have access to enough water for their basic needs. During the course of this semester we will read about both contemporary issues that affect us as well as look at the historical context in which these problems developed. We will use case studies as a method for discussing these issues. Case Studies will include: the United States, in particular the American West and New York City; Early Modern Venice and Egypt, and modern day African and China. Reading loads will be moderate to heavy, but engaging. You can plan on reading about 100 pages a week divided between the two classes. A portion of your grade will be based on class discussion. Each



student will be asked to also write 4 shorter (2-3) papers based on the readings throughout the term. Each student will also write a small research/topics paper (10-12 pages) on the topic of their choice. You will be asked to look at a current problem with water scarcity or contamination and find its historical precedents. Fulfillment: Core Curriculum Science, Technology and Society Courses; Humanities Major Other Introductory Courses (18-19 Critical Concepts Core Course/ Topic Courses); Social Science Major Focus Courses Environmental Studies - 200 level. (17-18 GCS Electives).

HIST-SHU 312

### **China Encounters the World**

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The course focuses on the cross-currents of China's encounters with the world, from the late 16th to the early 21st century. It proceeds from two assumptions: first, that China has long been engaged with the rest of the world rather than ever having been "closed," as some would have it; and second, that impact and influence flow in multiple directions: into, through, and out of China, whether intentionally or involuntarily. Through a combination of lecture, discussion, and student research projects we will explore China's encounters with the world chronologically and thematically, covering such broad topics as religion and philosophy; diplomacy; law; trade; war; revolution; political systems, and "soft power". Pre-requisites: None. This course satisfies CORE CA/HPC; HUMN survey/introductory course; GCS China and the World. Some seats are reserved for GCS and Humanities major students. (Before Dec. 16, 2020)

HIST-SHU 325

### **The New Cold War History**

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This is a reading and research seminar with an emphasis on the "new" Cold War history—a scholarly phenomenon emerging in the 1990s, along with the end of the global Cold War and the new opportunities to conduct multiarchival and multi-source research for scholars of international history. Students in this class will be exposed to various new interpretations, new methods of research, and new ways of thinking associated with the new Cold War history studies. Readings in this class will be focused on the scholarship that has appeared since the early and mid-1990s. Students are required to write several books reviews and a comprehensive review essay, as well as to present and critique the comprehensive review essay in class. The ultimate purpose of the course is to help students take the Cold War as a useful reference to pursue a better understanding of the challenges facing the human race in the 21st century. Prereq: None. Fulfillment: 18-19 Humanities Major Topic Courses.

LIT-SHU 101

### **Foundations: What is Literature?**

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This course provides an introduction to literary theories and methodologies. We will analyze such different approaches to literary expressions as classical, modern, structuralist, post-structuralist approaches; Marxist, colonial and post-colonial approaches, including feminist and post-human methodologies for different literatures. The course will emphasize the shifts and turns in these approaches. The aim is to acquire knowledge of a variety of literary approaches at work when reading literature and of the relationships between text, author, writing and audience. Prerequisites: None.

LIT-SHU 125

### **La Belle Époque Literature in France 1852-1914**

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This course takes as its subject the Belle Époque, that period in the life of France's pre-World War I Third Republic (1871-1914) associated with extraordinary artistic achievement, as well as the Second Empire (1851-1871) that preceded it. In this course, we will attempt to gain a deeper understanding of the literary works of this era by placing them in the context of the society within which they were produced, France's Second Empire and Third Republic. Like the United States today, the Third Republic was a polity in which issues of the rights of minorities, freedom of expression, the place of religion in the public sphere, and the proper relationship between democracy and imperialism were subjects of constant debate. Furthermore, like the U.S. but unlike contemporary France, the Third Republic relied much more on the market and less on state subsidies to support artistic endeavors. Among other questions, we will examine to what extent the cultural flowering of this period occurred as a result of, or in spite of, this reliance on market forces. Near the end of the course we will take on the challenge of Proust's Swann's Way, which we will read together in its entirety. Prerequisite: None. Fulfillment: Humanities Major Other Introductory Courses (18-19 Survey Courses).

LIT-SHU 200

### **Topics in Literature**

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Check Albert for various relevant topics each semester.

LIT-SHU 280

### **Empire and Literature in the 19th Century Britain**

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This course examines the historical and poetic dimensions of nineteenth-century British imperialism with a focus on the literature of the romantic period. As we explore the connections and tensions between imperialist politics and romantic aesthetics, we will follow three paths of inquiry: 1) how did empire inform the cultural and literary perspectives of the time, 2) what were the historical models and lineages empire was associated with both in political and literary discourses of the period, 3) what definitions empire and imperialism gained in romantic imagination, and how do they inflect the notions and concepts regarded quintessentially romantic such as the sublime? We will seek answers to these questions by returning to the landscape of the romantic period in a comprehensive and inclusive way, reading the works of marginalized authors alongside their rather widely studied contemporaries. Prerequisite: GPS Fulfillment: Humanities Advanced Course.

PHIL-SHU 40

### **Ethics**

Examines fundamental questions of moral philosophy: What are our most basic values, and which of them are specifically moral values? What are the ethical principles, if any, by which we should judge our actions, ourselves, and our lives?

PHIL-SHU 70

### **Logic**

This is an introductory course in formal logic. No prior knowledge of logic, mathematics or philosophy will be assumed. We will study a number of logical systems, and learn some methods for producing derivations and determining validity in these systems. We will also learn how to translate sentences and arguments from ordinary language into these systems, and examine some applications of logic to traditional philosophical problems  
Prerequisite: None. Fulfillment: Core Curriculum Algorithmic Thinking; Humanities Major Other Introductory Courses (18-19 Survey Courses)

PHIL-SHU 80

### **Philosophy of Mind**

Examination of the relationship between the mind and the brain, of the nature of the mental, and of personal identity. Can consciousness be reconciled with a scientific view of the world? Prerequisite: None

PHIL-SHU 90

### **Philosophy of Science**

This is a survey course in general philosophy of science. Our topics include: Is scientific knowledge different from other forms of knowledge? Should the history of science be seen as an ever-increasing advance of knowledge? Given that most scientific theories have turned out to be false, are we justified in believing that our current theories are true? What are scientific explanations, and what makes an explanation better than another? Do the laws of nature govern the world or simply encapsulate some interesting patterns in the world? What is the relationship between more and less fundamental scientific theories? We will examine these questions through readings drawn from both the history and philosophy of science. Prerequisites: None

PHIL-SHU 91

### **Philosophy of Biology**

This class is an introduction to philosophy of biology focussing on issues connected with the nature and scope of biological explanations. How much does natural selection explain about evolution, and how does it explain? How much do genes explain about development, and how do they explain? No prior philosophy of science or biology will be assumed.

PHIL-SHU 105

### **Introduction to Chinese Philosophy**

This course is an introduction to classical Chinese philosophy. We will focus on three major philosophy traditions in the pre-Qin period China: Confucianism, Mohism, and Daoism. Many of the ideas in these three traditions have shaped the last two thousand years of Chinese—and to a large extent, Eastern Asian—culture. We will read primary texts as well as some secondary literature. The primary texts include: The Analects, Mengzi, and Xunzi from the Confucian tradition, Mozi from the Mohist tradition, and The Daojing and Zhuangzi from the Daoist tradition. We will discuss issues in ethics, political philosophy, epistemology, and metaphysics in classical Chinese philosophy. We will also discuss the relevance of classical Chinese philosophy to contemporary philosophy and psychology. Prerequisites: None

PHIL-SHU 110

### **Traditional Chinese Political and Legal Philosophy**

China in the so-called pre-Qin period (770 B.C.E.-221 B.C.E.) experienced a profound political transition. Competing schools of political philosophers offered proposals to restore order, which would lay the foundations of the political and legal framework for traditional China in the next 2,000 years. The so-called "Legalists" were advocates of the rule of law, although critics claim that they were actually advocates of the rule by law. Early Confucians criticized the Legalist approach and proposed the rule of virtue, although this proposal has often been blamed for the lack of the spirit of law in traditional and contemporary China. Both schools advocated an equality-based meritocracy, but they differed on what should be considered merits. In this course, we will examine some primary texts by the Legalist philosopher Han Fei Zi and some early Confucians (mostly Confucius and Mencius) in order to understand their general legal and political philosophy. We will also investigate how they treated particular legal issues such as the conflict between the interest of society and the interest of the law, laws of international relations, etc. To help us understand the implications and the influences of these philosophical ideas, we will also look into some real legal codes and legal judgments in traditional China. Through these studies, I hope that not only can we understand the legal philosophies of these thinkers and how they influenced traditional Chinese legal practices, but also see their relative merits and shortcomings to each other and to Western legal ideas. Fulfillment: Core Curriculum Social Science Perspective on China/ Humanistic Perspectives on China; GCS Elective; Humanities Major Other Advanced Courses (18-19 Topic Courses).

PHIL-SHU 115

### **Ethics and Society**

This class introduces students to the methods of contemporary analytic philosophy through the study of selected moral, social, and political topics. Our focus will be on political authority, social justice, legitimacy, punishment, and justifiable resistance in the face of illegitimate power. We will consider questions as follows: What justifies the existence of civil government? What are the key elements of social justice? When, and why, should we tolerate mistaken, and perhaps harmful, views held by others? Should harmful speech be permitted where harmful actions would not be? What powers does a legitimate government have? What could justify punishment? What light do different philosophical views of punishment shed on the phenomenon of mass incarceration in the US context? Do we have a duty to obey the law, and if so, what is the source of that duty? Does the duty extend to unjust laws? When we protest against unjust laws, must we always act civilly or peacefully, or can uncivil protest, and even rioting, be morally justified? We will be especially interested in discussing how the often quite abstract arguments and principles defended by political and legal philosophers apply to the concrete context of a society. Prerequisite: None. Fulfillment: Humanities Major Introductory requirement.

PHIL-SHU 130

### **Philosophy of Technology: Thinking Machines**

This course aims to train students to think philosophically about our rapidly changing—and ever more intimate—relationship with machines. We focus in particular on the following subjects: artificial intelligence, robots, cyborgs, automation and science fiction speculation. Prerequisite: Students must have completed one full year of study. Perspectives on the Humanities (POH)

PHIL-SHU 145

### **Philosophy of Art**

What makes artworks different from ordinary objects? Is Plan 9 from Outer Space a bad work of art or not an artwork at all? What makes art different from pornography? How much should we care about what the author intended when we read a work of literature? Why is there only one Mona Lisa but there can be three performances of Hamlet on a given night in New York? Is beauty objective? Why do we pity Anna Karenina even though we know she isn't real? What are we doing when we appreciate a work of art? Aesthetics and the philosophy of art involves the study of problems raised by the nature of art, artworks, and aesthetic judgments like the ones mentioned above. The goal will be to think clearly and reason efficiently and creatively about these and other philosophical questions. We will discuss answers to these questions defended by classic and contemporary philosophers, and attempt to analyze and critique these arguments using the tools of philosophical argumentation. Prerequisite: None.

PHIL-SHU 230

### **Philosophy of Physics**

Physics is the study of matter in motion. This course concerns the theories and properties of matter in modern physics, and examines their physical and philosophical foundations. Of these, the dominant account, and the physical theory with the most experimental support in history, is the theory known as quantum mechanics. The course will also touch on other issues pertaining to the nature of matter in modern physics. These may include (depending on student interest, time constraints, and fit with other units): Relations between quantum mechanics and the theories of special and general relativity. More contemporary debate about the ontology of the quantum mechanical wave function. Theories of atomism and gunk, and their physical upshots. Theories about the nature of physical properties, including dispositions and physical magnitudes. Prerequisite: PoH

PHIL-SHU 255

### **Habermas and Chinese Modernity**

German philosopher Jürgen Habermas is arguably one of the most important thinkers in our times; reading his critical justification for modernity with reference to a country that he said he had little knowledge of can probably shed new light not only on topics of society and culture, but also on ideas such as action and reason, morality and ethics, and knowledge and faith. Prerequisite: None. Fulfillment: Humanities Major Other Advanced Courses (18-19 Topic Courses).

# Interactive Media And Business

IMBX-SHU 101

## **Life Design**

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This course is about designing your life. What if you used the same innovation principles that startups use and applied them to your own lives? Students are introduced to design thinking as a framework to process their college experience and explore life after graduation. This course will use rapid prototyping methods to test out career interests, engage in behavior design, and ideate on multiple futures. The course will be delivered in a studio setup with in-class design workshops, group discussions, personal reflection, individual coaching and field trips.

IMBX-SHU 102

## **Global Experience Design**

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This course is about designing your global experiences. Students are introduced to design thinking as a practical tool to make the most out of their NYUSH experience and prototype opportunities offered by NYU's Global Network. This course will use rapid prototyping methods to test out academic and career interests, visit global organizations in Shanghai, and meet with leaders with multinational experience. The course will be delivered in a studio setup with in-class design workshops that explore topics such as the purpose of college, educational wayfinding, global perspectives, and innovating on career paradigms.

IMBX-SHU 103

## **Understanding Financial Technology**

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"How would you like to pay?" A simple question may provoke diversified answers in the digital age. The financial applications of digital technologies, or so-called fintechs have engendered many alternative forms such as QR codes, mobile apps, and Bitcoin for financial activities including payment, loans, and investment. What technologies make these innovations possible? What are the aesthetic norms embedded in fin-tech app designs? How do the fin-tech companies interact with banks, policy-makers, and regulators? While Ant Financial and Tencent Finance make China the leader of fin-tech innovation, how does the global map of fin-tech innovation look like? After all, how have fin-techs re-shaped people's everyday life, and perhaps will reform human being? Through a weekly three-hour meeting, this course is to make sense of fin-techs from a wide variety of perspectives. Integrating lectures with workshops and company visits, this course will equip students with critical thinking and practical skills that allow them to dialogue with various actors, such as computer programmers, project managers, investors, as well as academic intellectuals.

IMBX-SHU 211

## **Design Thinking (Formerly BUSF-SHU 211)**

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Design Thinking is a theoretical, methodological and practical framework that has the potential of bringing about socially responsible innovation. This course will introduce the core concepts and toolkits of design thinking as the foundation of innovative thinking and practices. It requires you to step out of your comfort zone and to examine and challenge your own assumptions. Critical thinking, teamwork, and empathy are the three pillars of this course. Prerequisite: None

IMBX-SHU 232

## **Entrepreneurship Explored (Formerly 232)**

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The main aim of this course is to probe into the core rationale behind entrepreneurship: taking initiatives to make changes. Lecturing only accounts for less than one-third of the course, and students are expected to exhibit a high level of self-motivation to critically examine established and emerging ideas that have been shaping and transforming the concept and practices of entrepreneurship, as exemplified in specific cases and current practices. Students will thus be prompted to think critically and creatively about how to respond to the complexities of changes. The course lays emphasis on creativity, ethics, and future-oriented vision. Prerequisite: None

## INTM-SHU 101 Interaction Lab

In this foundation course students will be asked to think beyond the conventional forms of human computer interaction (i.e. the keyboard and mouse) to develop interfaces that consider the entire human body, the body's capacity for gesture, as well as the relationship between the body and its environment. Students will learn the fundamentals of electronics and programming as they build projects using the Arduino microcontroller platform. Arduino is a small computer based on open source hardware and software. When used in conjunction with various sensors and actuators, Arduino is capable of gathering information about and acting upon the physical world. In addition to these physical computing techniques, students will also learn to harness the methods of traditional computation. The fundamentals of programming will be explored using the Processing programming language. Processing has a simplified syntax and an approachable computer graphics programming model, making it an ideal platform for first-time programmers. Students will gain a deeper appreciation of the expressive possibilities of computation as they learn to author their own software and systems and not simply use off-the-shelf solutions. Additional topics will include algorithmic drawing and animation techniques, digital modeling and fabrication, data exchange, manipulation, and presentation, as well as control of images, audio and video, including computer vision techniques. Structured weekly exercises are aimed at building specific skills, however students are free to pursue their own diverse interests in their midterm and final projects. Fulfillment: Core Curriculum Requirement Algorithmic Thinking; IMA Major Other Foundation; IMB Major Emerging Media Foundation.

## INTM-SHU 103 Creative Coding Lab

In this foundation course students will learn the fundamentals of computation, software design, and web technologies, through a series of creative projects. The course is intended to equip students with the skills to develop artistic and business projects that include a significant computational component. Topics such as variables, functions, components, and functional and reactive programming will be brought together to create interactive applications, generative art, data visualization, and other domains. Within the framework of these creative projects students will develop a greater understanding of how computer programs operate, be exposed to various concepts used to create experiences and interactions, and become more familiar with some of the technologies that constitute the internet. This course is intended for students with no prior programming background. Fulfillment: Core Curriculum Requirement Algorithmic Thinking; IMA Major Other Foundation; IMB Major Emerging Media Foundation.

## INTM-SHU 110 Application Lab

In this project-based foundation course where students explore current challenges and opportunities at the intersections of emerging media and innovation, investigate, test solutions and develop prototypes in service of answering questions. The course is designed to take maximum advantage of NYU Shanghai's small class sizes, transnational community, and the opportunities resulting from students and faculty working and learning together to deliver innovations that push against the frontiers of the recently possible. The course also seeks to help students acknowledge, criticize and enhance the often mundane, but equally important human and social forms of incremental innovation that helps sustain the world of ideas and creativity. This includes a thorough and critical review of the historical and contextual backdrops that we associate with innovation and a willingness to learn rapid digital prototyping methods, research techniques and presentation skills. Fulfillment: IMA Major Other Foundation/ Electives; IMB Major Emerging Media Foundation/ Interactive Media Elective.

## INTM-SHU 120 Communications Lab

In this foundation course students will explore the possibilities of emerging media by successively producing projects that make use of digital images, graphics, audio, and video. The course is designed to provide students with a framework to effectively communicate and tell stories through digital means. Students learn through hands-on experimentation in a laboratory context and the principles of interpersonal communication, media theory, and human factors will be introduced in readings and investigated through discussion. Adobe Creative Cloud and other relevant software applications will be examined to establish a diverse digital toolkit. Both traditional and experimental outputs will be explored. Weekly assignments, group and independent projects, as well as documentation of projects will be assigned in each of the core areas of study. Fulfillment: IMA Major Other Foundation; IMB Major Emerging Media Foundation.

