New York University
In Shanghai

Undergraduate Bulletin

2013-2014

The policies, requirements, course offerings, schedules, activities, tuition, fees, and calendar of the school and its departments and programs set forth in this bulletin are subject to change without notice at any time at the sole discretion of the administration. Such changes may be of any nature, including, but not limited to, the elimination of the school or college, programs, classes, or activities; the relocation of or modification of the content of any of the foregoing; and the cancellation of scheduled classes or other academic activities.

Payment of tuition or attendance at any classes shall constitute a student's acceptance of the administration's rights as set forth in the above paragraph.

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Part One: Introduction and Overview

1. Who We Are

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 centers will be focused on Mathematics, Computational Chemistry, Neuroscience, and Social Development. Both graduate and undergraduate students at NYU Shanghai will have the opportunity to participate in research opportunities.

2. Overview

The NYU Shanghai academic experience is characterized by rigor, a global perspective, and a strong foundation in the liberal arts and sciences. Three 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 integration. Students explore our social and cultural foundations through courses that are global in scope, with writing instruction woven in throughout, rather than delivered in discrete, unrelated courses. Mathematics and science are a part of every student's education, and those who specialize in the sciences will begin their studies with an innovative foundational course that brings together the basic sciences.

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.

Global in Nature
As a member of NYU's global network, you literally have the world at your fingertips; why not reach out and incorporate it into your coursework? The study-away opportunities available to you as an NYU Shanghai student are unparalleled in higher education and are easily integrated into your program of study.

3. **Partners**

East China Normal University
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
The SMEC is responsible for determining the local policies and direction of the educational system in Shanghai.

Pudong New Area Government
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 and residence halls are being built along Century Avenue in Pudong, a location as central to Shanghai as Fifth Ave is to Manhattan.

4. Where We Are

Academic Year 2013-14
During its first year NYU Shanghai will borrow space in East China Normal University. The classrooms and residence hall, located near the back gate of ECNU, are in the liveliest areas of ECNU. Students will be placed in a newly renovated international dormitory with students from all over the world.

Academic Building
The brand new NYU Shanghai academic building will be completed in Summer 2014. Located on Century Avenue in Pudong, it 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, the academic building will contain 55,000 square meters (550,000 square feet) of usable space. 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 will function 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
In fall 2014, NYU Shanghai students will move into residence halls located near to the Academic Building.

NYU Shanghai dorms will be as wired, integrated, and diverse as the classrooms and as the city itself. By living alongside fellow students and Residential Advisors, 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
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 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 Two: Enrollment

1. Admission

ADMISSIONS

NYUSH Office of Admissions in Shanghai (9am – 5pm China Standard Time) **Tel: +86 21-6223-5037**

NYU Office of Admissions in New York (9am – 5pm Eastern Standard Time) **Tel: +1 212-998-4500**

mailto:shanghai.admissions@nyu.edu

Admission to NYU Shanghai is highly selective. Students are admitted based on the overall strength of their application, including academic excellence, extracurricular activities, teacher and counselor evaluations, and a demonstrated interest in global citizenship, service, and leadership.

Recommended High School Preparation
All applicants should pursue the most challenging curriculum available to them, as the rigor of a student's coursework will weigh heavily in the admissions process. NYUSH considers a record of Honors, Advanced Placement (AP), International Baccalaureate (IB), A-Level or other high-level coursework to be an essential component of a successful application. In addition to advanced level courses, most successful applicants include many of the following areas of study in their high school programs:

·English—four years of English with a heavy emphasis on writing

·Math—three to four years

·History/Social Studies—three to four years

·Science—three to four years

·Foreign Language—two to three years

Please note that NYUSH's language of instruction is English, therefore it is required that all applicants have a high level of fluency in both written and spoken English.

Applying to NYU Shanghai and Other NYU Campuses
Students can indicate their interest in being considered for admission to NYUSH in addition to programs at NYU's campuses in New York City and Abu Dhabi on the NYU Supplement to the Common Application.

Financial Support
Inspired by the Ministry of Education plan to increase enrollment for disadvantaged students, NYU Shanghai, like many other universities, is committed to providing equal opportunities to all talented students. It is NYU Shanghai's principle as well as core value to ensure that students' educations are not limited by their financial hardship.

Transfer Applicants
NYUSH is not currently accepting transfer applications from students external to NYU.

Transfer Applicants Within the University
Students who wish to transfer from one major to another within NYUSH or from one of the other Portal campuses must file an Internal Transfer Application prior to the application deadline (November 1 for the spring term and March 1 for the summer or fall term).

Special (Visiting Students)
NYUSH is not currently accepting visiting students.

Readmission of Former Students
Any former student who has been out of attendance for more than two consecutive terms and who wishes to return to NYUSH must apply for readmission. Applications for readmission are available online. (See admission application filing deadlines above.) Requests for readmission should be received by the following dates: April 1 for the Summer and Fall terms, and November 1 for the Spring term.

Students who have attended another college or university since their last attendance at New York University must submit an official transcript from all schools attended though they will not receive credit for the courses.

Special (Postgraduate) Students
NYUSH is not currently accepting special students.

NYU January Term
New York University's January Term allows students more flexibility and new scheduling options. NYUSH students have the opportunity to earn major/minor credit or explore a new interest. During this time, students can take advantage of intensive study at one of the Portal or global SAS sites and enjoy being in a major metropolitan area during a bustling and exciting time of year.

Oftentimes, the fall and spring semesters can be overly hectic for students, considering a full-time course load, student club responsibilities, work, internship commitments, and social obligations. This busy time forces students to focus mainly on their academic progress, which doesn't always allow the freedom to explore a new interest or take advantage of the many cultural resources that originally drew them to Shanghai Further information is available at www.nyu.edu/winter.

Advanced Standing
NYUSH does not award credit for work completed at another college or university.

Credit by Examination
NYUSH 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 substitute a higher level course for an introductory course based on their performance on one of these tests.

How to Apply

USA/International

US/International students applying to NYU Shanghai may follow the same procedures for applying to any of NYU's degree-granting campuses:

- Apply to NYU Shanghai via the Common App
- You must complete the NYU Supplement to the Common App
- Submit test scores per our testing requirements (NYU Shanghai's US and International Standardized Testing Policy is the same as that of all of NYU's degree-granting campuses)
- Submit requested academic records and school reports
- Submit requested teacher and counselor recommendation letters
- Apply for Financial Assistance
- Please apply in accordance with the following deadlines:

Milestone	Date
Early Decision I	
Application Deadline	November 1, 2013
Notification Deadline	December 15, 2013
Response to an offer of admission	January 15, 2014
Early Decision II	
Application Deadline	January 1, 2014
Notification Deadline	February 15, 2014
Response to an offer of admission	March 15, 2014
Regular Decision	
Application Deadline	January 1, 2014
Notification Deadline	April 1, 2014
Response to an offer of admission	May 1, 2014

Chinese Applicants

Admissions Regulations

上海纽约大学 2014 年招生章程（中国大陆学生）

融合中美两国教育精华的上海纽约大学，将为优秀学生提供在全球化背景下全新的高等教育模式。根据教育部的有关规定，借鉴纽约大学招生的特色和经验，上海纽约大学将全面审视每位申请学生的综合素质、而不是仅仅基于高考成绩的模式，通过"校园日活动"，选拔一批具备强烈的求知欲以及开拓创新精神、热爱尝试新事物、拥有"世界公民"素质的优秀学生。