## INTM-SHU 125T Digital Arts and New Media

This course investigates digital art and new media from creative, theoretical, and historical perspectives. We will examine the paradigm shift resulting from the rise of digital art and its expansion as well as explore current ideas, creative strategies, and issues surrounding digital media. The topics of study will include digital image, digital sound, net art, systems, robotics, telematics, data art, and virtual/augmented reality. The course aims to provide students with the means to understand what digital media is, and establish their own vision of what it can become, from both a practical and a theoretical perspective. The course will consist of lectures, field trips, and small studio-based practices. Prereq: None

## INTM-SHU 130 Working with Electrons

This class focuses on the curiosity behind the greatest discoveries of electromagnetism. By replicating experiments

both with magnetic and electrical field, we will explore the major breakthroughs that enabled us to power up devices, connect people and store information. During the course we will have seminar discussions analyzing texts that contextualize the lab experiments and we will work toward conclusions on the implications of these discoveries. We will analyze different perspectives that led to develop theories about the electromagnetic field, the way radio waves transmission and the quantum properties of electrons. Students will propose their own creative experiments, linking their own interests with how electrons behave. Through the course they will acquire a working knowledge of components like capacitors, lasers, antennae and circuit prototyping tools. As part of their final project report, they will submit a white paper describing the technical methodology, critical framework and results of their experiment. Prerequisites: None

INTM-SHU 134

### **Movement Practices and Computing**

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People use their bodies in the workplace whether they are dancers or athletes, managers or engineers. Physical wellbeing, social teamwork, and cognition may be affected by our movement practices. How do people use physicality and motion to think? What is the interaction between body, motion, place, and goals? We will explore these questions by building physical-computing-based systems that encourage us to bring movement into new times and places in daily life, that coach users and develop learning environments for movement practices, and that test our understanding of ways that we "think with the body". In this course we will bring practices such as fitness, dance, sports, and martial arts into a series of interactive installations, movement learning projects, and workspace modifications built on computing, sensing and actuator technologies. In this course we will also explore these questions through review of existing creative projects in this area, readings, presentations, and knowledge-sharing sessions. Prerequisites: Creative Coding Lab, Interaction Lab or equivalent programming experience (instructor consent, contact Prof. Minsky [mdm19@nyu.edu](mailto:mdm19@nyu.edu))

INTM-SHU 138T-B

### **Responsive Environments: Designing Interactive, Sentient, and Intelligent Spaces**

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In this course, students focus on the study and development of responsive environments, framed within a contextual and critical exploration of the architectural space as a cultural, social and technological phenomenon, and also on the application of practical scenarios for interaction, sentience, and intelligence. Through the making of creative media designs and physical prototypes, students aim to demonstrate how our habitats/spaces/architectures can facilitate novel frameworks for experiencing and living. The course aims to introduce students to a range of contemporary techniques on interactive and computational system development with a creative and speculative approach, using state-of-the-art development tools, such as Internet of Things, cognitive computing, as well as physical computing and real-time media design. The course consists of lectures (1/3), workshops (1/3), and practical sessions (1/3), and intends to provide a comprehensive and critical understanding both on the theory and practice of designing and implementing technologies for responsive spaces." Prereq for INTM-SHU 138T is Interaction Lab, Communications Lab, Creative Coding Lab, Application Lab, Media Architecture

INTM-SHU 140T-A

### **Open Project Salon**

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This course offers students the opportunity to develop a self-initiated project with close mentorship from a faculty member. Projects undertaken can span the areas of conceptual research, business development, creative practice, and media production. The course includes structured weekly workshop and critique times with peers and special guests. It is expected that students will embrace open-source and open-content ideals in their work, be invested in the work of their peers by providing feedback, and consider the feedback they receive during critique. In addition to weekly meeting times, students are expected to also participate in regular one-on-one meetings with faculty, peers, and guests. A formal project proposal, weekly assessments and documentation, a final project presentation, and participation in the IMA End of Semester show are all required. Although students are encouraged to continue work they may have initiated in a prior class, they may not combine or in any way double count work from this class in another class taken in the same semester. Group work is allowed assuming all group members are enrolled in this class. Students may take this course in the first 7 weeks for 2 credits or take INTM-SHU 140T-B in the second 7 week or take both of them across 14 weeks for 4 credits. It is open to anyone in any major assuming they have satisfied the prerequisites. Prerequisites: None

INTM-SHU 150

### **Storytelling in Mixed Reality**

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Students will explore and build experiences that communicate stories through a combination of art and accessible augmented reality technologies. Topics include the history of storytelling through mediums and modes and technologies of expression, development and design for mixed reality devices, reality reconstruction techniques, applications of computer vision, volumetric video production, motion capture and spatial audio.

INTM-SHU 151

### **Learning with Turtles**

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Learning with Turtles explores programming languages, systems, and activities designed to help learners in computational environments. Starting from a constructionist principle that systems designed for beginners must be able to embody the most powerful ideas in computing, we master some of those systems, explore how those have been designed, and engage in contemporary debates. The environments we learn with include Turtle Geometry, Craft Computing with Textiles, Modelling, and other interactive projects using programming and modelling systems such as Snap!, TurtleArt, Turtlestitch and NetLogo. Individual and group projects involve students in advancing their computational knowledge and skills and provide opportunities to design for others, to teach, to study learning and expertise, and present projects in community and public forums. The course is fundamentally about ideas, and how

some powerful ideas from computation can empower a learner to be a better creator and problem solver. Writing, presentations, and discussions will emphasize reflection on our own learning within the course. Prerequisite: None. Fulfillment: IMA Major Electives; IMB Major Interactive Media Elective.

INTM-SHU 152T

### **Woodworking for Art and Design**

Learn woodworking as a form of expression. Wood can be used to create both practical and artistic projects, from sculpture to furniture to musical instruments. Students will use the IMA woodshop to learn hand tools and machine tools and woodworking techniques. They will learn to safely operate woodshop tools. They will learn about wood: its structure, its properties, its use as a material and as a medium. We will learn about tone woods, sound, and music. Projects will include the design and fabrication of practical and artistic woodworking artifacts, and will include a major project in an area that is selected by the student. Woodworking sits at the intersection of design, engineering, and performance of a specific set of motion practices. During the course, we will reflect on the woodworking process, and relate it to other practices such as software design and construction. Prereq: None

INTM-SHU 194T

### **Global Media Cultures**

This course surveys the implications of globalization for the production, circulation, and consumption of media. In this course, we will look across both analog and digital media (radio, TV, film, video, pop music, podcast, etc) in relation to a series of questions: How do media (and media industry) represents localities for a global audience? How can media practices create a feeling of belonging to the world/community? How may global media tell us about different material infrastructure, social imagination, and political desires? Students will explore media phenomena and critically examine media texts often beyond North American experiences. By the end of the class, students will be able to articulate how media connects to global flow of finance, cultural product, labor, and social aspirations. Pre-requisite: None. This course satisfies IMA/IMB elective; HUMN Digital Approaches.

INTM-SHU 195

### **After Us: Post-human Media**

What is the place of human creativity, agency and intelligence in complex technical networks? This class aims to build a foundation for studying how automation, artificial intelligence, robotics, digital image production, predictive software, and eco-technologies signal the ascent of a posthuman society. It provides a selection of texts and case studies that introduce basic philosophical and sociological questions about posthuman technologies and support creators, writers and thinkers in conceptualizing the posthuman nature of new media. The class is a combination of lectures and writing workshops. Pre-requisite: None. This course satisfies IMA/IMB elective; HUMN Digital Approaches.

INTM-SHU 202

### **Media Architecture**

Architecture has always been considered as an immediate extension of the human civilization, and its connection with state-of-the-art technologies has always been essential. In our current highly mediated and augmented environments, architecture shifts from static, solid, and predefined, to a fluid, interactive, and ever-changing. Computational, interactive, and media technologies challenge our understanding of what architecture is, redefining our engagement with exterior and interior spaces. The course investigates the area of media architecture from a contextual and critical perspective, examining and implementing in theoretical and practical scenarios current emerging trends. Students are expected to develop a comprehensive understanding of media architecture, to thoroughly investigate its media-scape (including motivations, social implications, technological requirements), and to develop installation work that utilizes contemporary media development practices and demonstrates artistic, technological, and scientific rigor. Fulfillment: IMA Major Electives; IMB Major Interactive Media Elective.

INTM-SHU 204

### **Critical Data and Visualization**

Data is at the heart of the increasing role technology has in our lives. Data collection and algorithmic processing are not only central to recent technical breakthroughs such as in AI and automation but have created new economic paradigms where data equals value and shape political approaches to power and control. Decisions based on algorithms affect society at large whether it's changing the way we transport and distribute goods, or influencing the things we buy, the news we read or even the people we date. The world that algorithms see is data. For the average person, however, data is seldom more than an abstract idea. So what exactly is data? How is value extracted from it? And why should we care? How can we ethically balance the positive uses of data-driven systems with the threats they pose to discriminate and infringe basic human rights? This class seeks to untangle some of these issues practically and theoretically. Prerequisite: Creative Coding Lab or equivalent programming experience

INTM-SHU 205

### **What is New Media?**

This course will explore the fundamentals of new media scholarship. Together, we will review and engage with different theories of emerging media in its social, cultural, political, and historical contexts. Students will be able to research, think and write critically about some of the central debates in media studies, including new media forms and aesthetics, issues of gender, race, and labor, platforms, infrastructure and various emerging paradigms. Classes consist of theoretical readings, media example discussion, and writing workshops. Prerequisite: WAI (or co-requisite). Fulfillment: IMA Major Foundations; IMB Major Emerging Media Foundation

INTM-SHU 214

### **User Experience Design**

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User experience design (UXD, UED, or XD) is the process of enhancing user satisfaction with a product by improving its usability, accessibility, and desirability provided throughout the user's interaction with a product. The class is designed for those who are passionate about creating user-centered experiences with interactive media. Students are encouraged to empathize with users, engaging them to make informed design choices from prototype right through to project completion. Prerequisites: None

INTM-SHU 215

### **Machine Learning for New Interfaces**

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Machine Learning for New Interfaces is an introductory course with the goal of teaching machine learning concepts in an approachable way to students with no prior knowledge. We will explore diverse and experimental methods in Machine Learning such as classification, recognition, movement prediction and image style translation. By the end of the course, students will be able to create their own interfaces or applications for the web. They will be able to apply fundamental concepts of Machine Learning, recognize Machine Learning models in the world and make Machine Learning projects applicable to everyday life. Prereq: Interactive Lab, Communication Lab, or Application Lab. This course satisfies IMA elective; IMB Interactive Media elective.

INTM-SHU 217

### **Make Believe**

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We live in an era of information where the information can be written, accessed, shared, and also eliminated with a single stroke. As a result, the objective "truth" is brought to a question. In the last decade, artists have been experimenting with the fakeness of the truth and the truthfulness of the fake by creating fake documents, staged marriages, an arguably authentic artifact, imaginary advertisements both historical and contemporary. What does it mean to tell the truth in the context of art? How does art cross the boundaries between the real and the fake, truthfulness and misrepresentation? This course will examine social engagement of art and how "truth" is treated, interpreted, and presented. The class will take a field trip to a propaganda museum, have readings and discussions, and analyze artists working with fiction as a medium in art making. Students will work on projects to construct believable reality through object making (3D fabrication) and narrative construction (audiovisual material). Prerequisites: Interaction Lab or Communication Lab or Application Lab Fulfillment: IMA Major Electives; IMB Major Interactive Media Elective

INTM-SHU 222

### **Introduction to Robotics**

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Since the beginning of civilization people have fantasized about intelligent machines sensing and acting autonomously. In this course we will discover what robots are, learn how to design them, and use simple tools to build them. Students will use open source hardware to explore sensors and electronics, as well as design and build robot bodies and actuators through a variety of digital fabrication technologies. Using a set of community developed tools, students will become familiar with concepts such as mechatronics, inverse kinematics, domotics and machine learning. No previous programming or electronics experience is necessary, however students will be guided through a series of design challenges that their robots should be able to accomplish. With an emphasis on experimentation, peer learning, and teamwork, the objective of this course is to share in the excitement of robotics by enabling students to make their own creations. By the end of the course, students will present a short research paper and documentation about their robotic explorations. Fulfillment: Core Curriculum Requirement Experimental Discovery in the Natural World; IMA Majors Electives; IMB Major Interactive Media Elective.

INTM-SHU 226

### **Artificial Intelligence Arts**

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Artificial Intelligence Arts is an intermediate class that broadly explores issues in the applications of AI to arts and creativity. This class looks at generative Machine Learning algorithms for creation of new media, arts and design. In addition to covering the technical advances, the class also addresses the ethical concerns ranging from the use of data set, the necessity of AI generative capacity to our proper attitudes towards AI aesthetics and creativity. Students will apply a practical and conceptual understanding of AI both as technology and artistic medium to their creative practices. Fulfillment: IMA Major Electives; IMB Major Interactive Media Elective.

INTM-SHU 227

### **ABC Browser Circus**

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Welcome to the ABC Browser Circus (ABC), where acrobats juggle with hyperlinks, dance across scrolling grids, and jump through open server ports. This course introduces the students to the history of the internet, the World Wide Web, and specifically to the browser as a cultural object and its role in (net)art; in parallel, it teaches web development and guides the students to create three web-based projects. Theory and practice-based components are each conducted during one of two 75 minute classes per week. Prerequisite: Creative Coding Lab or equivalent coding experience. Fulfillment: IMA Major Electives; IMB Major Interactive Media Elective.

INTM-SHU 228T

### **Digital + Sculpture**

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This course investigates and illuminates the concepts and the aesthetics of kinetic sculpture and installation art in various forms from creative and historical perspectives. Students will learn to regard sound and performance as part of a sculptural form and learn to work with space. Students will gain woodworking and digital fabrication skills



to expand on their physical computing skills to create moving sculpture and installation. The course consists of lectures, readings, and hands-on studio work. Prerequisites of Course: Interaction Lab This course satisfies IMA/IMB elective.

INTM-SHU 238

### **Toy Design and Prototyping**

The emphasis of this class is on designing toys for play and entertainment, however toys are not only for kids. Toys are part of our culture, and an important medium to develop essential skills like creativity, problem-solving and socialization. They can also be a great contribution in education, medicine, and business and can improve the quality of life for children and adults alike. Students will be introduced to the essential concepts in designing toys and they will create their own by utilizing hand-making craft skills and new technologies. This course will equip students with a basic knowledge about various design topics, including: brainstorming; sketching; graphic design; concept development; mechanisms; 3D modeling; rendering and rapid prototyping. This is a hands on class, and students are required to bring their imagination in addition to a willingness to experiment and explore creative solutions for class assignments. Prerequisite or Corequisite: Interaction Lab

INTM-SHU 239

### **Digital Fabrication**

Digital Fabrication is the process of using design or modeling software to generate digital files which can then be physically produced through a variety of methods, including laser cutting, 3D printing and computer numeric control (CNC). The ability to fabricate directly from our computers or design files used to be an exotic and expensive option not widely available, but recent changes within this field have brought these capabilities to within our reach. In this class students will learn how to design and model for and to operate fabrication machines. Emphasis will be put on designing functional parts that can fit into a larger project or support other components as well as being successful on a conceptual and aesthetic level. In this class students will discover methods to design and model using computer aided design (CAD) software. We will then utilize computer aided manufacturing (CAM) software to generate instructions that various machines can follow to fabricate our designs. We will also look at methods for 3D scanning, data manipulation and conversion, mold making, as well as printed circuit board (PCB) fabrication. Elective Category: Art & Design Pre-req or Corequisite: Application Lab, Communications Lab or Interaction Lab Fulfillment: IMA Major Electives, IMB Major Interactive Media Elective.

INTM-SHU 243

### **Introduction to Animation**

Tangible heritage (site, object, and structure) and intangible heritage (motif, icon, character, textile, wardrobe, music, performance, language and ritual) are inseparable parts of the cultural heritage. The narrative and messaging of cultural heritage can be preserved by moving sequences, motion design and animation. The richness of heritage contents can be further disseminated and known by the dynamic media. This course aims to utilize animation and motion media to depict and preserve the richness of cultural heritage contents. 3D animation and motion graphics techniques will be addressed and applied to the storytelling. Students will be guided to research the Asian cultural heritage contents including the tangible and intangible heritage. They will further explore the visual design and production pipeline of animation. Visiting expert of interactive media design and intangible heritage performance will get involved to share the insights to the students. Prerequisites of Course: None. This course satisfies IMA/IMB elective.

INTM-SHU 244

### **Bio-Inspired Robot System**

How do complex systems work? Can nature help us understand them? In order to explore answers to these questions, we will run a series of experiments that will serve as an introduction to swarm robotics, machine learning, and bionics. The purpose of this course is to see biological phenomena under the lens of new technology. This course has a hands-on approach with focus on building and testing applications. We will create algorithms and mobile robots that replicate responses observed in living organisms, utilizing radio signals and computer vision to model emergent behaviors from groups. The research, process, and results will be documented in a short scientific article. Prereq: None. This course satisfies Core ED; IMA/IMB elective.

INTM-SHU 247

### **Creative Game Design and Development**

We have all played and enjoyed games, but how do people actually design and develop them? How to describe a game from a professional standpoint? What are the basic elements and structure in video game development? How do game designers create an interactive experience for the player? What about prototyping and iterating in development? This course explores these questions and others through playing, analyzing and making games over 14 weeks. Students will understand game not only as an entertaining production and business model but a form of interactive media impacting current life and future. Students will be introduced to game design concepts, emphasizing the development: paper and digital prototyping, develop iteration, interactive narratives design and embedment, object-oriented programming, 2D/3D game art design, sound effects composition and user testing. For the course project, students will work in teams and create games in multiple projects, from board game focusing on gameplay prototype to digital playable experience with creative game art designs. This course leverages Unity, a game engine that uses C# based programming language. Basic knowledge of any programming language will come in handy. Prerequisite: Creative Coding Lab, Interaction Lab or equivalent programming experience (instructor consent, contact Prof. Zhang xz33@nyu.edu) Fulfillment: IMA Major Electives; IMB Major Interactive Media Elective.

INTM-SHU 253

### **Creating Assistive Technology**

This interdisciplinary project-based class focuses on the design, development, and use of technology that increases the quality of life of individuals of disabilities. Students will be introduced to various assistive technology and strategies, including no-tech and low-tech as well as software and online-based practices. This class features lectures, discussions, guest lectures, field trips, and project presentations by students. Software programming, physical computing, machine learning, and 3D fabrication will be introduced for developing an assistive device. Field trips of local facilities will be scheduled during the semester. They provide an off-campus real-world learning experience as well as an opportunity for students to interact with users of assistive technology in the local community. Students will participate in a team-based design project that identifies challenges for an individual of disabilities and create an innovative and useful assistive device to meet their needs. Prerequisite: Interaction Lab

INTM-SHU 254

### **Nature of Code**

The Nature of Code is an intermediate course based on Daniel Shiffman's The Nature of Code course at NYU ITP and was adjusted for undergraduate students. This course explores the fundamentals of programming, such as Object-Oriented Programming, and the application of simple principles of mathematics and physics in order to recreate natural behaviors in a digital environment. Prerequisites: This class uses p5.js.org and requires Interaction Lab, Communication Lab, Application Lab, or similar programming background. Knowledge of other languages, such as Processing, three.js and OpenFrameworks, is also encouraged. Fulfillment: IMA Major Electives; IMB Major Interactive Media Elective.

INTM-SHU 257T

### **VFX in the Age of Virtual Production**

In this era of virtual production, time-based media faces new opportunities and challenges in terms of pipelines, workflows, and distribution. Decentralizing, hybridizing, and outsourcing among film studios, production houses, broadcast design, interactive studios, and the gaming industry have become major topics of discourse in academia and industry. This course focuses on the history/context, present practice, and the emerging trends of VFX studies and its applications. Through collaborative research with academia and industry, the course investigates the theory and practice of VFX studies and further examines the feasibility of emerging technologies through the spirit of entrepreneurship. Prerequisite: Interaction Lab / Creative Coding Lab / Communications Lab / Application Lab Fulfillment: IMA Major Electives; IMB Major Interactive Media Elective.

INTM-SHU 266

### **Digital Heritage**

This course investigates and explores the integration between cultural heritage and digital conservation (de-noise through digital sculpting, laser scanning, photogrammetry, infographics,... etc.), specifically towards the objects, deities, and sites of China. Through the reflection of Chinese cultural heritages under technical perspective, the course raises the awareness of heritage conservation and critical heritage studies. Prerequisite: None. This course satisfies IMA/IMB elective; GCS Elective: Chinese Media, Arts, and Literature.

INTM-SHU 267

### **The Cultivated City**

This class examines the idea and practices of 'cultivation' in relation to the challenging environment of the 21st century city. Through field trips, readings and discussions, the class explores the concept of cultivation, and how it can be used as a basis for researching the urban ecology of Shanghai, both as a past and future city. The class incorporates a major project in the digital humanities, in which students use the tools of interactive media (audio, video and cartographic technologies) to research, map and narrativize the ways in which architects, designers, artists and thinkers engage with the traditions of cultivation in order to imagine and recreate the future metropolis. Cultivated City focuses on Chinese cultural history and its changing attitudes to nature and the environment. This term it does so within the context of planting an urban garden at NYU Shanghai's new campus in Qiantan. Students will work on group projects designed to help build community and participate in the creation of an inspiring outdoor landscape for our future home. Fulfillment: Global China Studies Major Elective; IMA Electives; IMB Interactive Media Elective. Prerequisite: Writing as Inquiry

INTM-SHU 271

### **Remade in China**

Re-make: make (something) again or differently. In this class students will investigate why China became the world's largest importer of waste. They will study local communities in China, how they manage their waste, and explore innovative ways to transform discarded materials or products around us into something new and precious in areas such as art, graphic and industrial design, architecture, fashion, textiles, etc.. Through research and development, students will learn how traditional techniques and new technologies among the sustainable design philosophy can be utilized as powerful tools for addressing social and environmental problems. Fulfillment: IMA Major Electives; IMB Major Interactive Media Elective.

INTM-SHU 280C

### **VR/AR Fundamentals**

Virtual Reality and Augmented Reality represent visions of "immersion" through the use of various channels such as visual, audio, haptic, and even smell and taste (and maybe mind). These visions are not new, but new technologies have made it possible to produce experiences unlike anything before, particularly through the use of headsets,

spatial audio, touch sensors, and custom “location-based” installations. These new technologies are becoming small, powerful, and inexpensive, and as a result we are witnessing the birth of a powerful new medium, new artform, and new industry - all very quickly. The speed of VR and AR growth has created both opportunity and confusion. “VR / AR Fundamentals” takes a long, deep perspectives. We will overview such basic elements resolution and fidelity; spatiality and immersion; extra senses such as touch, smell, taste (and even mind); input and interactivity; and live and social. We’ll look at distinctions such as cinema versus games, movies versus models, public versus personal, real world versus fantasy worlds, linear versus interactive, and narrative versus ambient. These elements and distinctions will be presented partially as technical but in an understandable way for general liberal arts students, and will rely heavily on experiencing content and keeping up with current events. In addition to “big ideas,” VR / AR Fundamentals aims to contribute to “a practical guide” by collectively producing a series of timely and relevant “studies,” all short, entertaining, and useful to others exploring the world of VR / AR. Prerequisite: None. Fulfillment: IMA Major Electives; IMB Major Interactive Media Elective

INTM-SHU 280D

#### **Realtime Audiovisual Performance Systems**

From the history of visual music and abstract film to the contemporary notion of live cinema, this course will be an exploration of the synesthetic relationship between sound and visuals in a realtime performance setting. Dating back as far as the 18th century, systems have been invented to produce images alongside music linking the two through formalized arrangements. Current media technologies make developing such systems both more approachable and more expansive in their scope. Through readings, viewings, and case studies students will gain an understanding of the history and theory of live audiovisuals. During the course students will team up to develop and master a real-time audiovisual system of their own invention. The class will culminate in a show in which they will present their work through a live performance. Prereq: Interaction Lab, Communications Lab or Creative Coding Lab This course satisfies IMA/IMB elective.

INTM-SHU 284

#### **Digital Sculpting for Facial Animation**

This course emphasizes on the 3D animation through digital modeling / sculpting techniques, keyframe and blend-shape animation. The course breaks down into 4 stages : 1. basic topology of head model, 2. high-poly sculpting and projection texturing, 3. Keyframe and blend-shapes animation, 4. 3D animation final project. In the final project, students get to choose either lip-sync animation or conceptual piece utilizing the created head models. An overview of digital editing / compositing and sound design will also be introduced to assist with students’ final project at the end of the semester.

INTM-SHU 286

#### **Theories and Practices of Transmedia Storytelling**

This course examines both the practices and the products of adapting narratives from one medium to another. Through case studies of specific adaptations, we will address some of the major formal, industrial, and interpretative questions that transmedia adaptation raises, as creators change characters, stories, settings, and narrative tropes to fit into new stories various, often multiple media: comics, radio, novels, movies, television, games (tabletop and electronic), and more. Theoretical readings will give students concepts and a vocabulary to discuss ways that narrative adaptations use and re-purpose their “source” texts. Students will write prompted response papers, an analytical essay, and an annotated bibliography; in collaboration with classmates, student teams will first propose and then develop transmedia narratives of their own. Prerequisite: Writing as Inquiry This course satisfies IMA/IMB elective.

INTM-SHU 287

#### **NIME: New Interfaces for Musical Expression**

This course will focus on designing, creating, and performing with self-built electro-acoustic music systems to explore the limits of human musical expression. Over the semester, students are asked to research examples of contemporary work by creators of musical interfaces and discuss a wide range of issues facing technology in the performing arts. Readings and case studies will provide background for class discussions on the theory and practice of designing gestural controllers for musical performance. Students will invent and prototype a complete system encompassing musical control, mapping input to sound, and the creation of sound itself. Interaction Lab is a prerequisite, however, prior performing experience is not required. The performance discipline is inherently interdisciplinary and collaborative, so an open mind to working with others is imperative. The class will culminate in a performance where students will play their instruments live as well as a formal presentation of the students’ works at the NIME2021 conference hosted by NYU Shanghai. Prerequisite: Interaction Lab This course satisfies IMA/IMB elective.

INTM-SHU 289

#### **Exploring & Creating Sonic Environments**

Sound is all around us. The way we perceive or experience these sounds are largely dependent upon their environments, whether artificially constructed or naturally present. In this studio-based course, students will learn about the development of sound art through readings and listenings by artists, musicians and designers who investigate our sonic environment through sound sculptures, multi-channel immersive installations, soundscapes, audio tours, podcasts and field recordings. The course will begin with an introduction into the physics of sound with time for deep listening exercises. We will read selected texts and listen to pieces by those working in the field of Acoustic Ecology, an interdisciplinary field that employs ethnographic practices to create sound studies or art. We will look at artists who employ narrative techniques to engage the audience. We will study musicians such as Alvin Lucier and John Cage and the history of experimental music that takes into consideration the physical space its recorded or played in. There will be weekly exercises that will help develop the student’s spatial awareness of sound

and music. We will take listening and recording trips into the field to understand the acoustic urban environment. We will use different types of microphones such as hydrophones and binaural mics. Students will learn how to build their own contact microphones. Students will have the opportunity to create works for multi-channel speakers. The final project can take on any form within the realm of sound art—multimedia, narrative, non-narrative, music, installation. Pre-requisite: Communications Lab or Interaction Lab. This course satisfies IMA/IMB elective.

INTM-SHU 296

#### **The Planetary: Computation in the Anthropocene**

This course will examine the relationship between planetary-scale computation and the development of planetarity. We take as starting points that (1) the very notion of climate change is an epistemological accomplishment of planetary-scale sensing, modeling and computation systems and (2) the ecological costs of computation are on an unsustainable trajectory. The seminar will ask: what are alternative futures for computation as human and ecological infrastructure? The primary subject of research is the transition from computation as a digital media object to computation as continental scale infrastructure. The scope and significance of this shift are fundamental for the development of interactive art and design that seeks to explore critical alternatives to extant models for this. What we call planetary-scale computation takes different forms at different scales—from energy and mineral sourcing and subterranean cloud infrastructure to urban software and massive universal addressing systems; from interfaces drawn by the augmentation of the hand and eye to users identified by self—quantification and the arrival of legions of sensors, algorithms, and robots. Each of these may represent a direct harm upon effected ecosystems and/or a means for and informed viable administration of those same systems. The course is primarily geared to advanced IMA students but is open to students from any major who are interested in engaging with contemporary issues of computation, society and ecology. Final projects will combine original written work and speculative design that can draw on diverse student core skill sets. Prereq for INTM-SHU 296 is Writing as Inquiry. Fulfillment: IMA Major Electives; IMB Major Interactive Media Elective.

INTM-SHU 297T

#### **The Speculative Philosophy of Artificial Intelligence**

This 2-unit interdisciplinary research seminar will be held in conjunction with an international symposium convened by the NYU Center for AI and Culture, which will bring leading scholars, curators, science fiction writers, and heads of major platform research groups to campus. The seminar will host a deeper interdisciplinary conversation on the issues that underpin their work. Seminar participants will meet each of the conference speakers. We will emphasize the overlapping and intersecting histories of “AI” in cognitive science, philosophy, interactive and computer arts, and science fiction literature and film. The frequent back-and-forth between AI in fiction and in fact is the basis of how we will, together, attempt to map the divergent futures of AI. It is said that artificial intelligence will be as important to the twenty-first century as oil was to the twentieth. AI is promoted by China, Europe, Russia and the USA as central to their innovation strategies and, as such, may portend a new computational arms race. There is consensus that geopolitical peace and conflict may be determined by how great nations use AI for good or ill. To define AI is to conceive what is and is not “intelligence” and what is and is not “artificial.” Because no two cultures understand these basic terms in the same way, they will not understand AI in the same way. As such, any global discussion about the future of AI must be cross-cultural. The more we understand what each culture “means” by AI the more fruitful the collaborative design of AI can be. The seminar is suggested for students of Interactive Media Arts, Computer Science, Political Science, Philosophy, and anyone interested in algorithmic art, automation, machine vision, computational economics, and geopolitics. We will read and discuss 10 key texts and students will prepare an original project, paper or hybrid. Prereq: WAI

INTM-SHU 303T

#### **Advanced Lab: Shaders**

Learn how to creatively harness the power of your computer's graphics card by writing your own shaders! Shaders are small programs that run on the GPU and are used for purposes most commonly related to graphic effects, video post-processing, and the generation of geometry. They are an incredibly powerful tool for creating hardware accelerated graphics and form the building blocks of the modern graphics pipeline. Vertex, fragment, and geometry shaders will be the main focus of the course. However, if time permits, compute shaders (GPGPU) will also be explored. The topic will be approached platform-agnostic, so that it can be applied to the different implementations in various software environments such as WebGL, Unity, Max, TouchDesigner, etc. This an advanced-level 2-credit course. Prerequisite: Instructor Consent Fulfillment: IMA elective.

INTM-SHU 305T

#### **Advanced Lab: Hellow Metaverse**

Teaching and learning during the pandemic has motivated us to look past the present zeitgeist and near total reliance on audio-visual collaboration software, and question what might come next. The restrictions placed on in-person teaching, learning and research are, in a sense, accelerating and re-structuring innovations in how we engage as educators, researchers and learners. The avant-garde just a few years ago, has become the mainstream. Similarly, virtual reality and the potential for an emergent metaverse are today's avant-garde opportunity. We believe that the environment and possibilities to use immersive emerging media as tools for teaching, learning and research are primed for such an experiment. The aim of this course is to explore the relationship between the virtual self and environment and to assess both as a space for learning and collaboration. The course is built around 3 principles. We believe these principles will help to encourage exploration and discovery in the area of emerging media, philosophy and theories and practices of presence. Prerequisite: Instructor Consent. Fulfillment: IMA elective.

INTM-SHU 400

#### **Capstone Studio I - Interactive Media Arts**

Capstone 1 is the first of two classes that give students the opportunity to research, design, make and test an

individual interactive media project. Students will work independently (with faculty guidance) to research and write the first half of a Project Proposal to contextualise their ideas. In addition to this, students will also develop a functional proof of concept of their final project that will be tested with participants and also presented to a group of peers and faculty. Prerequisite: Senior Standing. Fulfillment: IMA / IMB Major Capstone

INTM-SHU 401

#### **Capstone Studio II - Interactive Media Arts**

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Capstone II is the the second of two classes that give students the opportunity to research, design, make and test an individual interactive media project. Students will work independently (with faculty guidance) to research and write the final half of a Project Proposal. In addition students will build on their existing projects from Capstone I to further develop their work into a final project that will be tested with participants and presented to a group of faculty and peers. Prerequisite: Senior Standing. Fulfillment: IMA / IMB Major Capstone.

## MATH-SHU 5

### Chance

Chance is a common word whose meaning can vary, but which generally applies to situations involving a certain amount of unpredictability. How does it differ from fortune – or luck? Is it synonymous with randomness? We all try to increase our chances of success; how do such efforts involve taking or minimizing certain risks? If philosophical discussions about chance can be traced back to antiquity, probabilistic and statistical concepts appeared more recently in mathematics. Starting with gambling strategies, the theory now applies to the core of almost all scientific and technical fields, including statistical and quantum mechanics, chaotic dynamics, phylogenetics, sociology, economics, risk management, and quality control. Bringing together materials and questions from philosophy, mathematics, and other disciplines, this course provides a journey in the history of ideas. Students will investigate key concepts (including independence, expectation, confidence intervals, or tests), consider their applications to specific fields of science, and illustrate them by computer experiments. Readings include excerpts from Lucretius, Pascal, Hume, Laplace, Peirce, and Hacking. Prerequisite: None. Fulfillment: This course satisfies CORE STS requirement.

## MATH-SHU 9

### Precalculus

This course is designed as a preparation for calculus, including study of basic properties of polynomials, rational functions, exponential and logarithmic functions, and trigonometric functions. Systems of linear equations are also covered. Prerequisite: None. Fulfillment: This course satisfies Core Curriculum Math requirement.

## MATH-SHU 10

### Quantitative Reasoning: Great Ideas in Mathematics

This one-semester course serves as an introduction to great ideas in mathematics. During the course we will examine a variety of topics chosen from the following broad categories. 1) A survey of pure mathematics: What do mathematicians do and what questions inspire them? 2) Great works: What are some of the historically big ideas in the field? Who were the mathematicians that came up with them? 3) Mathematics as a reflection of the world we live in: How does our understanding of the natural world affect mathematics (and vice versa)? 4) Computations, proofs, and mathematical reasoning: Quantitative skills are crucial for dealing with the sheer amount of information available in modern society. 5) Mathematics as a liberal art: Historically, some of the greatest mathematicians have also been poets, artists, and philosophers. How is mathematics a natural result of humanity's interest in the nature of truth, beauty, and understanding? Why is math a liberal art? Prerequisite: None. For students in Humanities

## MATH-SHU 131

### Calculus

This course presents the foundations of calculus for functions of a single variable. Topics addressed include limits, continuity, rules of differentiation, approximation, antiderivatives, indefinite and definite integrals, the fundamental theorem of calculus, integration techniques, and improper integrals. Prerequisite: Pre-placement by faculty based on high-school grades, or NYUSH "Calculus and Linear Algebra" placement exam, or grade C or better in MATH-SHU 9 (Precalculus). Anti-requisite: MATH-SHU 201 (Honors Calculus). Fulfillment: This course satisfies MATH Math Core requirement.

## MATH-SHU 140

### Linear Algebra

This first course in linear algebra covers systems of linear equations, vectors, linear transformations, matrices and their determinants, vector spaces, basis and dimension, eigenvectors and eigenvalues, quadratic forms, and matrix decompositions. In addition to its role as an essential topic within mathematics, linear algebra is also critically useful throughout the sciences: for example, in estimation theory, chemical equations, electrical networks, and heat distributions. Prerequisite: Sufficient high school grades, or NYU SH "Calculus and Linear Algebra" placement exam, or a grade of C or better in MATH-SHU 9 (Precalculus). Not open to students who have taken MATH-SHU 141 (Honors Linear Algebra I) or MATH-SHU 265 (Linear Algebra and Differential Equations) Equivalency: This course counts for MATH-UA 140. Fulfillment: This course satisfies Math required, Engineering required, DS required Math course.

## MATH-SHU 141

### Honors Linear Algebra I

This is the first semester of a 2-semester course in linear algebra for advanced mathematics majors. Topics covered include systems of linear equations, matrices, LU decomposition, determinants, vector spaces, linear independence, basis and dimension, subspaces and quotient spaces, linear transformations, eigenvalues and eigenvectors, Jordan canonical forms, inner products, orthogonality, quadratic forms, extrema of functions, and symmetric and positive matrices. Prerequisite: Pre-placement by Faculty based on high-school grades, or NYUSH "Honors Calculus and Honors Linear Algebra" placement exam, or authorization of the instructor. Fulfillment: Major: Math Constrained Math Elective; Honors Math required, DS Math required course.

## MATH-SHU 142

### Honors Linear Algebra II

This course is a continuation of Honors Linear Algebra I. Topics covered include eigenspaces, multiplicities of eigenvalues, diagonalization, the Schur decomposition theorem, inner product spaces, the Gram-Schmidt process, orthogonality, adjoint maps, spectral theory, self-adjoint, normal, and unitary maps, bilinear forms, the Cholesky theorem, singular value decomposition, pseudoinverses, least-squares solutions via normal equations, ideals

of polynomials, reducibility of maps, nilpotence, the Jordan decomposition theorem, minimal polynomials, the Penrose-Frobenius theorem, and stochastic matrices. Example covered from applications include data compression, optimization, QR factorization of least squares approximation, solutions of simultaneously coupled polynomial equations, determination of the critical temperature of a superconductor, and image compression via singular value decomposition. Prerequisite: Grade C or better in either MATH-SHU 131 (Calculus) or MATH-SHU 201 (Honors Calculus), and Grade C or better in MATH-SHU 141 (Honors Linear Algebra I), or grade C or better in MATH-SHU 140 (Linear Algebra) and grade C or better in MATH-SHU 143 (Foundations of Mathematical Methods), or authorization of the instructor.

MATH-SHU 143 | MATH-SHU 143T

#### **Foundations of Mathematical Methods**

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This course is an introduction to the tools of mathematical reasoning, which serves as a solid basis for advanced courses emphasizing proofs and abstraction. Topics include formal logic, sets, relations, and functions, proof techniques, cardinality, complex numbers, combinatorics, discrete probability. Prerequisite: Grade C or better in MATH-SHU 131 (Calculus), and grade C or better in either MATH-SHU 140 (Linear Algebra) or MATH-SHU 141 (Honors Linear Algebra I). Anti-requisite: MATH-SHU 201 (Honors Calculus).

MATH-SHU 151

#### **Multivariable Calculus**

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This course explores calculus of functions of several variables. Topics covered include power series, differentiation and integration of functions of several variables, including directional derivatives, the gradient, line and multiple integrals, and the theorems of Green, divergence, and Stokes. Prerequisite: Grade C or better in either MATH-SHU 131 (Calculus) or MATH-SHU 201 (Honors Calculus). Anti-requisite: MATH-SHU 329 (Honors Analysis II). Equivalent to MATH-UA 123, MATH-AD 112. Fulfillment: This course satisfies CHEM required; PHYS required; Engineering required; MATH required; DS required.

MATH-SHU 160

#### **Networks and Dynamics**

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Today, networks and dynamics play fundamental roles throughout science, engineering and the social sciences. This is a post-calculus mathematics course that is designed to prepare students to understand the mathematical behavior of networks and dynamics as the students enter a broad set of majors – from mathematics, the natural sciences and engineering through the social sciences such as economics and finance. The preliminary goal is to address the following challenge: today's science and society at large requires us to understand complex networks (be it genetic network that makes us who we are, neural network underlying our brain functions, social network of friends through Facebook or WeChat) and how the behavior of such a complex network evolves in time. The language for providing a scientific understanding of such systems is the mathematics of network theory and dynamical systems theory. This course will introduce analytical methods and mathematical models from network and dynamical systems theory toward understanding dynamical network behavior. Prerequisite: Grade C or better in either MATH-SHU 131 (Calculus) or MATH-SHU 201 (Honors Calculus), and grade C or better in either MATH-SHU 140 (Linear Algebra) or MATH-SHU 141 (Honors Linear Algebra I).