一、招生对象
能适应国际大都市竞争环境、向往走向世界、渴求新知识、勇于挑战新事物，学习成绩优异或有特殊专长的高中毕业生。
上海纽约大学主要在"校园日活动"基础上，结合高考、高中学业水平考试、综合素质评价等，通过高校招生综合评价体系录取学生。少数高考成绩特别优秀的学生，在填报高考志愿前经过上海纽约大学专家面试合格，也可以录取。

二、招生计划
上海纽约大学 2013 年面向全国部分省市（北京、上海、江苏、浙江、四川、河南、山东、陕西、安徽和江西）招生，招生人数共计 151 名。条件成熟后，逐步向全国推广。

三、"校园日活动"
来自以上十个省市的优秀学生均可申请报考上海纽约大学，学校对申请材料进行审核后，将邀请其中优秀的申请人参加"校园日活动"。
对符合以下条件之一的学生，学校将予以优先考虑。
1. 在高中阶段参加数学、物理、化学、生物和信息学全国中学生奥林匹克竞赛，并获得省级二等奖以上的学生；
2. 高中成绩排名在年级前 30 名，或高中学业水平考试（已完成科目）成绩全 A，且具备良好的综合素质的学生；
3. 符合教育部保送条件的优秀学生；
4. 由部分高中校长推荐的学生（推荐表由上海纽约大学送达相关中学校长）。

四、申请方式
1. 所有申请报考上海纽约大学的学生，必须在 2014 年 1 月 15 日前登陆上海纽约大学网站（shanghai.nyu.edu），完成并提交《通用申请》（Common Application）。
2. 寄送报名材料
完成网上报名后，学生还需按照要求提交以下材料（所有材料必须注明申请人的 Common Application ID），用标准 A4 纸打印或复印，按下列次序装订：
（1）高中一年级至三年级学习成绩（须注明每科满分是多少）、年级排名（按文理排名）、以及高中学业水平考试（会考）成绩的复印件，均需加盖公章。
如有发现成绩造假，一经查实，一律取消考试资格和录取资格，并将所在中学纳入

非诚信学校，取消下年度推荐资格。

（2）主要获奖证书复印件和其他证明自己特长和优势的材料（非必须）。

（3）《校长推荐表》（非必须）。

申请材料请于 **2014** 年 **1** 月 **18** 日前以快递方式邮寄至上海纽约大学招生办公室（以当地寄出邮戳为准）。请点击右方"申请材料信息单"下载填写并打印，一并寄送到学校地址：申请材料信息单(下载打印）

学校地址：**上海市中山北路 3663 号物理楼 338 室，邮编：200062。**

五、选拔程序

1. 审核

学校组织专家组对学生的申请材料进行初审，并于 2013 年 1 月 30 日前，通过上海纽约大学网站公布参加"校园日活动"学生名单。

2. "校园日活动"

通过材料审核资格的考生，按要求参加上海纽约大学"校园日活动"，学校将通过公开演讲、写作、团队合作以及面谈等方式考察考生的求知欲、亲和力、学习能力、适应能力、交流能力、心理素质、团队精神、表达能力、行为道德等。特别提醒：英语能力将是考察的重要方面之一。

"校园日活动"时间：春节后，具体时间和地点将通过上海纽约大学网站另行公布。

六、录取原则与优惠政策

上海纽约大学招生团队将根据面试专家的反馈，对每位考生进行严格的评价和讨论，并给予一定的录取优惠政策。

1. A 档：学生需参加 2014 年普通高考，高考成绩达到生源所在省本科第一批录取控制线，上海纽约大学即予以录取。

2. B 档：学生需参加 2014 年普通高考，高考成绩达到生源所在省本科第一批录取控制线，上海纽约大学将结合高考成绩、学校面试评价、高中学业水平考试成绩、学生综合素质评价等，通过本校招生综合评价体系，择优录取。

如考生所在省级招生办公室另有规定的，则按省招办规定的办理。

七、监督机制

上海纽约大学的招生过程将坚持公平、公开、公正的原则，保证不同经济背景、种族、性别或宗教信仰的学生都有机会申请学习，接受考生及其家长与社会各界的监督。

举报电话：86-21-62604406

Requirements

说明：中国大陆学生申请上海纽约大学的截止日期延至 **2014** 年 **1** 月 **15** 日。请仔细阅读《上海纽约大学 **2014** 年招生章程》，完成并提交通用申请，并按照相关要求寄送材料。

（此延期仅适用于上海纽约大学的入学申请。纽约大学纽约校园和阿布扎比校园的申请截止日期仍为 2014 年 1 月 1 日）

上海纽约大学是一所一类本科院校，来自北京、上海、江苏、浙江、四川、河南、山东、陕西、安徽、江西十个省市的考生可申请上海纽约大学 2014 年秋季入学名额。

中国大陆学生请按照以下程序申请报考上海纽约大学：

- 填写并提交通用申请（含纽约大学补充申请）（2014 年 1 月 15 日前）；
- 按照《上海纽约大学 2014 年招生章程》相关要求寄送申请材料（2014 年 1 月 18 日前）；
- 招生委员会审核申请材料，公布符合条件的申请人名单；
- 邀请符合条件的申请人参加"校园日活动"（春节后，具体时间地点方式将在学校网站公布）；
- 招生委员会对申请人进行严格、全面的评价，公布符合录取资格的申请人名单及录取政策（"校园日活动"后）；
- 参加高考且成绩至少达到一本以上，学校根据录取政策进行录取。

上海纽约大学并未、也不会与任何留学机构进行招生合作。

Common App

以下通用申请（Common Application）填写说明仅适用于参加高考、且在纽约大学补充申请（NYU Supplement）中把上海纽约大学列为第一选择的中国大陆学生。

一、在 APPLY 一栏进行注册并填写个人信息
1. 选择 apply as a First-Year student
2. 姓名必须按身份证或护照上所显示的拼音（英语字母）进行填写，不得使用中文字符
3. 出生日期按照月日年的顺序填写
4. Permanent Home Phone Number 第一格填写 086,后格可以填区号加电话或手机号码

二、注册完成并进入 Common Application
1. 阅读 Instructions 获取通用申请填写指南
2. 在 My Colleges 中查找并添加 New York University，上海校区在后续的 Supplement 中再选。

三、填写 Common Application

1. Future Plans—Term and Decision Plan 中，选择 FALL 2014 Regular Decision

2. 通过高考录取的中国学生将获得专门的助学金，针对优秀学生的奖学金政策正在制订中，细节将稍后公布

3. 上海纽约大学目前只招收 full-time student

4. 学校建议所有大一学生住在学校宿舍内，故 College housing 中，请选择 Yes, on-campus

5. Applicant, Demographics, Family 相关信息的填写方法请观看通用申请视频教程

6. Counselor 相关信息的填写方法请观看通用申请视频教程。Counselor 不需要寄送或填写你的推荐信、成绩单等申请材料，您只需填写相关选项以完成通用申请（相关书面材料的寄送要求请参见《上海纽约大学 2014 年招生章程》）

7. 高考学生不需要填写 Academics 中的 ACT/SAT/AP/IB 等选项

8. 高考学生不需要填写 Academics 中的 TOEFL/IELTS（托福/雅思）选项，但如果申请人有相关成绩也可以提交，以便校方对申请人有更好的了解

9. Academics—Current Year Courses 中请填写申请人需要参加的高中毕业考试的所有科目

10. 填写 Honors/Activities/Writing 等选项时，请注意字数要求以免填写内容被删减

11. Signature 一栏显示的是 Common Application 中申请人还未填写或完成的选项，全部完成后才会显示 SUBMIT 按键。

四、纽约大学补充申请（NYU Supplement）

1. 在 My Colleges 中添加 New York University 后，Supplements 一栏中将自动显示 New York University Supplement