MATH-SHU 201

#### **Honors Calculus**

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This is a rigorous course in single-variable calculus for mathematics majors, providing preparation for advanced courses in analysis. Topics covered include number systems, functions, graphs, vectors, conic sections, polar coordinates, limits, continuity, least upper bounds, the derivative, convexity and concavity, inverse functions, parametric curves, Riemann sums, integrals, and the fundamental theorem of calculus. Prerequisite: Pre-placement by Faculty based on high-school grades, or NYUSH "Honors Calculus and Honors Linear Algebra" placement exam, or grade A- or better in MATH-SHU 131 (Calculus), or authorization of the instructor. Anti-requisite: MATH-SHU 143 (Foundations of Mathematical Methods). Fulfillment: This course satisfies Math required; Honors Math required; ECON Core Math required.

MATH-SHU 233

#### **Honors Theory of Probability**

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This course is an introduction for mathematics majors to the mathematical treatment of random phenomena occurring in the natural, physical, and social sciences. Topics covered include axioms of mathematical probability, combinatorial analysis, the binomial distribution, Poisson and normal approximations, random variables, probability distributions, generating functions, and Markov chains and their applications. Prerequisite: Grade C or better in either MATH-SHU 151 (Multivariable Calculus) or MATH-SHU 329 (Honors Analysis II), and grade C or better in either MATH-SHU 140 (Linear Algebra) or MATH-SHU 141 (Honors Linear Algebra I). Equivalency: This course counts for MATH-UA 233. Non-Shanghai students need to get the instructors' permission to enroll in classes.

MATH-SHU 234

#### **Mathematics of Statistics**

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This course offers an introduction to mathematical statistics. It covers the essential topics of statistics including point estimation, interval estimation, Bayesian inference, hypothesis testing, and linear and logistic regression. This class requires a good prior understanding of probability theory, calculus, and linear algebra. Prerequisite: Linear Algebra or Honors Linear Algebra I, Multivariable Calculus or Honors Analysis II, and Probability and Statistics or Honors Theory of Probability Fulfillment: This course satisfies Honors Math Electives, Math Additional electives; DS Data Analysis or concentration in Math.

**MATH-SHU 235****Probability and Statistics**

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This course comprises a combination of the theory of probability with techniques of modern statistical analysis. It is designed to acquaint the student with both probability and statistics in the context of their applications to the sciences. In probability: mathematical treatment of chance; combinatorics; binomial, Poisson, and Gaussian distributions; law of large numbers and the normal distribution; application to coin-tossing, radioactive decay, and so on. In statistics: sampling; normal and other useful distributions; testing of hypotheses; confidence intervals; correlation and regression; and applications to scientific, industrial, and financial data. Prerequisite: MATH-SHU 121 Calculus or 210 Honors Calculus. Not open to students who have taken MATH-SHU 233 Honors Theory of Probability and/or MATH-UA 234 Mathematical Statistics. Equivalency: This course counts for MATH-UA 235. Fulfillment: This course satisfies Math required course, Social Science Methods, Business Core, CS & CE & EE required, Data Science foundational, Economics required, PHYS required, IMB elective.

**MATH-SHU 236****Foundations of Machine Learning and Data Science | The Mathematics of Data Science and Machine Learning**

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This is an advanced topic course for undergraduate students interested in the modern mathematics of data science and machine learning. Tentative topics include dimension reduction and data visualization, the geometry of high dimensional data, and optimization-based data analysis. Topics may change every year to reflect the current research trends. The course requires an excellent understanding of advanced calculus, linear algebra, and probability theory. Programming skills and knowledge in optimization are strongly recommended but not required.

**MATH-SHU 245****Mathematical Choice Theory**

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This course is a mathematical examination of the main ideas of decision theory, including game, auction, and social choice theory. Topics covered include strategic and extensive form games, existence and properties of equilibria (Nash, Bayesian, perfect, sequential, correlated), the expected utility maximization theorem, the core, auction and mechanism design under independent and interdependent values, the revenue equivalence theorem, voting models, Arrow's impossibility theorem, the Gibbard-Satterthwaite theorem, and implementation theory. We also discuss current applications of these ideas to bargaining agreements, auction design, and voting systems. Prerequisite: Grade C or better in either MATH-SHU 131 (Calculus) or MATH-SHU 201 (Honors Calculus).

**MATH-SHU 250****Mathematics of Finance**

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This course is an introduction to the mathematics of finance. Topics: linear programming with application to pricing. Interest rates and present value. Basic probability, random walks, central limit theorem, Brownian motion, log-normal model of stock prices. Black-Scholes theory of options. Dynamic programming with application to portfolio optimization. Prerequisite: Grade C or better in either MATH-SHU 151 (Multivariable Calculus) or MATH-SHU 329 (Honors Analysis II), and grade C or better in either MATH-SHU 235 (Probability and Statistics) or MATH-SHU 233 (Theory of Probability).

**MATH-SHU 251****Introduction to Math Modeling**

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Formulation and analysis of mathematical models. Mathematical tools include dimensional analysis, optimization, simulation, probability, and elementary differential equations. Applications to biology, economics, other areas of science. The necessary mathematical and scientific background is developed as needed. Students participate in formulating models as well as in analyzing them. Prerequisites: Grade C or better in either MATH-SHU 151 (Multivariable Calculus) or MATH-SHU 201 (Honors Calculus), and grade C or better in either MATH-SHU 140 (Linear Algebra) or MATH-SHU 141 (Honors Linear Algebra I). Fulfillment: This course satisfies MATH additional elective; Honors MATH elective.

**MATH-SHU 252****Numerical Analysis**

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In numerical analysis, one explores how mathematical problems can be analyzed and solved with a computer. This has very broad applications in mathematics, physics, engineering, finance, and the life sciences. This course gives an introduction to numerical analysis for mathematics majors. Theory and practical examples using Matlab will be combined to study a range of topics, from simple root-finding procedures to differential equations and the finite element method. Prerequisite: Grade C or better in either MATH-SHU 131 (Calculus) or MATH-SHU 201 (Honors Calculus), and grade C or better in either MATH-SHU 140 (Linear Algebra) or MATH-SHU 141 (Honors Linear Algebra I).

**MATH-SHU 262****Ordinary Differential Equations**

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This course introduces the main ideas of ordinary differential equations. Topics include vector fields, existence and uniqueness of solutions to first-order linear differential equations, stability, higher order differential equations, the Laplace transform and numerical methods, linear and nonlinear systems, and Sturm-Liouville theory. Prerequisite: Grade C or better in either MATH-SHU 131 (Calculus) or MATH-SHU 201 (Honors Calculus), and grade C or better in either MATH-SHU 140 (Linear Algebra) or MATH-SHU 141 (Honors Linear Algebra I). Equivalency: This course counts for MATH-UA 262. Fulfillment: This course satisfies Math required course.



**MATH-SHU 263****Partial Differential Equations**

Many laws of physics are formulated as partial differential equations. This course discusses the simplest examples, such as waves, diffusion, gravity, and static electricity. Nonlinear conservation laws and the theory of shock waves are discussed, as well as further applications to physics, chemistry, biology, and population dynamics. Prerequisite: Grade C or better in either MATH-SHU 262 (Ordinary Differential Equations) or MATH-SHU 362 (Honors Differential Equations), and grade C or better in either MATH-SHU 151 (Multivariable Calculus) or MATH-SHU 329 (Honors Analysis II). Equivalency: This course counts for MATH-UA 263. Fulfillment: This course satisfies Math constrained Math elective; Honors Math elective.

**MATH-SHU 265****Linear Algebra and Differential Equations**

This course is an introduction to linear algebra and ordinary differential equations. Topics covered include the fundamental concepts of linear algebra such as matrix theory, determinants, vector spaces, subspaces, basis, linear transformations, eigenvectors, eigenvalues and the inner product spaces, as well as the fundamental techniques of ordinary differential equations such as first order differential equations, linear differential equations and systems. Pre-requisites: Calculus OR Honors Calculus. Fulfillment: This course satisfies PHYS additional required; CE required; EE required; DS Math required.

**MATH-SHU 282****Functions of a Complex Variable**

Complex variables and functions play an essential role in many branches of mathematics and science. In this course, we cover basic aspects of the theory, including differentiation of complex functions, the Cauchy-Riemann equations, Cauchy's theorem and integral formula, singularities, Laurent series, conformal mapping, analytic continuations, and applications to fluid flow. Prerequisite: Grade C or better in either MATH-SHU 151 (Multivariable Calculus) or MATH-SHU 329 (Honors Analysis II), and grade C or better in either MATH-SHU 140 (Linear Algebra) or MATH-SHU 141 (Honors Linear Algebra I). Equivalency: This course counts for MATH-UA 282. Fulfillment: This course satisfies Math constrained Math elective; Honors Math required course.

**MATH-SHU 328****Honors Analysis I**

This course is a continuation of Honors Calculus. Topics covered include integration techniques, trigonometric functions, the logarithm, exponential functions, approximation by polynomials, sequences, series, convergence, uniform convergence, power series, Taylor series, complex numbers and functions, Euclidean spaces, and basic topology. Prerequisite: Grade C or better in MATH-SHU 201 (Honors Calculus), or grade A- or better in MATH-SHU 131 (Calculus) and A- or better in MATH-SHU 143 (Foundations of Mathematical Methods), or authorization of the instructor. Equivalency: This course counts for MATH-UA 328. Fulfillment: Math constrained Math elective; Honors Math required; DS Mathematics course

**MATH-SHU 329****Honors Analysis II**

This course is a continuation of Analysis I, with emphasis on functions of several variables. Topics covered include the topology of Euclidean space, the Stone-Weierstrass theorem, the implicit and inverse function theorems in several variables, Jordan regions, linear transformations, differentiation of integrals, and integration of differential forms. Prerequisite: Grade C or better in MATH-SHU 328 Honors Analysis I and MATH-141 (Honors Linear Algebra I). Equivalency: This course counts for MATH-UA 329. Fulfillment: This course satisfies Honors MATH Required, MATH Constrained Math electives, DS concentration in Math.

**MATH-SHU 339****Real Variables**

This course is a continuation of the analysis sequence with a focus on measure and function spaces. Topics covered include Lebesgue measure and integration, abstract measure spaces, Lebesgue differentiation, the Radon-Nikodym theorem, Fubini's theorem,  $L_p$  and Hilbert spaces, the Riesz representation theorem, and Fourier series. Prerequisite: MATH-SHU 328 Honors Analysis I or MATH-SHU 329 Honors Analysis II. Honors Analysis II is preferred. This is a high level course in analysis which requires a very good background in proving theorems. Students who did not have a high grade in Honors Analysis I or Honors Analysis II are strongly encouraged to consult the course instructor to see whether they have enough background. Prerequisite: Grade C or better in MATH-SHU 328 (Honors Analysis I).

**MATH-SHU 345****Introduction to Stochastic Processes**

This is an introductory course in stochastic processes. Stochastic processes are widely used as modeling tools in many fields of application, including finance, physics, biology and engineering. The course will include an introduction to measure theory, the basic theory of discrete and continuous time Markov chains, branching processes, Poisson point processes, Brownian motion and martingales. In the final part of the course, more advanced topics such as stochastic integrals, free fields, Markov loops and Ising model may be included as time permits and according to the background of the students. Prerequisites: Grade C or better in either MATH-SHU 140 (Linear algebra) or MATH-SHU 141 (Honors Linear Algebra I), and grade C or better in either MATH-SHU 235 (Probability and Statistics) or MATH-SHU 233 (Theory of Probability). Fulfillment: This course satisfies Honors Math Electives, Math electives; DS Concentration in Math.

MATH-SHU 348  
**Honors Algebra I**

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This introduction to abstract algebra is a rigorous study of groups and rings. Topics covered include symmetric and linear groups, the Sylow theorems, classification of finitely generated abelian groups, polynomial and quotient rings, ideals, principal ideal domains, unique factorization, and the Nullstellensatz. Prerequisites: Grade C or better in MATH-SHU 141 (Honors Linear Algebra I), or grade B or better in MATH-SHU 140 (Linear Algebra) and Grade C or better in either MATH-SHU 201 (Honors Calculus) or in MATH-SHU 143 (Foundations of Mathematical Methods) Fulfillment: This course satisfies Math constrained Math elective; Honors Math required course.

MATH-SHU 350 | 350T  
**Probability Limit Theorems**

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The goal of this course is to introduce the main ideas of advanced probability: rigorous treatment of conditional expectation and martingales, weak convergence, strong law of large numbers, central limit theorem, convergence to infinitely divisible distributions, law of iterated logarithm, Markov Chains, stationary stochastic processes, ergodic theorems. Fulfillment: This course satisfies Math Constrained Math elective; Honors Math elective.

MATH-SHU 362  
**Honors Ordinary Differential Equations**

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This course introduces the main ideas of ordinary differential equations, with a particular emphasis on proofs, in comparison with the course MATH-SHU 262. It will cover vector fields, proof of local existence and uniqueness of solutions of first-order differential equations by Picard's fixed point iteration, stability, higher order linear differential equations and their set of fundamental solutions (with proof of characterization by the Wronskian), Series Solutions of second order linear differential equations (ordinary points, proof of Fuchs Theorem, regular singular points and indicial equation), Laplace transform and numerical methods, nonlinear systems, boundary value problems. Prerequisite: Grade C or better in MATH-SHU 201 (Honors Calculus), or MATH-SHU 131 (Calculus) and MATH-SHU 143 (Foundations of Mathematical Methods), and grade C or better in either MATH-SHU 140 (Linear Algebra) or MATH-SHU 141 (honors Linear Algebra I). Fulfillment: This course satisfies Math Required; Honors Math Required.

MATH-SHU 375  
**Topology**

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This course presents the basic ideas of point-set topology, as well as their interactions with analysis and algebra. Topics covered include topological spaces, metric spaces, compactness, Tychonoff's theorem, separation axioms, Urysohn's lemma, covering spaces, fundamental groups, and homotopy groups. Prerequisite: Grade C or better in MATH-SHU 328 (Honors Analysis I).

MATH-SHU 377  
**Differential Geometry**

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This course investigates the differential properties of curves and surfaces. Topics covered include differential manifolds and Riemannian geometry. Prerequisite: Grade C or better in MATH-SHU 329 (Honors Analysis II)

MATH-SHU 997  
**Independent Study- Mathematics**

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Mathematics Students majoring in mathematics are permitted to work on an individual basis under the supervision of a full-time or visiting faculty member in the department if they have maintained an overall GPA of 3.0 and a GPA of 3.5 in mathematics and have a study proposal that is approved by a mathematics professor. Students are expected to spend about two to three hours a week per credit (a 4-credit IS would involve about ten to twelve hours a week) on their project. Fulfillment: This course satisfies Math/Honors Math elective.

MATH-SHU-G 2550  
**Functional Analysis**

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This course on applications of concepts in functional analysis gives special emphasis to function spaces used in practice, including Hilbert, Hardy, and Sobolev spaces. Other topics covered include the spectral theorem and its application to differential equations, Fourier series, compact operators, Fredholm determinants, measure, volume, and nonlinear analysis for infinite-dimensional spaces, and Brownian motion. Prerequisite: Grade C or better in MATH-SHU 339 (Real variables), or authorization of the instructor. Prerequisite: Grade C or better in MATH-SHU 339 (Real variables), or authorization of the instructor

# Neural Science

NEUR-SHU 10

## Free Will and the Brain

"The concept of free will plays a central role in society, in particular in the criminal justice system. In this course, we will explore the concept of free will and related topics in neuroscience such as intention and self-control. We will cover the evidence from neuroscience that argues that behavior is, under normal conditions, not deterministic, thus providing a material basis for the concept of individual agency. We will then address the neuroscience evidence for cases where individual agency is reduced through external influence via learning and the reward and punishment systems. Finally, we will examine the most extreme cases of this, psychiatric disorders that reduce agency: addiction, compulsive disorders, and anxiety disorders. Not open to 1st-year students. Satisfies NS Major Elective AND STS Core Req.

NEUR-SHU 100

## Math Tools for Life Sciences

This course will provide a broad introduction to basic mathematical and statistical tools for a quantitative analysis in the life sciences. It will cover a broad range of topics, including introduction to linear algebra, probability, linear regression, and statistical tests. We will use the mathematical programming language MATLAB for in-class demonstrations, computer lab during recitations and homework assignments. Prerequisite: Foundations of Biology I and/or Foundations of Biology II (or permission by the instructor). This course satisfies Required NS Course; Required Biol Course.

NEUR-SHU 201

## Introduction to Neural Science

An introductory lecture course covering the fundamental principles of neuroscience. Topics will include: principles of brain organization; structure and ultrastructure of neurons; neurophysiology and biophysics of excitable cells; synaptic transmission; neurotransmitter systems and neurochemistry; neuropharmacology; neuroendocrine relations; molecular biology of neurons; development and plasticity of the brain; aging and diseases of the nervous system; organization of sensory and motor systems; structure and function of cerebral cortex; modeling of neural systems. Prerequisite: BIOL-SHU 21 BIOL-SHU 22 Foundations of Biology II. Fulfillment: Biology Major Electives; Neural Science Major Required Courses.

NEUR-SHU 210

## Cellular and Molecular Neuroscience

A lecture course that provides students with broad exposure to current questions and experimental approaches in cellular neuroscience. Lectures are organized into three areas: cell structure and organization of the vertebrate central nervous system, mechanisms underlying neural signaling and plasticity, and control of cell form and its developmental determinants. Prerequisites: CCSC-114 & NEUR-251. Fulfillment: Neural Science Major Required Courses.

NEUR-SHU 222

## Perception

How do humans and other animals obtain knowledge about the world? It is easy to take perception for granted, but complex processes (only partly understood) underlie our ability to understand the world by seeing, hearing, feeling, tasting, and smelling it. Perception has fascinated philosophers, physicists, and physiologists for centuries. Currently, perception is a central topic not only in neuroscience, but also in psychology, cognitive science, and computer science. How do scientists approach perception? We seek to discover lawful relations between perceptual experiences and the physical world and to develop models of the processes and mechanisms that produce these connections. To accomplish this, we need accounts of the information, the computational processes, and the neural mechanisms involved in perception. In this course, we will discuss fundamental problems in perception (primarily vision), and learn about techniques that are applied in attempts to solve these problems. The learning outcomes of this course include a better understanding of human perception and critical thinking skills for the analysis and interpretation of the related research reports. PREREQUISITE COURSES Introduction to Neural Science or Introduction to Psychology. The prerequisite can be waived based on the student's background. Contact the course instructor directly for this request. Fulfillment: Biology Major Electives; Neural Science Major Approved upper-level Psychology courses; Neural Science Major Electives; Social Science Major Focus Courses Psychology - 200 level.

NEUR-SHU 251

## Behavioral and Integrative Neuroscience

This lecture and laboratory course addresses the physiological and anatomical bases of behavior. Lectures and laboratory experiments will emphasize mammalian sensory, motor, regulatory, and motivational mechanisms involved in the control of behavior, and higher mental processes such as those involved in language and memory. Prerequisite: NEUR-SHU 201 (Introduction to Neural Science). This course satisfies Neural Science required course.

NEUR-SHU 255

## Neural Bases of Speech and Language

How does our brain work to enable us to speak and understand language? Are there special parts of the brain dedicated to speech and language? What is it like to be abnormal at speech or lose language? This course provides an introduction of the neuroscience research of speech and language, and interdisciplinary field at the heart of human cognitive neuroscience. Lectures cover basic aspects of language processing in the healthy brain, ranging from early sensory perception to higher level semantic interpretation, as well as a range of neurological

and development language disorders, including aphasia, dyslexia, and other speech and language impairment. Functional neuroimaging and electrophysiological techniques will be introduced. The goal of this course is to let students acquire basic knowledge of neurolinguistics, as well as familiarise the ideas of interdisciplinary research in the intersection of cognitive science and neuroscience. Prerequisite: None. Fulfillment: Core Curriculum Science, Technology and Society Courses; Neural Science Major Approved upper-level Psychology courses; Neural Science Major Electives; Social Science Major Focus Courses Psychology - 200 level.

NEUR-SHU 270

#### **Introduction to Theoretical Neuroscience**

This course introduces students in neuroscience and mathematics to theoretical studies of neural systems. The course material is models of the nervous system at many different levels, including the biophysical, the circuit and the systems levels for biological sensing, motor control, perception, and learning. We will follow the classic textbook, "Theoretical neuroscience" by Dayan and Abbott.

This broad introduction of topics in computational neuroscience aims to provide initial guidance for students to choose the computational approach to describe and analyze the data. The students will be encouraged to read the references and utilize the online materials before the lectures so that the students can participate in the discussion during the class. Mathematical tools in probability and differential equations and programming in Matlab will be introduced as needed within the course. Prerequisite: Undergraduates: Mathematical Tools for Life Sciences (NEUR-SHU 100 1) or permission by the instructor. Graduates: Mathematical Tools for Neural and Cognitive Science (NEURL-GA.2201), or permission by the instructor. Fulfillment: Neural Science Major Electives.

NEUR-SHU 401

#### **Neural Science Honors Seminar**

Students attend regular meetings to learn research basics and discuss recent advances in neuroscience and research related issues. Prerequisite: Students must have completed (or enrolled in) all remaining major requirements. Open only to students qualified and having been recommended by the Director of Undergraduate Studies for Neural Science.

NEUR-SHU 997

#### **Independent Study I - Neural Science Capstone**

Prerequisite: All Neural Science Major Required Courses (Introduction to Neural Science, Cellular and Molecular Neuroscience, Behavioral and Integrative Neuroscience, Math Tools for Behavioral Science), permission of a neural science faculty member (at NYU-Shanghai, NYU-Abu Dhabi, or NYU-New York) who will act as a sponsor and mentor, and approval of the Director of Undergraduate Studies for Neural Science. The faculty mentor must be selected in consultation with the Director of Undergraduate Studies for Neural Science. Offered in Fall or Spring. Can be repeated once. 2 to 4 credits per term for a maximum of 8 credits. Minimum 4 credits are required to fulfill the capstone course requirement.

This course aims at engaging students in research. Taking the course for 4 credits requires 10-12 hours spent on conducting research per week (2 credits requires 5-6 hours per week). It is designed to offer students an opportunity to observe neuroscience research up close and gain hands-on research experience by working as a member in an active research team. Independent Study I and II can be done with the same supervisor or two different supervisors. No lectures will be given. Student researchers are expected to attend and actively participate in lab/supervision meetings. Fulfillment: Neural Science Major Required Courses.

NEUR-SHU 998

#### **Independent Study II - Neural Science**

Prerequisite: All Neural Science Major Required Courses (Introduction to Neural Science, Cellular and Molecular Neuroscience, Behavioral and Integrative Neuroscience, Math Tools for Behavioral Science), permission of a neural science faculty member (at NYU-Shanghai, NYU-Abu Dhabi, or NYU-New York) who will act as a sponsor and mentor, and approval of the Director of Undergraduate Studies for Neural Science. The faculty mentor must be selected in consultation with the Director of Undergraduate Studies for Neural Science. Offered in Fall or Spring. Can be repeated once. 2 to 4 credits per term for a maximum of 8 credits. Minimum 4 credits are required to fulfill the capstone course requirement.

This course aims at engaging students in research. Taking the course for 4 credits requires 10-12 hours spent on conducting research per week (2 credits requires 5-6 hours per week). It is designed to offer students an opportunity to observe neuroscience research up close and gain hands-on research experience by working as a member in an active research team. Independent Study I and II can be done with the same supervisor or two different supervisors. No lectures will be given. Student researchers are expected to attend and actively participate in lab/supervision meetings. This course satisfies Neural Science major required capstone course. Students must have completed (or enrolled in) all remaining major requirements

## PHYS-SHU 11 General Physics I

This is an introductory physics course covering primarily mechanics and thermodynamics. The mechanics component will cover Motion along a Straight Line, Motion in Two and Three Dimensions, Newton's laws of motion, Forces, Kinetic Energy and Work, Potential Energy and Conservation of Energy, Center of Mass and Linear Momentum. The thermodynamics component will cover Temperature, Heat, and the First Law of Thermodynamics, The Kinetic Theory of Gases, Entropy and the Second Law of Thermodynamics. In addition, some introduction to the foundations of physics such as vectors and measurement will be given. In addition to the course material, the students will do open-ended research projects that encourage creative applications of physics concepts. Pre-req OR Co-req: Calculus or Honors Calc Fulfillment: Core Curriculum: Science Experimental Discovery in the Natural World Courses; Major: Biology Foundational Courses; Chemistry Foundational Courses; Mathematics Science Lecture sections; Honors Mathematics Science Lecture sections; Neural Science Foundational Courses; Physics Foundational Courses; Computer Systems Engineering Prerequisite Science; Electrical Systems Engineering Prerequisite Science.

## PHYS-SHU 12 General Physics II

This course is an introduction to electricity and magnetism, light, geometrical and wave optics. Many concepts from General Physics I will be used in this course such as velocity, acceleration, force, Newton's laws of motion, work and energy. The course uses high school algebra, geometry and trigonometry, vectors and vector arithmetic, and some basic calculus. The algebra, geometry, and trig are essential. The course has lecture, homework and laboratory components. Prerequisite: PHYS-SHU 11. This course satisfies Foundations of Science requirement (not for Physics); CE/EE Science requirement.

## PHYS-SHU 71 FoS Physics Laboratory

This laboratory course is to accompany FoS physics lecture. Students will be familiarized with various techniques, equipment, data analysis skills, and ideas common to physics laboratories. Experiments in mechanics and thermodynamics are chosen to illustrate the experimental foundation of physics presented in the lecture courses. The laboratory will also emphasize scientific writing. Prerequisite OR Co-requisite: Physics I OR Found of Physics Honors I. Fulfillment: Core Curriculum: Science Experimental Discovery in the Natural World Courses; Major: Biology Foundational Courses; Chemistry Foundational Courses; Mathematics Science Lab sections; Honors Mathematics Science Lab sections; Neural Science Foundational Courses; Physics Foundational Courses.

## PHYS-SHU 91 Foundations of Physics I Honors

Measurement, Motion Along a Straight Line, Vectors, Motion in Two and Three Dimensions, Force and Motion, Kinetic Energy and Work, Potential Energy and Conservation of Energy, Center of Mass and Linear Momentum, Torque and Angular Momentum, Rotation and Rigid-Body Motion, Gravitation, Equilibrium, Stability, Elasticity, Oscillations and Harmonic Motion, Special Relativity. Prerequisite OR Co-requisite: MATH-SHU 131 or MATH-SHU 201. Fulfillment: Core Curriculum Science Experimental Discovery in the Natural World Courses; Biology Major Foundational Courses; Chemistry Major Foundational Courses; Mathematics Science Lecture sections; Honors Mathematics Major Science Lecture sections; Neural Science Foundational Courses; Physics Major Foundational Courses; Computer Systems Engineering Major Prerequisite Science; Electrical Systems Engineering Major Prerequisite Science.

## PHYS-SHU 93 Foundations of Physics II Honors

Continuation of Foundation of Physics I. Topics include electric charge and electric field, electric potential, Gauss's law, capacitor, current, circuits, magnetic fields, induction, electromagnetic waves, and Maxwell's equations (in an integral form). This is the second semester of a four-semester calculus-based introduction to Physics, and is intended for physics majors and other interested students. Prerequisite: Foundation of Physics I Honors (PHYS-SHU 91), Freshman Math (including linear algebra, vectors, linear vector spaces and matrices, functions of several variables, partial derivatives, multiple integrals). This course satisfies part of Foundations of Science requirement; CE/EE Science requirement.

## PHYS-SHU 94 Physics II Lab

This laboratory course is to accompany Physics II lecture PHYS-SHU 12. Experiments in electricity and magnetism, and optics are chosen to illustrate the experimental foundations of physics presented in the lecture courses. The laboratory will also emphasize scientific writing. Prerequisite: Foundation of Physics I Laboratory (PHYS-SHU 71). This course satisfies part of FoS requirement; CE/EE Science requirement.

## PHYS-SHU 95 Foundations of Physics III Honors

Continuation of Foundation of Physics II. Topics include thermodynamics, kinetic theory, statistical physics, wave motion, sound, reflection, refraction, interference, diffraction, polarization of light. This is the third semester of a four-semester calculus-based introduction to Physics, and is intended for physics majors and other interested students. The lectures serve as an introduction, and the real work of learning starts when you do the homework and recitation. The lectures will be most useful to you if you ask questions when there is something you do not

understand. Do not imagine that you are the only person in the room who does not understand something. The most important part of the class is the homework you do. You learn more physics by doing the homework and recitation than from the lecture. I encourage you to work together with one or more friends on the homework assignments. It is more enjoyable that way, and you learn by explaining things to each other. Pre-req OR Co-req: Physics I OR Found of Physics Honors I. Fulfillment: Physics Major Foundational Courses.

PHYS-SHU 96

#### **Foundations of Physics IV Honors**

Continuation of Foundation of Physics III. Topics include Relativity, Photon, Quantum Mechanics, Molecules and Condensed Matter, Nuclear Physics, Particle Physics and Cosmology. This is the fourth semester of a four-semester calculus-based introduction to Physics, and is intended for physics majors and other interested students. Prerequisite: PHYS-SHU 95. This course satisfies Physics Foundations of Science requirement.

PHYS-SHU 106

#### **Mathematical Physics**

Mathematics is the language of physics. In this course, students will understand the advanced mathematical methods most widely used in physics and extend their skills by practice. On completion, successful students will be able to understand and proficiently use (1) vector and matrix algebra, (2) ordinary and partial differential equations, and (3) functions of complex variables. The lectures serve as an introduction, and the real work of learning starts when you do the homework. The lectures will be most useful to you if you ask questions when there is something you do not understand. Do not imagine that you are the only person in the room who does not understand something. The most important part of the class is the homework you do. You learn more physics by doing the homework than from the lecture. I encourage you to work together with one or more friends on the homework assignments. It is more enjoyable that way, and you learn by explaining things to each other. Mathematical preparation for the junior and senior courses in physics. Vector analysis, Fourier series and integrals, ordinary differential equations, matrices, partial differential equations, and boundary-value problems. Prerequisite: MATH-SHU 265

PHYS-SHU 135

#### **Solid-State Physics**

This course is designed as an introduction to condensed matter physics for students with knowledge of elementary quantum mechanics. Topics include crystal structure, lattice vibrations, and the energy band theory of metals and semiconductors. Covers the electronic, magnetic, and optical properties of solids. In addition, the course may include some modern research topics such as the physics of nanostructures, soft condensed matter physics, and superconductivity. Prerequisite: None. This course satisfies Physics elective.

PHYS-SHU 200

#### **Optical Imaging: Applications in Biology and Engineering**

Optics and imaging technology play very important roles in science and engineering. For example, the images collected by the Hubble Telescope, since year 1990, have revolutionized modern astronomy. In biology, the use of two-photon excitation microscopy has significantly advanced neuroscience, as we are now able to track the intracellular development at sub-micron resolutions. A typical course in optics offered at any university often focuses on the fundamental aspects of light but much less on its vast applications in the real world. This short course will exemplify the power and usefulness of optics in current sciences and technology, especially in biology and engineering. Prerequisites: Physics 2 or Physics 2 for Honors.

PHYS-SHU 201

#### **Topics in Introduction to Quantum Mechanics and Quantum Technology**

Quantum mechanics is the theory that tells us how everything we see around us - from atoms, light, electrons, to materials - behaves at the microscopic level. Starting from its abstract beginnings in the early 20th century, in the 21st century we are entering a new age where we can control individual atoms and create quantum systems for new technologies. This course gives a simplified introduction to quantum theory, for students who wish to understand quantum mechanics only to a basic level to see some of its applications. The first part of the course introduces the key aspects of quantum mechanics. In the second part we apply these ideas to technological applications such as quantum teleportation, quantum computing, and cryptography. Prerequisite: MATH-SHU 131 or MATH-SHU 201. This course satisfies Physics elective.

PHYS-SHU 302

#### **Statistical Mechanics and Thermodynamics**

Topics include relation of entropy to probability and energy to temperature, the laws of thermodynamics, Maxwell-Boltzmann, Bose-Einstein, and Fermi-Dirac statistics, equations of state for simple gases and chemical and magnetic systems, and elementary theory of phase transitions. Prerequisite: Foundation of Physics III Honors (PHYS-SHU 95) in SH or Physics III (PHYS-UA 95) in NY as the pre-req of PHYS-SHU 302 Statistical Mechanics. This course satisfies PHYS major requirements.

PHYS-SHU 303

#### **Advanced Physics Laboratory**

A further development of the experimental techniques introduced in Foundations of Science as applied to modern physics. Following a number of introductory experiments, students have at their option a variety of open-ended

experiments they can pursue, including the use of microcomputers for data analysis. Experimental areas include Mossbauer effect, cosmic rays, magnetic resonance, superfluidity and super-conductivity, and relativistic mass. Prerequisite: Physics II. This course satisfies PHYS requirement.

PHYS-SHU 997

#### **Independent Study – Physics**

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Prerequisite: Foundations of Science I-III (or Physics I&II, Foundations of Chemistry I&II, Foundations of Biology I&II), and a minimum GPA of 3.0 overall and in all science and mathematics courses required for the major, permission of a physics faculty member (at NYU-Shanghai, NYU-Abu Dhabi, or NYU-New York) who will act as a sponsor and mentor, and approval of the Director of Undergraduate Studies (DUS) in Physics. The faculty mentor must be selected in consultation with the DUS. Offered in the Fall, Spring or Summer. 2 to 4 points per term for a maximum of 4 points. This course aims at engaging students in research. It is designed to offer students an opportunity to observe physics research up close and gain hands-on research experience by working as a member in an active research team. Independent Study I and II can be done with the same supervisor or two different supervisors. No lectures will be given. Student researchers are expected to attend and actively participate in lab/supervision meetings. A Proposal for Independent Study form must be filled out, signed by the DUS, and submitted to the Registrar. Requires a written report on the research to be evaluated by the faculty sponsor, with a copy submitted to the DUS and a copy to the Dean of Arts & Sciences. This course satisfies Physics elective if approved by area leader.

PHYS-SHU 999

#### **Physics Research in Shanghai.**

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Must receive invitation of Physics Area Leader

PHYS-SHU 1999.1

#### **Physics Research in Shanghai.**

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Fulfillment: General Elective.

CCSC-SHU 130

#### **Introduction to computer programming with Mathematica**

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Mathematica is a powerful tool for technical computing. It provides a robust computing environment that is used in biology, chemistry, economics, engineering, finance, mathematics, physics, the arts, and a wide range of other fields. It is designed for symbolic as well as numerical calculations, and for visualization of technical information. Mathematica can change forever both what we teach and learn in the classroom, and how we teach and learn it. To provide students with the very best education possible, we need to bring it into our classrooms. The goal of this course is to empower students in the sciences, engineering, economics, finance, and even in the arts and humanities, to use symbolic and numeric computation, and thereby give them a tool (and a leg up) that they can use throughout their whole professional career. The course will include the following topics: A brief introduction to computer science and numerical methods, Mathematica as a sophisticated symbolic and numeric calculator, Wolfram Alpha – a computational database, programming in Mathematica and the concepts behind the language. Procedural programming, functional programming and rule based programming, parallel computing using multiple cores, dynamic interfaces (animation), precision and accuracy, working with units, vectors, matrices, calculus, differential equations, difference (recurrence) equations, optimization methods, image and video processing, audio processing, finance and economics applications, and software development. Students will complete a project that they will choose from within their own areas of interest.

## SOCS-SHU 130

### Introduction to Political Theory

In a world where interests and values often conflict, how should societies be governed? Which form of government is best? Have we reached what Francis Fukuyama famously termed 'The End of History'—the notion that there are no serious contenders to liberal democracy? Our search will range broadly—we will examine ancient and modern theorists such as Aristotle, Machiavelli, Montesquieu, and Mill as well as Chinese critics of liberal democracy.

Prerequisite: None. The course should be considered equivalent to POLSC-AD 120 and POL-UA 100 Political Theory

Fulfillment: Humanities Introductory course; Social Science Foundational course

## SOCS-SHU 133

### Urbanization in China

This course introduces urbanization in China in the context of the East Asian region and globalization. By examination of the development of selected cities and discussion of experimental urban themes, this course aims to depict prevalent patterns of urbanization at appropriate levels, such as neighborhood types, metropolitan areas, and regional urban agglomeration. We examine traditional forms of settlement and place more recent urban phenomena in a broader historical perspective. We explore relevant political traditions and forms of planning administration to reveal underlying social, economic, cultural and environmental circumstances at work, while learning tools and methods of spatial analysis that can be applied to the study of cities all over the world. Prerequisite: None. Fulfillment: This course satisfies CORE SSPC; Social Science Foundational course; Old Humanities: Critical Concepts; GCS elective: The Politics, Economy, and Environment of China.

## SOCS-SHU 135

### Environment and Society

Topics examined include environmental history and concepts of nature and the environment; the rise of environmentalism; environmental skepticism; anthropogenic global change; population and consumption, ecological footprint analysis, and other environmental indicators; environmental justice; public goods and collective action problems; regulatory regimes; environmental politics; environmental values; environmental movements, protest, and disobedience; and the future of environmentalism. Fulfillment: This course satisfies CORE STS; Social Science Foundation course.

## SOCS-SHU 136

### Human Society and Culture

In this course we examine contemporary cultural, social, and political issues through the lens of socio-cultural anthropology, the study of human society and culture. We approach the discipline through a historical examination of how anthropologists have studied rituals and beliefs, family and kinship, sex and gender, systems of exchange, bodies and selves, race, nationalism, globalization, power and human agency. Students become familiar with ethnography, the study of cultural and social systems through long-term fieldwork and observation. In addition to introducing students to the history of anthropological thought, we study contemporary ethnographies that explore border-crossing and migration, media and digital social lives, infrastructure and state-making, and faith and development. Prerequisite: None.

## SOCS-SHU 141

### Methods of Social Research

This course serves as an introduction to the broad range of methodologies used to produce knowledge in the social sciences, including political science, economics, anthropology, psychology, and sociology. Students will learn how to effectively pose questions about social phenomena, how to design a research project, and how to identify and work with data. Readings also expose students to prominent examples of how both quantitative and qualitative methods are chosen and applied in the social sciences, to serve as a basis for students to choose methods in which they want to train further in their subsequent study. The focus of the lectures and discussions is thus on understanding the various methods and how they affect the design of a research project rather than actually applying them; the final project will require students to design a proposal for an independent research project of their choosing. Prerequisite: None. Fulfillment: This course satisfies Social Science Methods; Data Science concentration in Social Science.

## SOCS-SHU 150

### Introduction to Comparative Politics

Why do some nations succeed while others fail? What is the relationship between regime type and prosperity? Can "struggling" countries learn from more "successful" ones? How do we define the success and failure of nations in the first place? This course will address these and other questions about the relationship between the domestic politics of a country and the outcomes in the country that most humans care about -- wealth, happiness, stability, opportunity, and more. Students will learn tools for analyzing complicated issues like politics and prosperity through a social scientific lens. Students will master the fundamentals of the area of Comparative Politics through assignments, readings, exams, and hands-on analysis opportunities. Students will be challenged to leave their expectations and presumptions about "good" or "bad" regimes at the door, and come in, sleeves rolled up, ready to rigorously engage in the disciplined practice of Comparative Politics -- including questioning whether it even makes sense to "compare" "politics" at all. The course will prepare students for upper level coursework in Political Science as well as general life success. Prerequisite: None.