2. 点击 Continue 根据要求填写 NYU Supplement

3. 上海纽约大学的申请人在 Term of Entry 一栏请选择 Fall 2014

4. 上海纽约大学的申请人在 Campus Selection 一栏请选择 NYU Shanghai。高考考生无法申请 New York 及 Abu Dhabi2014 年秋季的入学名额，因为选择 NYU New York 及 NYU Abu Dhabi 两校区的录取时间早在高考之前，故无法录取，所以请不要选择。

注意：完成 Supplement 填写后的 SUBMIT 按键只是递交补充表格这一部分的内容，仍需继续完成其他 Common Application 的内容

五、支付申请费用（Payments）

在 NYU Supplement 中把上海纽约大学列为第一并且唯一选择的高考学生可以免除申请费。请在此处选择 Other Fee Waiver Request

六、填写并寄送学校表格（School Forms）

在 NYU Supplement 中把上海纽约大学列为第一选择的高考学生不需要在线填写学校表格（School Forms），但是为了顺利完成通用申请，你仍需点击 School

Forms—Invite Official—invite counselor，填写老师邮箱地址即可。你邀请的顾问或老师将收到一封邮件，但他/她不需要填写任何表格或材料，也不需要寄送推荐信。同时，请将相关书面材料以快递形式寄送至上海纽约大学招生办公室。具体要求请参见《上海纽约大学 2013 年招生章程》
Submit a Teacher Evaluation

七、补充说明：
1. 请观看上海纽约大学通用申请视频教程及通用申请官方网站 Instructions 学习填写方法
2. 各选项前红色下三角表示该项还未开始，黄色正方形表示该项进行中，绿色上三角表示该项已完成，申请人也可通过 Signature 一栏检查仍未填写或完成的选项
3. 申请人可通过 Writing—Additional Information 一栏提交可以证明自己能力的其他材料
4. 申请上海纽约大学的中国高考学生不需要在线提交教师推荐信、成绩单等材料，相关书面材料的寄送要求请参见《上海纽约大学 2014 年招生章程》
5. 通用申请所有内容必须用英文填写

2. Tuition, Fees, and Financial Aid

Tuition, Fees, and Financial Aid

When estimating the net cost to the family of a university education, a student should consider two factors: (1) the total cost of tuition, fees, and materials related to a particular program, plus costs directly related to the choice of living style (dormitory, apartment, commuting costs) and (2) financial aid that may be available from a variety of sources. This section provides information on both of these distinct but related topics.

Tuition and Fees: 2013-2014

Following is the schedule of fees established by New York University Shanghai for the year 2013-2014. The University reserves the right to alter this schedule without notice. Tuition, fees, and expenses may be expected to increase in subsequent years and will be listed in online updates to this Bulletin.

Note that the registration and services fee covers membership, dues, etc., to the student's class organization and entitles the student to membership in such University activities as are supported by this allocation and to receive regularly those University and College publications that are supported in whole or in part by the student activities fund. It also includes the University's health services, emergency and accident coverage, and technology fees.

Note: Deposits may be required for laboratory courses. Students should consult the respective departments for information.

All fees are payable at the time of registration. The Office of the Bursar is located in Geography 305. Checks and drafts are to be drawn to the order of New York University for the exact amount of the tuition and fees required. In the case of overpayment, the balance is refunded on request by filing a refund application in the Office of the Bursar. A fee will be charged if payment is not made by the due date indicated on the student's statement.
The unpaid balance of a student's account is also subject to an interest charge of 12 percent per annum from the first day of class until payment is received.

Cost of Attendance

As part of NYU's global network, tuition at NYU Shanghai is consistent with that of NYU in New York, which is approximately 44,000 USD per year (excluding miscellaneous fees and living expenses); however, Chinese students admitted through Gaokao will be granted special financial aid and their tuition will be approximately 100,000 RMB per year. NYU Shanghai will also make financial aid available for international students. In addition, merit scholarships will also be available for top students.

Item	Estimated Cost	
Tuition and Mandatory Fees	44,800 USD	
Housing Rates 2013-2014 (ECNU International Student Hall)	Annual Estimated Cost	
Double Room (Private Bath)	$3000 USD	
Double Room (Shared Bath)	$2300 USD	
Triple Room (Shared Bath)	$1600 USD	
Meals (ECNU Cafeteria)	Estimated Cost	
Pay as you go (estimated)	$1500 USD	
Housing Rates 2014-2017 (NYU Shanghai Pudong Residence Hall)	Annual Estimated Cost	
Single Room (Private Bath)	$5600 USD	
Double Room (Private Bath)	$3400 USD	
Triple Room (Private Bath)	$2000 USD	
Meals (NYU Shanghai Pudong Dining Hall)	Estimated Cost	
Meal Plan	$2400 USD	

*Financial aid awards will not be impacted by the decrease in housing rates.

This preliminary budget represents the estimated annual cost in US dollars of education for full-time undergraduate students at NYU Shanghai for the 2013-2014 academic year. It includes tuition, foreign travel for study integral to a student's academic program, room and board (which may vary based on room selection), health insurance, personal expenses, books, and many student life activities. Annual adjustments to the costs and fees at NYU Shanghai may be necessary.

The yearly tuition and residence costs include only fulltime fall and spring enrollment. Students that take summer or J-term courses will incur additional tuition and residence costs.

Estimated travel cost is based on two round trips between home and NYU Shanghai per year. Actual costs will vary based on your home location and other factors. Student health insurance is an estimate based on current information and is subject to change. Estimated cost of travel is included for planning purposes for international students this cost will be much lower for Chinese students.

Item	Estimated Cost
Books and Supplies	1,100 USD
Estimated Student Health Insurance	2,200 USD
Estimated Travel	3,750 USD

Estimated Personal Expenses	1,000 USD
Total Estimated Cost of Living	**8,050 USD**

Special Fees for All Students: 2013–2014

For additional and updated information beyond 2013–2014, students may consult the websites of (or contact) the Offices of the Registrar, Bursar, Residence Life, and Admissions.

Late payment of tuition fee: **$25**
Late registration fee commencing with the second week of classes: **$50**
Late registration fee commencing with the fifth week of classes: **$100**
Penalty fee: **$20**
Deposit upon acceptance (nonreturnable): **$500**
Housing deposit (if applicable) upon acceptance (nonreturnable): **$1,000**

Special Programs

The Tuition paid to NYUSH covers the cost of tuition for a semester abroad in the Global Network. For other expenses for study in the NYU programs away and in NYU International Exchange Programs, contact NYU Office of Global Programs, 110 East 14th Street, Lower Level, New York, NY 10003-4170; 212-998-4433 Also see www.nyu.edu/global.html.