## SOCS-SHU 160

### Introduction to International Politics



What are the causes of war? Why are some countries able to cooperate over issues like trade or the environment, while others are not? What is the role of international organizations and alliances, such as the UN, NATO, and the EU in the international state system? This course will give students an introduction to thinking analytically and systematically about outcomes in the international system, will teach them the prevailing major theories about these issues, and will equip students to begin to formulate their own answers to these questions. Students will learn a set of formal tools to analyze complex world events, which will prepare them for upper level international relations and other social science courses, as well as to become comfortable applying social science methodologies and theories to better understanding the world around us. The class will use some basic math, including introductory game theory, and some background in inferring statistical results will be helpful, but is not required. Over the course of the semester students will be challenged to apply the models and theories from class to real world situations. Prerequisite: None.

SOCS-SHU 170

### **Introduction to Global Health**

This course provides an introduction to current challenges in global public health. The central concepts and tools will be introduced, and health policies and health systems will be analyzed in different environments. We will discuss the role of demographics, geography, and socio-economic factors like income, resources and infrastructures disparities. We will discuss in depth a few important case studies, such as the rise of life expectancy and the epidemiological transition, and aging and global health, underline the role of environmental factors in global health, and discuss the new trends of global health for the immediate future. Prerequisite: None. Fulfillment: This course satisfies STS Core Curriculum; and Social Science Major Foundational course.

SOCS-SHU 201

### **Planning Global Cities: Urban Form and Spatial Transformation**

This course takes an interpretative look at the spatial conditions of our rapidly urbanizing world. It focuses on comparisons and contrasts between urban development patterns of global cities, such as New York City, Shanghai, Abu Dhabi, and Mumbai. By introducing multiple scales (neighborhood, city, and regional) of urban growth, the course seeks to foster an understanding of the socio-economic processes, physical planning and design practices, cultural influences, and policy interventions that influence urban design and planning. While introducing the basic analytic skills necessary for spatial interpretation, the course addresses the challenges and opportunities of future smart cities in the era of urban big data. Pre-requisite: SOCS-SHU 133 Urbanization in China is recommended but not required

SOCS-SHU 203

### **Global Urbanism**

Today, more than half of the earth's human population lives in urban areas. Why did urban areas initially develop, how have humans aimed to shape them, and what are today's most pressing urban challenges? In this course, we survey key historical moments that shaped urbanism, the core tools used by urban planners throughout history, and the issues that animate urban areas and occupy planners in the modern world. While the course is grounded in the profession of urban planning as a key contributor to the development of cities, it also emphasizes a global understanding of the political, socio-economic, environmental, and technological forces that both motivate and challenge planners and impact cities independent of the formal planning process. Prerequisite: Sophomore Standing. SOCS-SHU 133 Urbanization in China is recommended but not required. Fulfillment: 200-level focus course in the Urban Studies track of the Social Science major.

SOCS-SHU 210

### **Statistics for The Behavioral Sciences**

Students gain familiarity with data description, variance and variability, significance tests, confidence bounds, and linear regression, among other topics. Students work on social science data sets, learn approaches to statistical prediction, and learn to interpret results from randomized experiments. Prerequisite: None.

SOCS-SHU 220

### **Law and Society in the US**

This course is an introduction to law and its role in society in the US from a practical and a critical standpoint. In the first part of the course we engage in legal analysis and writing about cases in contracts, torts, criminal and constitutional law. This part of the course is an introduction to "how lawyers think" and how lawyers and judges write about legal issues. Students learn to "brief" and debate several cases each week. In the second part of the course we take a wider and more critical view of the civil litigation and criminal justice systems in practice. We look at instances where law has changed society and where society has changed the law, especially in the area of economic class and race and women's rights. We consider classic questions in the philosophy of law as well as contemporary radical critiques of the American legal system. We conclude the course with a moot court on a case currently before the US Supreme Court. Pre-requisite: None.

SOCS-SHU 227

### **Inequality and Society**

Inequality has reemerged as a central concern in social science research and also in the contemporary world. Studies of social stratification and mobility seek to understand how patterns of inequality emerge and persist over time, and what the implications of inequality are for society, families and individuals. This course will introduce the basic concepts and theories in analyzing social and economic inequalities in the contemporary era. Readings on selected topics will be drawn from the studies on the US, China, and other countries as available. Prerequisite: None.

Fulfillment: Social Science Focus Course, 200-level, for the Sociology and Political Economy tracks.

SOCS-SHU 228

### **Merchant, Chiefs, and Spirits**

Brokers and intermediaries bring people together for material or symbolic rewards, often overcoming a lack of trust or information between strangers. Brokers have been viewed, over time, with endearment as well as with suspicion, more recently viewed as superfluous middle-men in a supposedly "friction-free" world. Despite several predictions about the end of brokers, they are still present and thriving in different forms and scales. How do we think of brokers in an increasingly (inter)networked, digitized, and automated world? We explore the role of brokers and intermediaries across a range of social, cultural, and political relations and institutions, including gender, media, political rule, public health, infrastructure, and religion. Course readings are drawn from various disciplines and fields, including anthropology, sociology, political science, economics, and history, and we consider how interdisciplinary discussions and debates have approached the concept of mediation over time. Fulfillment: This course satisfies Social Science New Challenges core course; Humanities Topic/Advanced course.

SOCS-SHU 229

### **Capitalism, Socialism, Communism: Theory and Practice**

The ideological clash between capitalist and communist regimes shaped much of the politics of the 20th century, and continues to frame the discourse of world politics with the rise of China as a global power. In this course, we study the varieties of capitalism, socialism, and communism envisioned by theorists and put into practice by nations. We examine the economic and political aspects of these regime types in their imagined and existing forms to develop a taxonomy with which to classify and evaluate contemporary regimes. Course case studies include the U.S., Sweden, and China, and students complete a case study of another regime as a final project. Prerequisite: Successful completion of GPS, or instructor's permission. Sophomore standing or above required.

SOCS-SHU 236

### **The Chinese Family**

The family, one of the key social units, has changed significantly over time around the globe. While traditional Chinese families were governed by Confucian ethics, Chinese families in the 20th century have also been shaped by state policies, modernization, and globalization. This course introduces students to family values and practices around marriage, reproduction, parenting, and intergenerational care in Chinese societies, especially in their modern history. It also contextualizes family values and practices and their transitions within broader demographic, social, and cultural changes in the Chinese and international settings. In this course, students engage with historical and modern cultural artifacts as well as scholarly work on Chinese families, and reflect on their own experiences with, observations of, and beliefs about Chinese families. In this way, students develop a nuanced way of understanding and analyzing family-related issues in the Chinese and global contexts. Prerequisite: Sophomore standing or above. Fulfillment: This course satisfies CORE SSPC; SS Classic Problems core; GCS elective Chinese History, Society and Culture.

SOCS-SHU 245

### **Ethnographic Thinking**

While ethnography—literally "to write" (grapho) "people" (ethnos)—has become synonymous with anthropology, it signifies a range of research methodologies widely used within the social sciences. The course considers discussions and debates about ethnographic research, ethics, and representation within the social sciences and beyond. The readings survey ethnographic theory and practice through a number of conceptual and methodological domains, including the problems they raise. Course topics are: objectivity, critiques of representation, participant-observation, cultural relativism, ethno-history, archives, conflict, interpretation and discourse analysis, verifiability, and life histories. Prerequisite: None.

SOCS-SHU 250

### **Why Is It So Hard to Do Good?**

Why is it so difficult to eliminate some of the greatest causes of human suffering—war, state-failure, poverty, and tyranny? This course examines moral and practical controversies over how we ought to respond to these problems. We will focus in particular on whether, and if so how, the international community is justified in intervening in poor and violent parts of the world. By the end of the course students will be better at analyzing and discerning the plausibility of policy proposals and ideas. Prerequisite: None. Equivalent to CORES-AD-78 Fulfillment: Social Science Core New Challenges in Social Science

SOCS-SHU 254

### **Ethnographies of Change in China**

China's economic rise and shifting politics are shaping the world today, but how do these rapid changes affect daily life for the country's 1.4 billion people? In this class we focus on diverse daily experiences of work, family, gender and sexuality, poverty and wealth, ethnic difference, religion, political engagement, illness and wellness, and environment for people in contemporary China. We examine these topics through ethnography – cultural analysis based on close observation and interaction, presented in writing and film. We examine how Chinese reformers and revolutionaries aspired to change Chinese culture in the Republican Period and Mao years, as well as how foreign and native scholars have grappled with the overwhelming changes in everyday life since Reform and Opening Up. Students in this class develop an understanding of what cultural change means to Chinese people today. Fulfillment: Fulfills-Major Requirement: Focus: 200 Level Anthropology Track. GCS Elective: Chinese History, Society, and Culture. Old Humanities Curriculum: Topics Course, New Humanities Curriculum: Advanced Course. Fulfills-Core

Requirement: SSPC & HPC.

SOCS-SHU 260

### **Contemporary Challenges in Global Health**

This course is centered on current and future challenges pertaining to global public health in the areas of environmental and planetary health, girls' and women's health, and aging. Some topics covered during Introduction to Global Health will be revisited more in depth. This course encourages students to develop their critical and original thinking, their curiosity, creativity, collaboration, rigor, communication, and empathy.

SOCS-SHU 265

### **Population and Society in China**

This course offers an introduction to population study from a sociological perspective. It covers classic topics of fertility, mortality, and migration, and more contemporary extensions into the fields of population aging, gender inequality, marriage and families, and sustainable development. It also provides an overview of the data sources and basic methods commonly used in demographic research, including life tables and the calculation of life expectancy, fertility, and mortality rates. This course explores population issues in Chinese society and examines Chinese demographics in a global perspective. It aims to help students to understand the roots of population structures, processes, and consequences for individuals, families, and societies at the local, national, and global levels. Prerequisite: None. Fulfillment: GCS elective Chinese History, Society, and Culture; Social Science Focus Sociology 200 level

SOCS-SHU 270

### **Social Change in Contemporary China**

This course surveys post-1949 Chinese society, focusing on socioeconomic changes since 1978. It draws from scholarly work on China in sociology, economics, and political science. It explores the basic institutional make-up of Chinese society, the structural changes brought forth in the economic reform era, and how these institutions configure social life in contemporary China. Attention is paid to both changes from and continuities with the pre-reform past. After taking this course, students will be equipped with background information necessary to understand China's complex economic, political, and social phenomena, and the impact of reform on social structures/institutions, individuals' life chances, and social relations in contemporary China. Prerequisite: Sophomore standing or above required.

SOCS-SHU 275

### **US-China Relations**

This course examines the complexities of the bilateral relationship between the People's Republic of China (China) and the United States (US), focusing on their historical rapport, major debates, and current relations. Topics include Sino-US economic relations, media reporting, variation in political systems, global politics, climate/energy issues, military affairs, and contested territories. Prerequisite: SOCS-SHU 160 is recommended, but not required. Fulfillment: This course satisfies Core SSPC; GCS required China and the World/GCS elective (pre18-19); SS Focus; HUMN Topic.

SOCS-SHU 318

### **Ethnographic Methods**

This course is a practicum-based seminar in methods of ethnographic fieldwork and anthropological inquiry and writing. The course explores the conceptual and critical basis of ethnography through fieldwork assignments and readings. The approach of the course is both experiential and experimental—how do we build theories about the world and our place in it? How does anthropology secure evidence and meaning in ways that are empirical, comparative, and deeply theoretical? The course offers students the opportunity for creative and rigorous training in ethnographic methods as well as a chance to produce a piece of ethnographic work. Prerequisites: None. Fulfillment: Satisfies Social Science Methods; Humanities Topics (pre 19-20); Data Science concentration in Social Science (pre 19-20).

SOCS-SHU 334

### **Legal Psychology**

The course provides an overview of research in legal psychology and how it can be used to improve criminal investigations, legal processes, and judicial decision-making. For example, we consider factors that negatively affect the reliability of witness statements and what can be done to improve them, issues related to child witnesses and criminal investigations involving children, and criminal profiling and dangerousness assessment of offenders. The course adopts an interdisciplinary approach, examining the influence of organizational, societal and cultural factors on legal practices and procedures. The course ends with a mock trial, based on materials created from real criminal cases, in which students adopt the role of either a psychological expert or a lawyer. Prerequisite: PSYC-SHU 101 Introduction to Psychology is a prerequisite for the course. This can be waived by the instructor for individual students based on background and preparation.

SOCS-SHU 339

### **Comparative Revolutions**

Why do some countries experience revolution? What differentiates a revolution from a civil war, military coup, or foreign invasion? Importantly, how do various factors or variables come together to create revolution and can these constitute a generalizable theory of the emergence of revolution? This course is based on the study of revolutions in the modern context. Also, the course will hone your skills in social science writing, in qualitative comparative

methods, and in theory building. We will define revolution and examine competing theories about its causes, outcomes, and processes. While examining the cases of France, Russia, and China, we will be particularly concerned about explaining why revolution occurs. We will then consider how more contemporary cases challenge or support those theories, focusing on the case of Iran and expanding the study to other cases while considering examples that might not fit our definition of revolution. As states face tumultuous change, the study of social movements and revolutions becomes particularly salient for both comparative politics and international affairs. Prerequisite: SOCS-SHU 160 or SOCS-SHU 150.

SOCS-SHU 341

#### **Cross-Strait Relations**

The relationship across the Taiwan Strait has been a source of tension in East Asia for decades, not only between Taiwan and mainland China, but also as a potential flashpoint in the relationship between China and the United States. Furthermore, Taiwan's geostrategic position and territorial claims make it of interest to other states in the region. This course aims to introduce students to the complex sources of these tensions and the dynamics of these relationships, all of which are rooted in the two sides' closely linked histories. Students in this course develop a strong grasp of the dynamics of the cross-strait relationship, including the role of the U.S., while honing their critical thinking and analytical skills through focused discussions of the readings and an independent final paper project. Prerequisites: SOCS-SHU 150 Introduction to Comparative Politics or SOCS-SHU 160 Introduction to International Politics or GCHN-SHU 110 The Concept of China. Fulfillment: Core Curriculum Social Science Perspective on China; GCS China and the World (17-18 GCS Electives) ; Social Science Major Focus Courses International Relations - 300 level/ Political Science - 300 level; (18-19 Humanities Major Topic Courses).

SOCS-SHU 350

#### **Empirical Research Practice**

This is a hands-on course in conducting empirical research in behavioral and social sciences with a focus on quantitative methods. The course consists of two major components: First, students work in teams to address a research question provided by the instructor. The teams then plan a small-scale research project, collect empirical data, analyse the data and present the results in a Poster Session. Research projects can involve an experiment, a survey, an observational study or content analysis of empirical materials. The use of the internet as a data collection venue and source of raw materials to analyse is especially encouraged. Second, students write an individual research plan on a topic of their choosing. In some cases, the research plan can be further developed into a Capstone project. The teams are encouraged to make frequent use of instructor office hours for individual consultations. Prerequisites: Sophomore standing or above required. PSYC-SHU 101 recommended but not required. Fulfillment: This course satisfies Social Science Methods Requirement; Data Science concentration in Psychology.

SOCS-SHU 360

#### **Urban Sociology**

Are cities sites of individual opportunity and rich communal life, or sources of individual pathology and community decline? What social, economic, and political factors promote one outcome or the other? How do different groups fare in the urban context, and why? This course approaches the city from a social scientific perspective. It offers an introduction to sociological theories on the city and empirical strategies for studying the city. Students will participate in a group research project on Shanghai as part of the course requirement. A previous course in Social Science methodology or equivalent preparation is required. Pre-requisite: SOCS-SHU 141 or SOCS-SHU 210 or SOCS-SHU 248 or SOCS-SHU 318 or SOCS-SHU 350 or instructor's permission.

SOCS-SHU 370

#### **China's Foreign Policy**

This seminar examines China's foreign policy from the end of the imperial era in the late 19th century, through the Republican period, and into the contemporary People's Republic. It aims to introduce students to broad theoretical perspectives on foreign policy from international relations scholarship, while also interrogating how well China's historical foreign policy behavior fits those general theories. Students in this course will engage with a number of questions about China in international affairs. For example, how important are local officials in China's foreign policy decision-making processes? Is China really a uniquely peaceful nation as its leaders often claim, or do existing theories sufficiently explain China's historical use of military force? What is different about the rise of China to great power status compared to the rise of other great powers? Should there be a "Chinese theory of international relations"? Students in this course will examine these and other questions about China's place in the world while developing an independent final paper project focused on analyzing the course readings.

SOCS-SHU 391 | LWSO-SHU 491

#### **International Investment Transactions in Developing Countries: China, Africa, Latin America**

We explore issues frequently encountered by international legal counsel and business executives and government officials in cross-border investment transactions involving developing countries. We look particularly at issues in China and Africa. Topics include: multilateral development institutions and development banks, state-owned companies and "state capitalism," government ministries and the approval process, national security review and antitrust review, land and environmental issues, labor relations and unions, management compensation, due diligence and corruption, intellectual property protection, corporate governance and ownership structures, disclosure in public offerings, foreign exchange controls, private equity structures, cross border financing, political risk and political risk insurance, bilateral investment treaties, dispute resolution and choice of law, and (throughout) the role and ethical obligations of local and international legal counsel and business advisors. The course has three parts. First we study the highly developed and evolving Chinese inbound foreign direct investment regime. Second we look at risk issues in cross border project financing. Finally we reverse our perspective and consider issues from

the standpoint of African countries considering Chinese outbound investments. Prerequisite: Sophomore standing or above Fulfillment: The course satisfies CORE SSPC; Interactive Media Business Elective, SS Focus, Business and Finance Non-Finance Elective, Business and Marketing Non-Marketing Electives. This course satisfies CORE SSPC; Social Science 300 level Political Economy/Political Science/International Relations Focus; BUSF Non-Finance elective; BUSM Non-Marketing elective; IMB Business elective.

SOCS-SHU 401

#### **Social Science Capstone Seminar (4 credits)**

Students design and conduct an independent research project in their area of focus using the theories, methods, and data with which they have become familiar over the course of completing the major. Open only to Social Science majors in the senior year. Fulfillment: Social Science Capstone Course.

SOCS-SHU 410

#### **Social Science Capstone Honors Seminar (2 credits)**

This seminar prepares candidates for major honors in Social Science to enroll in the Honors Independent Study in the spring semester of the senior year. In this seminar, students develop a research question, select a methodological approach, assemble a working bibliography, and identify a faculty supervisor for the spring semester independent study. Open only to seniors who have been admitted to honors candidacy in Social Science. Fulfillment: Social Science Major Capstone Course.

SOCS-SHU 411

#### **Social Science Honors Independent Study**

Candidates for major honors conduct independent research under the supervision of a faculty member in the Social Sciences. Open only to seniors who have been admitted to honors candidacy in Social Science. Prerequisite: SOCS-SHU 410, Social Science Capstone Honors Seminar.

SOCS-SHU 445

#### **Topics in Society, Health & Medicine**

Check Albert for various relevant topics each semester.

SOCS-SHU 997

#### **Independent Study**

Prerequisite: permission of the department. 1 to 4 credits. Students are permitted to work on an individual basis under the supervision of a full-time faculty member in the Social Science discipline if they have maintained an overall GPA of 3.0 and have a study proposal that is approved by a Social Science professor. Students are expected to spend about ten to twelve hours a week on their project for 4 credits. The results of the study are embodied in a report of a type required by the instructor.

PSYC-SHU 101

#### **Introduction to Psychology**

This course highlights the fundamental principles and interesting experiments within the field of psychology, aiming to help students understand mind and behavior of themselves and others. It provides a comprehensive overview of scientific study of thought and behavior, covering a wide range of topics such as the biological and evolutionary bases of behavior, sensation and perception, learning, memory, intelligence and thinking, lifespan development, emotion and motivation, human personality, social behavior, behavioral disorders, and psychological treatment of disorders. Opportunities to apply knowledge gained in class are available through various in-class and out-of-class activities. By the end of this course you will have gained a much better understanding and appreciation of who you are and how you work. Prerequisite: None. Fulfillment: This course satisfies Core Curriculum Experimental Discovery (ED), and Social Science Major Foundational course; Data Science concentration in Social Science/Psychology.

PSYC-SHU 201

#### **Social Psychology**

Social psychology is about how our thoughts, feelings, and behaviors are influenced by the real or imagined presence of others. The class introduces social psychological theories and research and covers topics such as perception of others and the self, attraction, altruism and helping, aggression, moral thought and action, stereotypes, attitudes, and social influence. We learn about each topic by linking it to everyday life, as well as by seeing how researchers take a scientific approach to studying it. Prerequisite: PSYC-SHU 101 Introduction to Psychology

PSYC-SHU 234

#### **Developmental Psychology**

This course is designed to give students a comprehensive overview of developmental psychology following a chronological approach, covering normative growth and development from conception to adolescence. Specifically, we will examine physical, cognitive, social, and emotional development with an emphasis on psychosocial development in context. This course not only covers major theories and research findings on human development, but also provides students with the opportunity to appreciate the practical significance of sound theory and research. Prerequisite: PSYC-SHU 101.

PSYC-SHU 238

### **Abnormal Psychology**

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This course focuses on the definition, history, and scope of abnormal psychology, with an emphasis on the psychological factors that control the origins, maintenance, and modification of behavioral disorders. The primary goal of this course is for students to become familiar with up-to-date research in the field but also to critically evaluate how we think about mental illness using theory, research findings, logic, and applied knowledge. A secondary goal is for students to become educated consumers of mental health information to be able to predict the factors that increase the risks for a given disorder and discriminate between treatment types based on efficacy demonstrated in the research literature. Fulfillment: This course satisfies Social Science focus course: Psychology 200 level.

PSYC-SHU 329

### **Parenting and Culture**

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Examination of parenting views & practice across socio-cultural groups, discussion of similarities & differences in parenting around the globe, how parenting changes over the life course of the child, & how parenting shapes children's development. Prereq: Intro to Psychology

PSYC-SHU 337

### **Adolescent Development**

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This course covers physical, cognitive, and socio-emotional development of adolescents in diverse contexts. Specifically, changes and characteristics of key developmental domains of adolescents, such as family, peer, and romantic relationship, are discussed, with particular attention to contextual factors that influence adolescent development such as culture, gender, and social class. This course is for students who have acquired the basic principles of psychology as well as fundamental knowledge of human development. Prerequisite: PSYC-SHU 101, and PSYC-SHU 234 as a pre- or co-requisite.

PSYC-SHU 344

### **Psychology of Human-Machine Communication and Relationships**

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From the perspective of psychological science, developments in machine-learning and AI raise many interesting questions. AI technologies are already proving useful in their ability to monitor and assess human behaviors, emotions, and decision patterns. This is becoming possible through the sheer volume of information available online in connection with individuals, groups, and through the sophistication of predictive algorithms that can see patterns that the human mind cannot. As AI systems, machines, and robots are increasingly built to mimic human beings, will we begin to communicate with, react to, or feel the same towards them as we do to other human beings? If an AI system can assist in an online purchase or a psychological intervention (e.g., a chatbot), can they also become our friends? Could we fall in love with an artificial agent or a robot? In this course, we use the lens of psychological science to investigate these and other aspects of human-machine communication and their effects on human-human relationships. Prerequisite: Introduction to psychology (PSYC-SHU 101) OR Introduction to Neural Science (NEUR-SHU 201) OR Introduction to Computer Science (CSCI-SHU 101) Fulfillment: IMA/IMB elective; Neural Science elective; Social Science Focus Psychology 300 level; Core STS.

PSYC-SHU 349

### **Cultures of Psychology**

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The purpose of this course is to critically examine the ways that culture—with regard to race/ethnicity, gender, and social class—has shaped major theoretical perspectives in psychology, and to familiarize students with the impact of cultural factors on the evolution of various psychological constructs. Students will explore the multifaceted nature of their own cultural backgrounds and apply it to the establishment of their worldviews. Critical examination of the process of psychological research and scholarship will be emphasized. Prerequisite: PSYC-SHU 101. Fulfillment: This course satisfies Social Science Focus: 300 Level Psychology Track.

PSYC-SHU 352

### **Psychology of Human Sexuality**

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The course provides an overview of empirical research into the psychology of human sexuality. The course surveys findings from basic research, theories regarding human sexuality, sexual functioning and its psychological correlates, and clinical research into sexual problems and their treatment. Topics covered include psychological aspects related to sexual and gender minorities, including affirmative counseling approaches for LGBTQ individuals; current scientific understanding of sexual variations as well as sexual harassment and coercion; sex as a commodity; and psychological aspects related to HIV/AIDS and its prevention. The study of human sexuality is inherently multidisciplinary as sexuality is a biopsychosocial phenomenon. Even though the course focuses on the psychological level of analysis, cultural, societal and legal aspects related to sexuality in a global context are relevant to many of the topics covered. As an example, we explore the topic of sexual racism/racial fetishism as well as legislation related to sexuality in different societies. Prerequisite: Intro to Psychology

## CHIN-SHU 10

**Chinese Bridge Online-Elementary Level**

This Chinese Bridge online- Elementary level is designed for NYU Shanghai students who are currently studying away. This ten-week non-credit internet-based Chinese language study will provide language materials based on Elementary level vocabulary and grammars to help students to review and maintain the language proficiency and help prepare students for the intermediate level study while being absent from the target language environment. This online study will be held twice a week, with one recorded video and one live session online. By completing the study with the Chinese Bridge Online, students will not only review the most of the important vocabulary and grammars from Elementary level in new topics, but also have opportunity to learn new useful words and phrases in authentic context and therefore students will be ready for moving on to next Intermediate level.

## CHIN-SHU 20

**Chinese Bridge Online-Intermediate level**

This Chinese Bridge Online-Intermediate level is designed for NYU Shanghai students who are currently studying away. Students who have finished Intermediate Chinese II or Advanced Chinese I are all welcomed to enroll. This ten-week non-credit internet-based online study will provide language materials based on Intermediate level topics, vocabulary and grammars to help students to review and maintain the language proficiency while being absent from the target language environment. In addition, this online study will cover part of HSK level 4 vocabulary and others that are needed for preparation of Advanced level Chinese. This online study will be held twice a week, with one recorded class and one live session online (students can choose one from the two live sessions offered per week to take part it). By successfully completing this level of Chinese Bridge Online immediately before the semester you intend to enroll in Advanced Chinese I in Shanghai, students will receive a recommendation from the instructor to be exempted from the placement test to pursue advanced level courses

## CHIN-SHU 101

**Elementary Chinese I**

This course is the first part of a one-year elementary-level Chinese course designed for students who have no or almost no knowledge of Mandarin Chinese. It is designed to develop language skills in listening, speaking, reading, and writing as it relates to everyday life situations. The objectives of the course are: (1) to master the Chinese phonetic system (pinyin and tones) with satisfactory pronunciation; (2) to understand the construction of commonly used Chinese Characters (both simplified and traditional) and learn to write them correctly; (3) to understand and use correctly basic Chinese grammar and sentence structures; (4) to build up essential vocabulary; (5) to read and write level appropriate passages (100-150 characters long); and (6) to become acquainted with aspects of Chinese culture and society related to the course materials. Prerequisite: None. Fulfillment: General Elective.

## CHIN-SHU 101S

**Elementary Chinese I - FoS1**

This course is a specially-designed 2-credit elementary-level Chinese course for students enrolled in Foundations of Science who have no or almost no knowledge of Mandarin Chinese. It covers the first half of the 4-credit Elementary I course and is designed to develop language skills in listening, speaking, reading, and writing as it relates to everyday life situations. Prerequisite: None. Fulfillment: General Elective.

## CHIN-SHU 101S2

**Elementary Chinese I - FoS 2**

This specially-offered course for students enrolled in Foundations of Science is the second half of the regular Elementary Chinese II course, designed for students who have completed the first half of NYU-SH's Elementary Chinese II for students in FoS. It is designed to reinforce and further develop language skills in listening, speaking, reading, and writing as it relates to everyday life situations. Prerequisite: Successful completion of first half.

## CHIN-SHU 102

**Elementary Chinese II**

This course is the second part of a one-year elementary-level Chinese course designed for students who have completed NYU-SH's Elementary Chinese I or equivalent. It is designed to reinforce and further develop language skills in listening, speaking, reading, and writing as it relates to everyday life situations. The objectives of the course are: (1) to continue mastering the Chinese phonetic system (pinyin and tones); (2) to become further familiarized with the construction of commonly used Chinese Characters (both simplified and traditional); (3) to understand and use correctly basic Chinese grammar and sentence structures; (4) to continue building up essential vocabulary; (5) to read and write level appropriate passages (150-200 characters long); and (6) to become acquainted with aspects of Chinese culture and society related to the course materials. Prerequisite: CHIN-101. Fulfillment: General Elective.

## CHIN-SHU 102S

**Elementary Chinese II FoS**

This specially-offered course for students enrolled in Foundations of Science is the first half of the regular Elementary Chinese II course, designed for students who have completed NYU-SH's Elementary Chinese I or equivalent. It is designed to reinforce and further develop language skills in listening, speaking, reading, and writing as it relates to everyday life situations. Prerequisite: CHIN-101 or 101S2. Fulfillment: General Elective.

**Elementary Chinese II FoS 2**

This specially-offered course for students enrolled in Foundations of Science is the second half of the regular Elementary Chinese II course, designed for students who have completed the first half of NYU-SH's Elementary Chinese II for students in FoS. It is designed to reinforce and further develop language skills in listening, speaking, reading, and writing as it relates to everyday life situations. Prerequisite: Successful completion of first half.

**Elementary Chinese for Advanced Beginners**

This course is intended for students who can converse in Mandarin Chinese about matters related to everyday life situations but cannot read and write at the same level. This includes students who were raised in a non-Chinese speaking country but in a home where the Mandarin Chinese dialect was spoken, and/or students who have acquired a certain level of Mandarin Chinese language proficiency (primarily speaking and listening) by living or working in a Chinese speaking country/region for an extended time. Though speaking and listening will be an integral part of the course, the major focus will be on developing students' competence in reading and writing. The objectives of the course are: 1) to master the Chinese phonetic system (pinyin and tones) with satisfactory pronunciation; 2) to understand the construction of commonly used Chinese Characters (both simplified and traditional) and write them correctly; 3) to build up essential vocabulary needed to read and write about topics covered in the textbook; 4) to understand and use correctly basic Chinese grammar and sentence structures; 5) to comprehend level appropriate passages and to be able to perform simple sentence analysis; 6) to write level appropriate essays (250-300 characters long) with grammatical accuracy as well as cohesion and coherence; 7) to become acquainted with and be able to discuss in speech and writing aspects of Chinese culture and society related to the course materials. Prerequisite: N/A. This course is followed by Intermediate for Advanced Beginners. Fulfillment: General Elective.

**Intermediate Chinese I**

This course is the first part of a one-year intermediate-level Chinese course designed for students who have completed NYU-SH's Elementary Chinese II or equivalent. It is designed to consolidate and develop overall aural-oral proficiency. Objectives are: (1) to be able to obtain information from more extended conversation; (2) to express and expound on, in relative length, feelings and opinions on common topics; (3) to develop vocabulary needed to discuss common topics and begin learning to decipher meaning of compound words; (4) to develop reading comprehension of more extended narrative and expository passages; (5) to write, in relative length (200-250 characters long), personal narratives, informational narratives, comparison and discussion of viewpoints with level-appropriate vocabulary and grammatical accuracy, as well as basic syntactical cohesion; (6) to continue being acquainted with aspects of Chinese culture and society related to the course materials. Prerequisite: CHIN-102. Fulfillment: General Elective.

**Intermediate Chinese I - Accelerated**

This accelerated course is the first part of a one-semester intermediate-level Chinese course designed for students who have completed NYU-SH's Elementary Chinese II or equivalent. It is designed to consolidate and develop overall aural-oral proficiency. Objectives are: (1) to be able to obtain information from more extended conversation; (2) to express and expound on, in relative length, feelings and opinions on common topics; (3) to develop vocabulary needed to discuss common topics and begin learning to decipher meaning of compound words; (4) to develop reading comprehension of more extended narrative and expository passages; (5) to write, in relative length (200-250 characters long), personal narratives, informational narratives, comparison and discussion of viewpoints with level-appropriate vocabulary and grammatical accuracy, as well as basic syntactical cohesion; (6) to continue being acquainted with aspects of Chinese culture and society related to the course materials. Prerequisite: CHIN-102 or 102A; Co-requisite: CHIN-SHU 202A. Fulfillment: General Elective.

**Intermediate Chinese II**

This course is the second part of a one-year intermediate-level Chinese course designed for students who have completed NYU-SH's Intermediate Chinese I or equivalent. It is designed to continue consolidating and developing overall aural-oral proficiency, gradually focusing more on semi-formal or formal linguistic expressions. Objectives are: (1) to further develop competence in obtaining information from more extended conversation; (2) to express and expound on, in more extended length, feelings and opinions on socio-cultural topics; (3) to develop more specialized vocabulary needed to discuss sociocultural topics; (4) to improve students' ability to decipher meaning of compound words; (5) to further develop reading comprehension of extended narrative, expository and simple argumentative passages; (6) to learn to solve simple syntactical problems independently; (7) to write, in relative length (250-300) characters long informational narratives, expository and simple argumentative passages with level-appropriate vocabulary and grammatical accuracy, as well as basic syntactical cohesion; and (8) to continue being acquainted with aspects of Chinese culture and society related to the course materials. Prerequisite: CHIN-201. Fulfillment: Core Curriculum Language.

**Intermediate Chinese II - Accelerated**

This accelerated course is the second part of a one-semester intermediate-level Chinese course designed for students who have completed NYU-SH's Intermediate Chinese I or equivalent. It is designed to continue



consolidating and developing overall aural-oral proficiency, gradually focusing more on semi-formal or formal linguistic expressions. Objectives are: (1) to further develop competence in obtaining information from more extended conversation; (2) to express and expound on, in more extended length, feelings and opinions on socio-cultural topics; (3) to develop more specialized vocabulary needed to discuss sociocultural topics; (4) to improve students' ability to decipher meaning of compound words; (5) to further develop reading comprehension of extended narrative, expository and simple argumentative passages; (6) to learn to solve simple syntactical problems independently; (7) to write, in relative length (250-300) characters long) informational narratives, expository and simple argumentative passages with level-appropriate vocabulary and grammatical accuracy, as well as basic syntactical cohesion; and (8) to continue being acquainted with aspects of Chinese culture and society related to the course materials. Co-requisite CHIN-201A. Fulfillment: Core Curriculum Language.

CHIN-SHU 203

#### **HSK Preparation for Intermediate Chinese II**

HSK Preparation course is designed for students who co-enroll Intermediate Chinese II. It aims to supplement that course by providing targeted vocabulary, relevant grammatical structures, and test-taking strategies that are specific to the HSK exam. Students in this course will also further develop their language skills in listening, reading, and writing, expand their vocabulary, improve their grammatical accuracy, enhance their ability to create with the language when talking about familiar topics related to their daily life, and also gain more concrete knowledge of Chinese customs and cultures. This course also addresses common mistakes made by Chinese language learners and strategies for how to avoid and self-correct them. Students will hone their test-taking skills and will learn valuable strategies for excelling at the HSK. Prerequisite: CHIN-SHU 202, CHIN-SHU 202A, or CHIN-SHU 211. Fulfillment: None.

CHIN-SHU 211

#### **Intermediate Chinese for Advanced Beginners**

This course is designed for students with near-standard pronunciation and without major grammatical errors, conversational Chinese related to daily life situations and simple sociocultural topics. The objectives are: 1) to be able to obtain information from extended written passages; 2) to both express and expound on, in relative length, feelings and opinions on common social and cultural topics; 3) to expand vocabulary and learn to decipher the meaning of compound words; 4) to develop reading comprehension of extended expository and simple argumentative passages; 5) to solve non-complex textual problems with the aid of dictionaries; 6) to write in relative length personal narratives, informational narratives, comparison and discussion of viewpoints with level appropriate vocabulary and grammatical accuracy, as well as syntactical cohesion; 7) to continue to become acquainted with aspects of Chinese culture and society related to the course materials. Prerequisite: CHIN-111 Elementary Chinese for Advanced Beginners. This course is followed by Advanced Chinese I. Fulfillment: Core Curriculum Language.

CHIN-SHU 301

#### **Advanced Chinese I**

This course is the first part of a one-year Advanced Chinese course designed for students who have successfully completed Intermediate Chinese II at NYU-SH, or who have at least the equivalent knowledge of Chinese upon registration. It is designed to reinforce and further improve students' overall communicative competence by incorporating semi-formal or formal usages. The objectives of the course are: (1) to learn to apply formal linguistic expressions in speaking and writing; (2) to acquire specialized vocabulary and patterns necessary for conducting formal discussions of socio-cultural topics; (3) to develop reading comprehension of texts with more advanced syntax; (4) to learn to make context-based guess about the meaning of a new word and further enhance students' ability to analyze as well as produce sentences with more complex syntactical features; (5) to learn to write expository and argumentative passages in more extended length; and (6) to learn to employ basic rhetoric devices in writing. Prerequisite: CHIN-202 OR CHIN-211. Fulfillment: Core Curriculum Language; GCS Major Requirement Language Courses for Advanced GCS Track Non-native Chinese Speakers.

CHIN-SHU 302

#### **Advanced Chinese II**

This course is the second part of a one-year Advanced Chinese course designed for students who have successfully completed Advanced Chinese I at NYU-SH, or who have the equivalent knowledge of Chinese upon registration. It is designed to reinforce and further improve students' overall communicative competence by incorporating semi-formal or formal usages. The objectives of the course are: (1) to enhance further students' oral and written communicative competence using formal linguistic expressions; (2) to expand further specialized vocabulary and patterns necessary for conducting formal discussions of socio-cultural topics relevant to today's China; (3) to improve further students' reading comprehension of texts with more advanced syntax; (4) to develop further their competence in making context-based guess about the meaning of a new word, and further enhance ability to analyze as well as produce sentences with more complex syntactical features; (5) to improve further their ability to write expository and argumentative passages in more extended length; (6) to improve their ability to effectively employ basic rhetoric devices in writing. Prerequisite: CHIN-301. Fulfillment: Core Curriculum Language; GCS Major Requirement Language Courses for Advanced GCS Track Non-native Chinese Speakers.