Deferred Payment Plan

The Deferred Payment Plan allows students to pay 50 percent of their net balance due for the current term on the payment due date and defer the remaining 50 percent until later in the semester. This plan is available to students who meet the following eligibility requirements:

- Matriculated and registered for 6 or more points
- Without a previously unsatisfactory University credit record
- Not in arrears (past due) for any University charge or loan

The plan includes a nonrefundable application fee of $50, which is to be included with the initial payment on the payment due date.

Interest at a rate of 1 percent per month on the unpaid balance will be assessed if payment is not made in full by the final installment due date. A late payment fee will be assessed on any late payments.

A separate deferred payment plan application and agreement is required for each semester this plan is used. The Deferred Payment Plan will be available at www.nyu.edu/bursar/forms in July for the fall semester and in December for the spring semester.

For additional information, please visit the website of the Office of the Bursar at www.nyu.edu/bursar/paymentplans or call 212-998-2806

TuitionPay Plan
TuitionPay is a payment plan administered by Sallie Mae. The plan is open to all NYU students with the exception of the SCPS noncredit division. This interest-free plan allows for all or a portion of a student's educational expenses (including tuition, fees, room, and board) to be paid in monthly installments.

The traditional University billing cycle consists of one large lump-sum payment due at the beginning of each semester. TuitionPay is a budget plan that enables a family to spread payments over the course of the academic year. By enrolling in this plan, you spread your fall semester tuition payments over a four-month period (June through September) and your spring semester tuition payment over another four-month period (November through February).

With this plan, you budget the cost of your tuition and/or housing, after deducting any financial aid you will be receiving and/or any payments you have made directly to NYU. A nonrefundable enrollment fee of $50 is required when applying for the fall/spring TuitionPay plan. You must enroll in both the fall and spring plans. Monthly statements will be mailed by TuitionPay, and all payments should be made directly to them. For additional information, contact TuitionPay at 800-635-0120 or visit www.nyu.edu/bursar.

Arrears Policy
The University 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
Diplomas of students in arrears will be held until their financial obligations to the University are fulfilled and they have been cleared by the Bursar. Graduates with a diploma hold may contact the Office of the Bursar at212-998-2806 to clear arrears or to discuss their financial status at the University.

Withdrawal and Refund of Tuition

A student who, for any reason, finds it impossible to complete one or more courses for which he or she has registered should consult with an academic advisor. An official withdrawal must be filed either on Albert (through the first three weeks of the term only) or in writing on a completed Request for Withdrawal form with the Office of the NYUSH Registrar. (Note: An official withdrawal must be filed if a course has been canceled, and, in this case, the student is entitled to a refund of tuition and registration fees paid.) Withdrawal does not necessarily entitle the student to a refund of tuition paid or a cancellation of tuition still due. A refund of tuition will be made provided such withdrawal is filed within the scheduled refund period for the term. (See the schedules below.)

Merely ceasing to attend a class does not constitute official withdrawal, nor does notification to the instructor. A stop payment of a check presented for tuition does not constitute withdrawal, nor does it reduce the indebtedness to the University. The nonreturnable registration fee and a penalty fee of $20 for a stopped payment must be charged in addition to any tuition not canceled.

The date on which the Request for Withdrawal form is filed, not the last date of attendance in class, is considered the official date of the student's withdrawal. It is this date that serves as the basis for computing any refund granted the student. The processing of refunds takes approximately two weeks.

There are two distinct refund schedules (see below):
1. For students withdrawing from some courses, but not all;
2. For students withdrawing from all courses.

Undergraduate Refund Schedule, Withdrawing from Some Courses (Fall and Spring Only)
Courses dropped during the first two weeks of the term: **100%** (100% of tuition and fees)*
Courses dropped after the first two weeks of the term: **NONE**
Note: All fees (including school-related fees) are nonreturnable after the second calendar week of the semester.
Note: A student may not withdraw from a class after the ninth week of the fall or spring semester or in the last two weeks of each six-week summer session.

Undergraduate Refund Schedule, Withdrawing From All Courses (Fall and Spring Only)
This schedule is based on the total applicable charge for tuition, excluding nonreturnable fees and deposits.
Withdrawal on or before the official opening date of the term: **100%** (100% of tuition and fees)†*Withdrawal on the second day after the official opening date of the term through the end of the first calendar week*: **100%** (100% of tuition only)
Note: The first calendar week consists of the first seven (7) calendar days beginning with the official opening date of the term (not the first day of the class meeting).

Withdrawal within the second calendar week of the term: **70%** (tuition only)
Withdrawal within the third calendar week of the term: **55%** (tuition only)
Withdrawal within the fourth calendar week of the term: **25%** (tuition only)
Withdrawal after completion of the fourth calendar week of the term: **None**
Note: All fees (including school-related fees) are nonreturnable after the official first day of the semester.

The above refund schedule is not applicable to students whose registration remains within the flat-fee range.

For summer and January terms the above schedules apply but is accelerated with summer using two day increments and January term one day increments—example the end of two

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week refund deadline for partial withdrawal from a full semester course translates to four days in summer and two days in a January Term.

Note: A student may not withdraw from a class after the ninth week of the fall or spring semester or in the last two weeks of each six-week summer session.

Exceptions to the published refund schedule may be appealed in writing to Associate Dean for Academic Affairs and should be supported by appropriate documentation regarding the circumstances that warrant consideration of an exception. Exceptions are rarely granted. Students who withdraw should review the "Refunds" page on the Office of the Bursar's website, www.nyu.edu/bursar.

Federal regulations require adjustments reducing financial aid if a student withdraws even after the NYU refund period. Financial aid amounts will be adjusted for students who withdraw through the ninth week of the semester and have received any federal grants or loans. This adjustment may result in the student's bill not being fully paid. NYU will bill the student for this difference. The student will be responsible for payment of this bill before returning to NYU and will remain responsible for payment even if he or she does not return to NYU.

For any semester a student receives any aid, that semester will be counted in the satisfactory academic progress standard. This may require the student to make up credits before receiving any further aid. Please review the "satisfactory academic progress" standard so you do not jeopardize future semesters of aid.

Eligibility for Financial Aid
To be considered for financial aid, students must be officially admitted to NYU or matriculated in a degree program and making satisfactory academic progress toward degree requirements. Financial aid awards are not automatically renewed each year. Continuing students must apply for financial aid each year, continue to demonstrate financial need, make satisfactory progress toward degree requirements, and be in good academic standing.
Please consult http://shanghai.nyu.edu/admissions/financial-aid for current details.

US/International Financial Aid Information
In order to apply for financial assistance to attend NYU Shanghai, US students (who are US Citizens and/or Permanent Residents) must complete the FAFSA.
The site for submitting the FAFSA is: http://www.fafsa.ed.gov/. Alternatively, you can complete the paper version, which may be found in your high school or college or by calling 1-800-4-FED-AID
- You must list "New York University" as a recipient and include our code number (002785) when completing your FAFSA.
- Do not complete the FAFSA until January 1st if you are applying for Fall admission.

US students must also fill out the CSS Profile. Please be aware in advance that students with divorced, separated, or unmarried parents will need to submit a non-custodial parent

form (or waiver) detailing that parent's information by the deadlines below to qualify for any need-based scholarships or grants.