CHIN-SHU 321

#### **Chinese Immersion Program: Advanced I**

For the first time ever, NYU Shanghai is delighted to offer the new Chinese Language Immersion program during Summer 2017. Students can enroll in the program and complete Intermediate I and Intermediate II level, or Advanced I and Advanced II level. Students must already be placed at an Intermediate I or Advanced I level. The NYU Shanghai Chinese Language Program is a 9 week summer program intended to enable students who are serious

about studying Chinese language in a total immersion environment to cover a semester's worth of material and to earn four NYU Shanghai credits. This rigorous, demanding, and rewarding language program allows students to have first-hand experience in using Chinese in real world situations as well as studying and practicing it in the classroom. To ensure more effective teaching and learning, classes are capped at 10 students. In the afternoons during weekdays, students can participate in extracurricular activities such as Tai Chi, Chinese calligraphy, Chinese cooking, etc. Students participate in these activities based on their preferences and time schedules. For more details, please visit the Chinese Immersion Program website. Shanghai students will not need to formally apply but an interview with a Chinese language instructor and selection to participate will be required. There are two tracks, Intermediate or Advanced. Co-requisite: CHIN-SHU 322.

CHIN-SHU 322

#### **Chinese Immersion Program: Advanced II**

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For the first time ever, NYU Shanghai is delighted to offer the new Chinese Language Immersion program during Summer 2017. Students can enroll in the program and complete Intermediate I and Intermediate II level, or Advanced I and Advanced II level. Students must already be placed at an Intermediate I or Advanced I level. The NYU Shanghai Chinese Language Program is a 9 week summer program intended to enable students who are serious about studying Chinese language in a total immersion environment to cover a semester's worth of material and to earn four NYU Shanghai credits. This rigorous, demanding, and rewarding language program allows students to have first-hand experience in using Chinese in real world situations as well as studying and practicing it in the classroom. To ensure more effective teaching and learning, classes are capped at 10 students. In the afternoons during weekdays, students can participate in extracurricular activities such as Tai Chi, Chinese calligraphy, Chinese cooking, etc. Students participate in these activities based on their preferences and time schedules. For more details, please visit the Chinese Immersion Program website. Shanghai students will not need to formally apply but an interview with a Chinese language instructor and selection to participate will be required. There are two tracks, Intermediate or Advanced. Co-requisite: CHIN-SHU 321.

CHIN-SHU 401

#### **Classical Chinese I for Advanced Mandarin Learners**

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This course is designed to give students an introduction to basic syntax, grammar, and vocabulary of Classical Chinese through close readings of authentic texts. Almost all these texts are historically significant canon texts that are extremely rich in classical Chinese cultural connotation. They are selected from a wide variety of genres, such as historical literature, philosophical and political writings, written correspondence, poetry, essay, some of which are unique to Chinese culture. The course aims to develop the students' reading and comprehension skills in this highly stylized form of written Chinese, acquaint students not only with the classic Chinese cultural heritage but also underlying working mechanism that is in many ways relevant to the form and usage of today's Mandarin Chinese. Prerequisite: CHIN-302. Fulfillment: Core Curriculum Language; 17-18 GCS Major Language Non-native Chinese Speakers.

CHIN-SHU 402

#### **Classical Chinese II**

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This course continues the work begun in Classical Chinese I with the goal that students be able to read with reasonable facility original texts, included unpunctuated ones, from a wide variety of genres, including historical literature, philosophical and political writings, written correspondence, poetry, essays and official documents. Prerequisite: CHIN-401.

CHIN-SHU 403

#### **Interpreting Modern China: Reading the Era of 1919-1949**

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Chinese language at fourth-year level. Designed to enhance Chinese proficiency through studying authentic materials rich in cultural connotations, focusing primarily on reading and writing. Objectives are: to develop language skills needed for semi-formal and formal presentation on academic topics; to further improve reading comprehension and develop skills needed to conduct textual analysis of passages with sophisticated syntax and semantic nuance; to develop responsiveness to and ability to interpret stylized usage; to advance strategies for autonomous learning of Chinese language from an analytical perspective. For the first part of this year-long sequence, reading materials will generally be selected from China's modern period (1919–1949).

CHIN-SHU 404

#### **Readings in Contemporary Chinese Culture**

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Continuation of Chinese language at fourth-year level, with reading materials generally selected from contemporary sources. Prerequisite: CHIN-SHU 403 Interpreting Modern China or CHIN-SHU 302 Advanced Chinese II or place out of Advanced Chinese II. Fulfillment: Core Curriculum Language; 17-18 GCS Major Language Non-native Chinese Speakers.

CHIN-SHU 405

#### **Reading Chinese Newspapers**

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This 4-credit course is a post-advanced Chinese language course, which meets twice a week, 90 minutes for each meeting and is designed for students who have completed Advanced Chinese II(CHIN-SHU-302, or EAST-UA-206) or the equivalent. This course, through intensive and extensive readings of authentic materials selected from major Chinese newspapers and periodicals in China and abroad and robust in and out-of-class exercises and assignments, intends to help students further enhance their language skills with special focus on reading and writing competence, further enrich their knowledge about China society and Chinese culture, and further improve

their abilities in conducting in-depth analysis, discussion, debate, comparison, contrast and conclusion orally and in written mode in Chinese language. The articles will be selected from the latest issues in newspapers and periodicals with topics ranging from culture inheritance, social entertainment to economics, technology, new lifestyle, etc., which provide different perspectives for students to observe and study phenomena (including their origins and evolutions) in modern Chinese society and Chinese culture. The course also focuses on language learning, aiming at helping students accumulate more formal written-style vocabulary and getting acquaintance with the modes, structures and characteristics of Chinese formal news reports. Fulfillment: Core Curriculum Language; GCS Major Requirement Language Courses for Advanced GCS Track Non-native Chinese Speakers.

CHIN-SHU 410

#### **Written Chinese Discourse**

This is a 4-credit Chinese language course meeting twice a week, 75-minutes per session. It aims to further develop students' writing competence in Chinese language. It proposes to improve students' proficiency, accuracy and ease in written expression so that they can use Chinese language in more professional fields and real life situations in a variety of contexts and registers. They will read contemporary texts from various fields and refine their skills in narration, description, and argumentative writing. They will also develop their skills in practical writing, like emails, reports, film reviews and application letters. The course will adopt the process writing approach, therefore, students will hone their writing skills through writing exercises in and out of class. The majority of the high-stakes assessments will be typewritten. The course also includes a number of handwritten tasks that students complete to reinforce their knowledge of production of characters. Although this course is targeted at improving students' writing competence, it will also enhance their integrated language skills through various classroom tasks, discussions, and learning activities. Prerequisite: Advanced Chinese II (CHIN-SHU 302) or equivalent or by placement exam. Fulfillment: None.

CHIN-SHU 415

#### **Introduction to Contemporary China I**

This course is a post advanced Chinese language course and is designed for those students who have completed Advanced Chinese II at NYU-SH or NYU (or the equivalent) and intend to further enhance their language skills and knowledge about different aspects of China. It's designed to help students to know the hot issues taking place in modern China and improve their ability to understand the cultural components and thinking modes behind the issues and their ability in expressing their opinions and carrying out discussions and debates on these issues in Chinese language. This course integrates the language learning with the study of social issues of modern China, and covers the authentic materials with topics ranging from China human geography, Chinese political system, Chinese economy, Chinese education, to Chinese science and technology.

CHIN-SHU 416

#### **Introduction to Contemporary China II**

This course is a post advanced Chinese language course and is designed for those students who have completed Advanced Chinese II at NYU-SH or NYU (or the equivalent) and intend to further enhance their language skills and knowledge about different aspects of China. It's designed to help students to know the hot issues taking place in modern China and improve their ability to understand the cultural components and thinking modes behind the issues and their ability in expressing their opinions and carrying out discussions and debates on these issues in Chinese language. This course integrates the language learning with the study of social issues of modern China, and covers the authentic materials with topics ranging from Chinese science and technology, Chinese beliefs and religions, Chinese marriage, environment protection, Chinese media to Chinese floating population. Prerequisite: CHIN-302. This course fulfills GCS Elective for Non-native Chinese Speaker.

CHIN-SHU 460A

#### **Teaching Chinese Language Through Children's Storybooks**

This is the first part of a two-semester, 4-credit Dean's Service Scholar course that runs for 14 weeks. The course integrates Chinese language learning and teaching with community exploration and service, to introduce students to Chinese language pedagogy and its application in a children's setting, as well as the differences in approach for a university setting. This course will be conducted in an immersive target language environment. The students will have the opportunity to work closely with a local public kindergarten on a curriculum development project on Reading to Children. Students will observe classes, analyze sample teaching videos, prepare teaching plans, conduct mock teaching, conduct field teaching and reflect on their first-hand service learning experiences in Chinese language. As a final project, students will combine the teaching skills they have learned with relevant research in order to create either 1) a teaching manual for incorporation of children's literature into listening comprehension exercises or 2) an original children's book that incorporates targeted pedagogical techniques for Chinese language learning. In the course of pursuing teaching perfection, students will improve their interpersonal skills and communication skills in the target language as well. Prerequisite: Advanced II or equivalent. Fulfillment: General Elective.

CHIN-SHU 500

#### **Chinese Topic Course: Contemporary Chinese Art and Fashion**

This course is designed for post-advanced level students who are interested in learning about Chinese contemporary art, fashion, and culture while advancing their reading, writing, and conversational skills in Mandarin Chinese. Students will be introduced to major works of Chinese artists and fashion designers. Course materials are particularly selected to build and reinforce students' vocabulary, grammar, as well as composition and conversation skills on a variety of topics pertaining to Chinese modernism and postmodernism through conventional and new media. This course is conducted entirely in Chinese. Prerequisite: Advanced Chinese 2 or equivalent. Fulfillment: General Elective.

**Introduction to Conversational Chinese**

This two-credit language course introduces students to Chinese language and culture. It is aimed at students with no prior knowledge of Chinese. The language component of the course runs for 14 weeks and focuses on the development of competence in verbal communication and communication structures which can be used in daily life in China. The culture component includes excursions that are closely tied to the language topics being studied. This course does NOT cover Elementary I. It is designed for students who do not need to complete Elementary I for their major, or have already completed the language requirement for their major, and/or students who have been to two other global sites. Students cannot take this class if they have already: Passed Elementary Chinese 1 or the equivalent or higher; Are a native Chinese speaker. Note: Students enrolled in this 2-credit course must also be enrolled in a four-credit China-focused content course in order to meet the Global Programs study away language requirement. The course must be taken for a letter grade and is not open to students who place at a higher level than Elementary I Chinese. Fulfillment: General Elective.

**Introduction to Conversational Chinese-4 Credits**

This four-credit language course for Study Away Students only introduces students to Chinese language and culture. It is aimed at students with no prior knowledge of Chinese. The language component of the course runs for 14 weeks and focuses on the development of competence in verbal communication and communication structures which can be used in daily life in China. The culture component includes excursions that are closely tied to the language topics being studied. Compared to the 2-credit Intro to Conversation Chinese, this 4-credit course will have a wider coverage of topics, vocabulary and grammar, more activities and field trips, and meet 4 days a week of in-class instructions over the 14 weeks. This course does NOT cover Elementary I. It is designed for students who do not need to complete Elementary I for their major, or have already completed the language requirement for their major, and/or students who have been to two other global sites. Students cannot take this class if they have already: Passed Elementary Chinese 1 or the equivalent or higher; native Chinese speaker. Fulfillment: General Elective.

**Elementary French I**

Open to students with no previous training in French and to others on assignment by placement test. This course introduces students to the foundations of French grammar, vocabulary, and structure through practice of the four skills (listening, speaking, reading, writing). Not equivalent to FREN-UA 10. Only by combining FREN-UA 1 with FREN-UA 2 can a student complete the equivalent of FREN-SHU 10 and then continue on to the intermediate level. Prerequisite: None Fulfillment: General Elective.

**Elementary French II**

This Elementary French II course is designed to provide students who have already studied one semester of French (or the equivalent thereof) with continued progress in the French language through the practice of the four skills. This is a continuation of FREN-SHU 1. To progress to the intermediate level, a student must complete both FREN-SHU 1 and FREN-SHU 2 (or the equivalent of both semesters, FREN-SHU 10). 4 points. Prerequisite: FREN-SHU 1 or the equivalent. Fulfillment: General elective.

**Intensive Elementary French**

Open to students with no previous training in French and to others on assignment by placement test. Completes the equivalent of a year's elementary level in one semester. Offered every semester. 6 points. Fulfillment: General Elective.

**Intensive Elementary French I**

This Intermediate French I course is designed to give students who have completed the elementary sequence (or the equivalent) a deeper understanding of the French language through the practice of the four skills. Open to students who have completed the equivalent of a year's elementary level and to others on assignment by placement test. Not equivalent to FREN-UA 20. 4 points. Prerequisite: FREN-SHU 2 or FREN-SHU 10 (or the equivalent or by placement exam) Fulfillment: General Electives.

**Intensive Intermediate French**

Completes the equivalent of a year's intermediate level in one semester. Offered every semester. 6 points  
Prerequisite: Intensive Elementary French or Instructor Permission.

**French Grammar and Composition**

Systematizes and reinforces the language skills presented in earlier-level courses through an intensive review of grammar, written exercises, an introduction to composition, lexical enrichment, and literary analysis.

**Business French**

Designed for students who wish to learn the specialized language used in French business. Emphasis on oral and

written communication and the acquisition of a business and commercial vocabulary dealing with the varied activities of a commercial firm (e.g., advertising, transportation, banking). Stresses group work in simulated business situations and exposure to authentic spoken materials. Fulfillment: General Elective.

JAPN-SHU 5

### **Elementary Japanese I**

Introductory course in modern spoken and written Japanese, designed to develop fundamental skills in areas of speaking, listening, reading, and writing. Gives contextualized instructions to develop both communicative and cultural competency. Systematically introduces the Japanese writing system (Hiragana, Katakana, and Kanji). Open to students with no previous training in Japanese and to others on assignment by placement test. Fulfillment: General Elective.

JAPN-SHU 10

### **Elementary Japanese II**

Prerequisite: This course is specifically designed for those students who have completed Elementary Japanese I with a satisfactory grade (C- and above) or the equivalent.

JAPN-SHU 15

### **Intermediate Japanese I**

Intermediate Japanese I Fulfillment: General Elective.

JAPN-SHU 20

### **Intermediate Japanese II**

Prerequisite: JAPN-SHU 15 or equivalent with a minimum grade of C-, or placement exam.

JAPN-SHU 25

### **Advanced Japanese I**

Continuing study of Japanese at the advanced level. Stresses reading comprehension, spoken fluency, and composition; uses original materials, such as newspaper/magazine articles, TV news, and video. Introduces additional Kanji characters. Advanced use of Japanese and character dictionaries. Prerequisite: JAPN-SHU 20 or the equivalent (EAST-UA 249) with a minimum grade of C+ Fulfillment: General elective, Counts toward Japanese minor.

SPAN-SHU 1

### **Elementary Spanish I**

Open to students with no previous training in Spanish and to others on assignment by placement test. Beginning course designed to teach the elements of Spanish grammar and language structure through a primarily oral approach. Emphasis is on building vocabulary and language patterns to encourage spontaneous language use in and out of the classroom. No prerequisite. Fulfillment: General elective.

SPAN-SHU 2

### **Elementary Spanish II**

Open to students who have completed SPAN-SHU 1 or the equivalent, or by Placement Exam. This course builds on the foundations of Spanish grammar and language through a balanced approach of the four skills, with emphasis on building vocabulary and language patterns to encourage spontaneous language use in and out of the classroom. After completion of this course, students take Intermediate Spanish I or Intensive Intermediate Spanish. Prerequisite: Spanish for Beginners I (SPAN-SHU 1, or equivalent) or placement. Fulfillment: General Elective.

SPAN-SHU 3

### **Intermediate Spanish I**

Review of grammar, language structure, and culture, concentrating on fluency and accuracy through listening, speaking, reading, and writing activities. After completion of this course, students take SPAN-SHU 4. Prerequisite: Spanish for Beginners II (SPAN-SHU 2 or equivalent), Intensive Elementary Spanish (SPAN-UA 10), or placement.

SPAN-SHU 10

### **Intensive Elementary Spanish**

This is a one-semester intensive course that covers the equivalent of one year of elementary Spanish in one semester. 6 points. Open to students with no previous training in Spanish and to others on assignment by placement test. Fulfillment: General Elective.

SPAN-SHU 20

### **Intensive Intermediate Spanish**

Promotes proficiency in reading and writing as well as oral performance. This course is an intensive intermediate course that covers the equivalent of one year of intermediate Spanish (SPAN-UA 3 and SPAN-UA 4) in one semester. Prerequisites: Intensive Elementary Spanish or Instructor Permission.

SPAN-SHU 100

### **Advanced Spanish Grammar and Composition**

Expands and consolidates students' lexical and grammatical understanding of the language and introduces them to the fundamental principles of expository writing as they apply to Spanish. Utilizes exercises, readings, and intensive practice of various prose techniques and styles.

Prerequisite: Intermediate Spanish II (SPAN 4), Intensive Intermediate Spanish (SPAN 20), or assignment by placement test, or permission of the director of language programs. For non-native speakers only.

Equivalent courses: SPAN-UA 100 (NY), SPAN-UA 9100 (Madrid & Buenos Aires)

SPAN-SHU 101

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**Advanced Spanish Conversation**

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Intensive course in spoken Spanish, designed to give the student fluency in the use of idiomatic, everyday language as well as a comprehensive, practical vocabulary. For non-native speakers only. Advanced Spanish Conversation is a four-credit advanced-level course designed to expand students' speaking skills beyond the practical, day-to-day language functions. The aim is to achieve a more elaborate and abstract use of the language through the practice of pronunciation, vocabulary, idioms, and structures, within the contexts of selected subject areas. Although the main concentration of the course is on the oral component, reading and writing skills are practiced as well, as a basis for oral expression. The goal of the course is to generate active participation through thought-provoking discussions and creative activities that stimulate critical thinking as well as conversation. This is achieved through authentic readings from contemporary sources — newspapers, magazines, literature, films, music, videos, etc. — that sensitize students to the actual concerns of Spanish. A process of recording, transcribing and editing actual conversations will also help students better their Spanish. Finally, various listening comprehension activities will be included to fine tune the student's ear to Spanish sounds. Prerequisite: SPAN-UA 4 or SPAN-SHU 20 or SPAN-UA 9020.

# Other Courses

EXLI-SHU 9301

## **City as Text**

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"City as Text" is a rigorous, 4-credit seminar designed to introduce students to the study away environment through an intensive academic program of cultural preparation and local immersion. Through scholarly and journalistic readings from interdisciplinary perspectives, students develop a nuanced understanding of the local, regional, national, and global forces that bring shape to the character of the city. Multiple class sessions take place in locations around the city, such as ports, markets, industrial centers, parks, pedestrian zones, and other points of interest, where students apply direct observation to examine critically formed questions of place, space and identity. Students draw on the city as a primary resource for academic research and critical inquiry and they produce innovative research projects (digital or print) that reflect on the city at the crossroads of local and global identity. Fulfillment: general elective

EXLI-SHU 9302

## **Experiential Learning II**

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"Experiential Learning" is a 2-credit, Pass/Fail course that supports students in the Spring semester as they enter the workplace culture of the city through Community Placements which may include, but are not limited to, volunteer work, internships, or in some cases, independent research. Through class meetings, reflective writing, and individual conferences, faculty guide students to define an independent research project that grows out of the workplace experience, and which reflects a nuanced understanding of how the workplace culture relates to the social and cultural milieu of the city.

# NYU Shanghai Leadership and Faculty

NYU Shanghai has a world class faculty and administration in Shanghai as well as a large cohort of affiliated faculty from across NYU's Global Network. At NYU Shanghai professors are scholars, scientists, and artists who are proven and innovative teachers and leaders of international standing in their fields. They have been appointed because of their commitment to cutting-edge research and engaged teaching methods to build the university of the future, NYU Shanghai.



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