International students (non-US) should submit the International version of the CSS Profile.
The site to submit the CSS/Financial Aid PROFILE is:
http://student.collegeboard.org/css-financial-aid-profile.
- The NYU school code number is 2785.
- Our CSS/PROFILE deadlines are:

Milestone	Date
Early Decision I	November 15 (receive financial aid estimate in mid-December)
Early Decision II	Jaunary 15 (receive financial aid estimate in mid-February
Regular Decision	February 15 (receive financial aid estimate in April)

Student Responsibilities
- You must apply for financial aid each year to receive any and all types of financial aid we award at NYU, including all need-based and merit-based scholarships.
- Consult www.nyu.edu/financial.aid for all financial aid application deadlines. Failure to meet the NYU deadline may result in a reduction of your aid eligibility.
- Use NYU Albert at albert.nyu.edu to accept your financial aid awards.
- If you submit documents to the Office of Financial Aid, please put your University I.D. number on each page and keep a copy for yourself. Do not submit originals.
- Be certain that you understand the conditions of the awards you accept. Contact the Office of Financial Aid if you have any questions.
- You must adhere to satisfactory academic progress standards to remain eligible for financial aid. The Office of Financial Aid will send reminders, but it is the student's responsibility to know and heed the requirements.
- You must notify the Office of Financial Aid immediately if you receive an award or financial aid from any additional source. A change in your resources may affect your eligibility for student aid.
- You must respond immediately to all requests from the Office of Financial Aid. Failure to comply may result in the cancellation of your aid.
- Consult with the Office of Financial Aid immediately if you reduce your academic program to fewer points, or if you are enrolled full-time (at least 12 points) but intend to begin part-time (less than 12 points). Also contact the Office of Financial Aid if there is a change in your housing status. A change in enrollment or housing status may affect the financial aid you receive.

- Be sure to notify the Office of the University Registrar if you move by updating your contact information via NYU Albert at albert.nyu.edu. We use the records of the Office of the University Registrar to administer financial aid.

3. Registration, Advisement, and Counseling

Registration
The 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 for assistance. Office hours are weekdays from 9 a.m. to 5 p.m.

Students can complete their initial registration through Albert, the University's Web registration system, at www.home.nyu.edu. Students can also use Albert to make later adjustments to their schedule.

Continuing Students
Students currently enrolled in NYUSH register early for the following semester—in November for the spring term and in mid-April for the fall term. Students who are currently enrolled or on an official leave of absence receive notification of the date and time when they can register. Before registering, students plan a provisional schedule and put it in the "shopping cart" function of Albert. They also discuss their program and courses with their advisor, who then clears them for registration. 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.

New Students
Newly admitted students receive detailed instructions during orientation and have an advisor to assist in academic planning, course selection, and registration.

Health Insurance and Immunization Policy
All full-time students must be in compliance with NYUSH's health insurance and immunization requirements. For preregistration immunization requirements, please see the Student Policy on Immigration in the University Policies section of this Handbook. 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 NYUSH.

Advising

Academic advising is the process through which NYUSH provides the necessary resources for students to make good choices. The primary purpose of academic advising is to assist students as they develop meaningful educational plans compatible with their life goals. Although the NYUSH 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 rest with each individual student, an academic advisor assists them by suggesting options and by discussing possible outcomes of the choices they make. Students can expect that their academic advisor will help them:
- define academic, career and life goals;
- evaluate progress toward goals;
- understand curricular requirements, provide guidance during course selection, and help them identify other meaningful educational experiences;
- determine whether or not they need assistance with study skills (time management, organizing course information, stress management, etc.), and, if necessary, refer them to institutional and community support services;
- monitor their progress as they move through the undergraduate program.

Students are required to meet with their advisor at least once each semester to 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.

Advisors offer a wide range of services and programs designed to meet the needs of a diverse student body. The advisors serve as a basic source of information about the degree requirements, policies, and procedures of the Campus. Students are able to get advice as well as secure tutorial support. Academic workshops are sponsored to assist students in planning academic programs, choosing a major, and negotiating registration.

A freshman advising program provides individual advising for new students entering in September. Each student is assigned an advisor who can provide information and support during the transition to college and with whom the student meets throughout his or her first year to discuss academic as well as career and other issues. Students needing additional assistance may, throughout the year, make an individual appointment with the Assistant Dean for Academic Affairs.

Advisors also meet individually with students who want to discuss concerns or questions they may be having about the University. The advisors serve as a liaison with other offices and can make referrals when appropriate. The advisor then is the best source for students to visit when they are unsure of where to go for help.

Office hours for major advisors are maintained in the Assistant Dean for Academic Affairs office.

Major Advisement
Students who have declared a major have a major advisor for their primary advisement. All declared majors must have their registration approved by a major advisor. Major advisors can also be consulted throughout the academic year about graduate study and career opportunities.

The Academic Resource Center

The mission of the Academic Resource Center (ARC) is to assist students in developing the skills, strategies, and behaviors needed to perform as confident, independent, and active learners. The ARC offers a wide variety of free services including academic counseling in study skills and peer tutoring as well as supplemental instruction and study groups for select courses.

ARC services are designed to help both students who are having academic difficulties and those who just want to improve their performance. It represents an important partnership between Academic Affairs and the Division of Student Affairs and serves to link the academic and residential lives of students. Services offered by the Center include the following:

- Individual and group tutoring sessions for math, writing, and reading

- Core Curriculum study groups

- Examination review sessions

- Study skills assessment

- Workshops on academic effectiveness and time management

- Computer-assisted tutoring

Internships

One defining characteristic of the New York University 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 NYUSH takes full advantage of our location in one of the financial, cultural, scientific, and media capital of the world.

A recent survey by the University's Wasserman Center for Career Development showed that 83 percent of graduating seniors in the College held a job or internship related to their field of interest during their undergraduate years. Many different types of opportunities are available to students; some are paid, some involve volunteerism on the part of a student, and some carry academic credit—and all of these can be valuable. For the purpose of securing and making the most of such opportunities, students should consider the following criteria as a guide.

Paid Internships

These are the most common form of internship. Jobs related to a student's professional interests provide pay for the work that students are doing for the organization. Many companies and organizations provide part-time jobs that allow students to gain experience and to network in the field, while at the same time helping to alleviate the financial burden of being a college student. (Please note: Some for-profit companies ask

students to volunteer, but allow it only if the student can earn academic credit. Many of these so-called internships do not relate directly to a student's academic work and are not worthy of academic credit in a discipline. In these cases, the company should consider providing compensation for the work done by a student, thus making it a paid internship.)

Voluntary or Community Service
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 the College awards no credit for them.

Credit-Bearing Internships
A few departments offer academic internships that directly advance a student's knowledge in the academic discipline and thus earn course credit. Such academic internships must be sponsored by an appropriate faculty member through an academic department and normally require close faculty supervision, significant research in addition to the practical work experience, a reporting of findings, and a formal assessment of the student's work. All such internships require permission of the department or program, and registration for them must be within the regular deadlines. Majors offering credit-bearing internships may restrict them to declared majors, since those students have the requisite background. Internship courses can be counted toward some majors but not toward others. Students should check with their major to see if they have this option.

Independent Study
In some majors, independent study that draws on the activity or environment of the internship may be a possibility. Like a credit-bearing internship, independent study requires a proposal by the student, careful guidance from a faculty member, and a body of work that can be evaluated for course credit.

Preprofessional Programs

Pre-Medical and Health Studies Program
NYUSH Premedical and Health Studies program fully prepares students to apply to medical and other professional schools in the health field. The health professions provide many challenging and rewarding opportunities. These include clinical careers in medicine, dentistry, and physical therapy as well as non-clinical careers such as health education and research.

In order to apply to health-related professional schools, students typically need to complete courses in introductory biology, chemistry, and physics. At NYUSH, these subjects comprise *Foundations of Science*, which is a rigorous three-semester, integrated course that covers the fundamentals of basic science. NYUSH transcripts clearly note biology, chemistry and physics as distinct parts of *Foundations of Science*. In addition to introductory science courses, professional medical or health schools often require two semesters of math, one of which must be calculus, two semesters of organic chemistry,

and two semesters of English, including writing. NYUSH offers all these. Students are encouraged to gain some practical experience by volunteering in a clinical setting and to demonstrate a commitment to service and humanistic endeavors.

It is important to understand that pre-professional training does not require students to major in science or math. Students may elect to major in any discipline and complete the Premedical and Health Studies program in parallel. You should choose a disciplinary major that you will enjoy and in which you will excel. If you enjoy the sciences, choosing a major in those areas is the right decision for you. If, however, you have other interests or talents, you will demonstrate your versatility and increase your chances of excelling by pursuing a major in the humanities or social sciences along with the prehealth curriculum.

NYUSH, like many American colleges and universities, does not offer a premedical, predental, or prehealth major. In fact, the best professional schools want, above all, students with a broad education who can think clearly, read critically, and write well.

Your advisor will help you to explore your options, advise you about programs and appropriate course selection, and help you 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 are the basic set requirements most medical schools in the U.S. request; however, specific medical schools might have additional requirements or modifications to those listed here. You should consult with the premedical advisor for more information.

SUGGESTED COURSES FOR APPLICATION TO MEDICAL SCHOOL

CCSC-SH 101-114 **Foundations of Science 1–6** (*Note: This covers the pre-med requirements of one year of general biology, one year of general chemistry, one year of general physics, and one year of lab work in each of those areas.*)

CHEM-SH 201-250 **Organic Chemistry 1 and 2**

MATH-SH 110-112 **Calculus and Multivariate Calculus and Differential Equations**

One semester of **Writing** and one additional semester of **Literature**
Organismal Biology (BIOL-SH 250) is highly recommended as are **Biochemistry 1 and 2 (CHEM-SH 281-282)** and **Probability and Statistics (MATH-SH 150).**

Pre-Law Program
Prospective law students are free to choose from the wide variety of courses offered at NYUSH. 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 prelaw curriculum.

Purpose of Prelaw Study
While NYUSH 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 prelaw students, as it offers a rigorous and multidisciplinary foundation for advanced study in the humanities, social sciences, and natural sciences. The honors programs offered by some majors provide opportunities to do extensive written work during the junior and senior years. 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.

Counseling and Behavioral Health Services
Counseling and Behavioral Health Services (CBH) are available for all students and no appointment is necessary. Counseling services are free on a voluntary basis for any full- or part-time student enrolled in NYUSH. When necessary, medication and outside referrals are available. All conversations are kept strictly confidential. CBH counseling staff members provide assistance in workshops, as well as in group and individual psychotherapy.
The social and emotional conflicts that occur in a person's life occasionally prevent him or her 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. CBH counselors provide an atmosphere where personal concerns can be examined and discussed freely and confidentially.

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

The Henry and Lucy Moses Center for Students with Disabilities (CSD) determines qualified disability status and assists students in obtaining appropriate accommodations and services. CSD 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 supports.

Any student who needs a reasonable accommodation based on a qualified disability is required to register with the CSD for assistance. They should contact the Director of the Academic Resource Center for assistance in registering.

4. Degree Requirements

NYUSH 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.)
B.A. programs include Global China Studies, Economics, and Humanities.

Bachelor of Science (B.S.)
B.S. programs include Biology, Business and Finance, Chemistry, Computer Engineering, Computer Science, Electrical Engineering, Interactive Media, Mathematics, Neural Science, and 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 points with a cumulative grade point average of at least 2.0. Within these points, 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 the College. Registration in another division of New York University does not constitute a registration in NYUSH.

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

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

Conferring of Degrees
Degrees are conferred in September, January, and May. The NYUSH graduation ceremony occurs in May and the formal conferring of degrees by the president of the University takes place annually at Commencement in May.

Students receive three confirmations of their graduation: a New York University Diploma, a Chinese diploma, and a Chinese graduation certificate.

The Major
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 points 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 (and in some departments, at least one-half of the points) 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 a major advisor each term.

Declaration
Students go to the office of the major leader to declare a major and have it posted in the Student Information System (Albert). Students who have earned 64 or more points must declare a major. Those with fewer than 64 points are strongly encouraged to declare a major in their second year.

Double Major
Students may take a double (second) major. The same requirements, including the maintenance of a minimum grade point average of 2.0, apply to the second major as to the first. In some cases, courses may be applicable to both majors. Students must then obtain the written approval for the shared course(s) from the Associate Dean for Academic Affairs. Normally no more than two courses may be approved for double counting. The second major is declared in the same way as the first (see above).

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 complete two majors in the standard 128 credits. In addition, in some cases the Chinese language requirement, which consists of the equivalent of four semesters (the "Chinese Language Requirement"), further limits the ability to complete two majors. Requirements for completing a major as a double major are detailed in the same section as the major requirements.

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 the student is willing to invest to satisfy all of the requirements of the additional major. In some cases this might require more than 8 semesters of undergraduate study.

Regulations Pertaining to both Major and Minor
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 the College. 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 overall 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.)

Time Limit

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

Residence Requirement

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

Part Three: Standards and Policies

1. Academic Policies

Academic Program
The programs and courses offered at NYUSH are designed for students who attend classes offered during the day on a full-time basis. A full-time schedule normally consists of 16 points per term, or 32 points per year, which enables a student to complete the entire program of 128 points in four years. Minimal full-time status entails completing at least 12 points per term, or 24 points per year. Students who wish to attend part time should obtain permission from the Office of the Associate Dean for Academic Affairs. Such status will be granted only when there is good and sufficient reason for part-time study. Failure to complete a minimum of 24 points per year jeopardizes a student's full-time status and his or her eligibility to receive financial aid.

Students in good academic standing may register for more than 18 points per term after their freshman year with the clearance of their academic advisor and approval of the Assistant Dean for Academic Affairs. Students on academic probation, however, who wish to register for more than 18 points per term must obtain the prior approval of the NYUSH Committee on Academic Standards, as must any other student wishing to register for more than 20 points.

Availability of Courses
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.

Change of Program
To make any changes in their program, including dropping or adding courses given in other divisions of the University, students must access Albert via NYUHome at home.nyu.edu or file a Change Course Enrollment form in the Registrar's Office.

Adding Courses
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 NYUSH student and to any NYUSH 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 both the instructor and the student's advisor.

Dropping or Withdrawing From Courses
Students are expected to maintain a full-time program as described above. Occasionally, they may drop or withdraw from a course if, because of reasons beyond their control, they cannot continue. Withdrawing from a course during the first three weeks of the term is treated as a drop and will not appear on the transcript. Those withdrawn from during the fourth 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. Students who are ill or have a serious personal problem should see, call, or write their advisor.

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

A student who withdraws officially from all courses in a term may register for the following term. If the student is unable to attend NYUSH during the term following the withdrawal, he or she should request a leave of absence from their advisor. For more information, see "Attendance," below.

Auditing
Matriculated students in NYUSH may audit (i.e., attend lectures without intending to receive credit) any course in NYUSH with the consent of, and under the conditions established by, the instructor and the major. Auditors may not preempt space required for registered students. Courses cannot be audited as a means of satisfying requirements for an incomplete grade or as a means of changing a previous grade.

A student cannot register as an auditor, and audited courses will not appear on the student's official transcript. Special (nondegree) students may not audit courses.

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

Students who, in the judgment of the instructor, have not substantially met the requirements of the course or who have been excessively absent may be considered to have withdrawn unofficially and may be given the final grade of F. See "Withdrawing From Courses," above.

Religious Holidays and Attendance
New York University, as a nonsectarian institution, adheres to the general policy of including in its official calendar only certain legal holidays. However, it has also long been University 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 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.

Credit

Credit for Advanced Placement Examinations
NYUSH 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 substitute a higher level course for an introductory course based on their performance on one of these tests.

Credit for Courses at NYUSH
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. For exceptional students, most majors also offer independent study. NYUSH does not permit students to register as auditors.

Restrictions on Receiving Credit
(Including Course Repeat Policy)
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 with the particular major offering the course. When a student repeats a course, no additional credit is awarded. Both grades appear on the transcript but only the second mark is computed in the grade point average.

Students may not be registered at another university at the same time that they are registered in NYUSH.

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

New York University 1000-level graduate courses may be taken with approval of the graduate program and following the practices of that bulletin, and 2000-level graduate courses may be taken with written approval of the instructor. If graduate courses are applied toward the completion of requirements for the baccalaureate degree, no advanced credit is allowed for them in the Graduate School.

It is also possible for students to take courses in other undergraduate divisions of New York University and to have credits for these courses applied to the degree in NYUSH.

Students may take a total of 16 points in other divisions, including any courses for particular minors approved by NYUSH. Students seeking additional non-Core credits beyond the 16-point limit must file a petition with the NYUSH Academic Standards Committee in the Office of Academic Affairs. This requirement applies to students seeking a second or third semester away within the Global Network University. In this case the student would submit a plan for their semester(s) abroad for approval.

Please note that restrictions apply. Courses in other divisions that duplicate the contents of a NYUSH course may not count toward the NYUSH degree. 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. Independent study or internship courses taken in other divisions of the University do not count toward the NYUSH degree. If such courses are taken at schools outside the University, the credit will not transfer to NYUSH.

Also excluded from credit toward the degree are any courses taken in the School of Continuing and Professional Studies.

Credit for Internet and online courses will not be counted toward the baccalaureate degree.

Credit for Transfer Students
NYUSH does not presently accept transfer applicants.

Credit for Non-NYU Study Abroad
Once admitted to NYUSH, students must take all courses on campus or during an approved study abroad semester at one of the University's Global Academic Centers, including those they need or wish to take during the summer. Exceptions are granted only rarely and only for good academic reasons. Requests for a waiver should be made by submitting a petition to the NYUSH Committee on Academic Standards.

Summer Session
Students who elect to take summer courses must take them on campus or at one of the University's Global Academic Centers. Exceptions are granted only rarely and only for good academic reasons. Requests for a waiver should be made by submitting a petition to the NYUSH Committee on Academic Standards.

Information about NYUSH summer course offerings is available during the preceding fall and spring terms, as is information about dormitory facilities available to students.

Examinations and Grades

Policies on Examinations

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
- The university's official final examination period begins on the Monday 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 noncomprehensive, covering only a part of the course.

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

In-term Examinations

In-semester exams may only occur during regularly scheduled class hours. This means that exams may not run longer than the 75-minute 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-semester testing policy is for students with identified learning disabilities that cause them to need additional time for tests.

Student may not be required to take more than two full-period in-class or out-of-class examinations on the same day. It is the responsibility of the student to notify the instructor in a timely manner of his/her circumstance so that appropriate accommodations can be made.

Final Examinations

1. All scheduled final examinations are held at the end of the semester during the University'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 people can leave earlier nor pressure students to take an examination on a reading day or weekend preceding examinations.

5. No student is required to take more than two scheduled examinations that start within a 25-hour period. A student who has more than two examinations scheduled within a 25-hour period or has two 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 Associate Dean for Academic Affairs.

6. Take-home final examinations shall be given for any 24-hour period of the student's choosing during the final examination period.

7. 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.

8. 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 the University procedure for the appeal of grades and academic actions. A final examination that is not returned to a student will be kept available for a year 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.

9. Concerns related to final examination, complaints about violations of the final examination policy or alterations of the final examination schedule should be directed to the students' Academic Advisor or to the Associate Dean for Academic Affairs.

Makeup Examinations
When final examinations are missed because of illness, a doctor's note must be presented to the instructor, who may give a grade of Incomplete. See below for an outline of procedures for taking makeup examinations.

As noted under "Grades," below, a student who cannot take the final examination in a course at the regularly scheduled time may be given the grade of Incomplete. The student must discuss the reasons for missing the examination with the instructor and, in the case of illness, must submit a doctor's note to the instructor. The student must ask the

instructor to give a grade of Incomplete. Incompletes are not awarded automatically. 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 removed 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 removed 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 under "Grades" and "Incompletes," below.)

Grades
Students may obtain their final grades for each semester on Albert via NYUHome at home.nyu.edu. The parents or guardian of a student who is a minor (under 18 years of age) may, on a written request to the Office of the University Registrar, obtain the student's grades at any time.

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 New York University course while matriculated in NYUSH, or earned in any of NYUSH's courses (courses suffixed by "-SH") while matriculated in another division of the University, 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

Computing the Grade Point Average

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
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 course work.

To appeal an assigned grade, 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 and wishes to appeal the grade further, a formal written appeal should be submitted to the Associate 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 reviewed to clarify how the grade was determined and to ensure the grade is consistent with academic guidelines and policies. The decision of the ADAA 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 but only the second is computed in the grade point average.

The grades for courses taken abroad in one of New York University'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 and professional 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
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 nongraded 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 the section "Pass/Fail Option," below.

Grade of W
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,"

above, for information on the regulations and procedures for withdrawing officially from courses.

Grade of I

The grade of I (Incomplete) is a temporary grade that indicates that the student has, for good reason, not completed all of the course work but 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, and clarify the remaining course requirements with the instructor.

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

All work missed in the fall term 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 out of attendance 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.

Independent Study

Most majors offer independent study courses for students with exceptional qualifications. In these courses, the work is planned specifically for each student.

Independent study courses allow the student to work independently with faculty supervision and counsel. The courses typically carry variable credit of 2 or 4 points each term. They are normally limited to upper-class majors but may be open to other well-qualified students. To register for independent study, a student must have written approval of the Associate Dean for Academic Affairs. The result of the independent study course should be a paper or objective, tangible evidence of completion of the work. The individual majors may grant credit for not more than 8 points of independent study for work approved in advance. In general, students are not permitted to take more than 12 points of independent study and/or internship, and no more than 8 points may be taken in any one major. Internships and/or independent study courses taken in other divisions of the University or at other universities do not count toward the College degree.
More specific information can be found under the individual major descriptions.

Leave of Absence

General Leave

If a student and their advisor agree that a leave of absence is the best way to proceed given the student's situation, the advisor will assist in the withdrawal from the semester and extended time for a leave of absence. A student needs to make an appointment with their advisor to discuss his or her particular situation and review the terms of the leave of absence.

A student may request a leave of absence for the fall/spring semester, and must make his or her request prior to the end of the third week of the semester he or she wishes to be on leave. A student who requests a leave after that deadline or who has been out of attendance without first being granted a leave must apply for readmission. Also note that leaves are not granted retroactively for past semesters.

There are no leaves of absence for the summer and January terms, as enrollment during these terms is not required to maintain matriculation in NYUSH.

A student granted a leave does not have to make a formal application for readmission as long as he or she returns to the College within the agreed-upon time (a maximum of two semesters during a student's academic career). Students who attend another college during the leave may not transfer the credit to NYUSH.

Students are advised to inquire how the leave of absence may affect their scholarship and financial aid award and should contact the Financial Aid Office. If students are on probation when the leave is granted, they will return on probation. Students out of attendance who did not apply for a leave and who wish to return to the College must apply for readmission. (See the Admission section of this Bulletin.)

Psychological and Medical Leave
If a student and a counselor or a physician agree that a psychological or medical leave of absence is the best way to proceed given the situation, the counselor or physician should make a recommendation to the Associate Dean for Academic Affairs. A student needs to complete the Leave of Absence Petition form, which can be obtained at the Office of Academic Affairs. Leave of absence petitions are accepted and reviewed on a rolling basis throughout the academic year.

A Certification of Readiness to Return to School from a Leave of Absence form should be completed by the counselor/therapist or physician, who needs to state clearly that the student is ready to return and that NYUSH is a suitable environment in which to continue his or her academic work. The student must also schedule an appointment with a counselor/therapist or physician at the NYUSH Student Health Center prior to receiving approval to return. A student granted a leave does not have to make a formal application for readmission as long as he or she returns to NYUSH within the agreed-upon time (a maximum of two semesters during a student's academic career). Students who attend another college during the leave may not transfer the credit to NYUSH.

Students are advised to inquire how the leave of absence may affect their scholarship and financial aid award and should contact the Office of Financial Aid. If students are on

probation when the leave is granted, they will return on probation. Students out of attendance who did not apply for a leave and who wish to return to the College must apply for readmission. (See the Admission section of this Bulletin.)

Pass/Fail Option
Students may elect one pass/fail option each term, including the summer sessions, for a total of not more than 32 points during their college career. The choice must be made before the completion of the fifth week of the term (second 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 average. F is counted in the average.

The pass/fail option is not acceptable in the major, the minor, or any of the courses taken in fulfillment of 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 student's advisor.

Petitions
The NYUSH Academic Standards Committee will consider petitions of students to waive requirements or modify policies and regulations of NYUSH. 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 forms may be obtained in the Office of Academic Affairs.

2. Placement Examinations, Degree Progress, and Transcripts

Placement Examination for Chinese Language
Testing and Placement
Entering students that are not native speakers of Mandarin take a written proficiency/placement examination test in Mandarin Chinese prior to their first registration in the College. Tests can result either in an exemption from the Chinese-language requirement or in placement into the appropriate-level course. Placement into a lower-level course means that the student must continue his or her studies of Chinese until completion of the intermediate two level of that language or achievement of equivalent competency. In some cases, adjustments in placement may be made during the first weeks of class. Information on placement testing can be obtained from the Academic Resource Center.

Testing Exemptions
The proficiency/placement test is required of all entering students with the following exceptions: students who have not previously studied Chinese and students whose secondary schooling was in Mandarin.

Quantitative Reasoning and Writing
All students will take math and writing placement tests prior to registration. These tests will help determine the proper course level and support needs for math and writing.

Degree Progress
All students have access to their Degree Progress Report, as generated by the Office of the University Registrar, on Albert via NYUHome at home.nyu.edu. The Degree Progress Report is a Student Information System (SIS) accounting of completed and remaining degree requirements.

Transcripts of Record (subject to change based on new electronic transcript)
Unofficial transcripts are available on Albert, NYU's Web-based registration and information system. Albert can be accessed via NYUHome.

Students requiring a stamped and sealed copy of their New York University records should request an official copy of their University transcript from the Office of the University Registrar. Requests for official transcripts require the signature of the student/alumnus requesting the transcript, unless the student/alumnus has a valid NetId.

Current students and graduates with a valid NYU NetId (able to access NYUHome/Albert) who attended NYU in or after 1990 can request an official transcript from the Albert Student Center. The Official Transcript form can be found under the My Academics section of the Student Center.

Before completing their transcript request, current students should check to ensure that all their grades have been posted. Recent graduates should check to ensure that their degree has been recorded.

Any transcript request that requires any special handling must go through the Secure Online Transcript Request Form (see above) and cannot be requested on Albert. Special handling includes: (1) sending transcripts by express mail; (2) transcripts sent to the student or alumnus in separate sealed envelopes addressed to admissions offices of other universities; (3) including additional documents to be sent along with the NYU transcript.

There is never any charge for academic transcripts. Transcripts cannot be produced for anyone whose record has been put on hold for an outstanding University obligation.

Requesting Enrollment Verification

Students can view/print their own enrollment certification directly from Albert using the integrated National Student Clearinghouse student portal. This feature can be accessed from the "request enrollment verification" link in the My Academics section of the Student Center. Eligible students are also able to view/print a Good Student Discount Certificate, which can be mailed to an auto insurer or any other company that requests proof of status as a good student (based on the cumulative GPA).

Verification of enrollment or graduation may also be requested by submitting a signed letter with the following information:
- University ID number
- Current name and any name under which the student or graduate attended NYU
- Current address
- Date of birth
- School of the University attended
- Dates attended
- Date of graduation
- The full name and address of the person or institution to which the verification is to be sent

The Registrar accepts requests for certification by e-mail from the student's NYU account at shanghai.registrar@nyu.edu.

Arrears Policy

The University 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

Diplomas of students in arrears will be held until their financial obligations to NYUSH 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 NYUSH.

Diploma Application
Students may officially graduate in September, January, or May. The all-University Commencement ceremony is held in May. NYUSH 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 on the calendar available at the Office of the University Registrar's Web page. 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.

3. Academic Standards and Discipline

Academic Standards
The NYUSH 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 Alert
Students with cumulative grade point averages of 2.0 to 2.25 will receive an academic alert letter reflecting the committee's specific recommendations for achieving an appropriate standard for academic performance.

Academic Probation
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 cumulative or semester grade point average falls below 2.0 or if it fails to show 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 points) 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 the univeristy. The conditions usually require that the student (a) achieve a grade point average of at least 2.0 during the term he or she is on probation, (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 NYUSH Academic Standards Committee prior to the withdrawal. Students on academic probation are also required to have a special probation interview with their advisor to receive registration clearance for the next semester. More specific requirements may be imposed.

The NYUSH Academic Standards Committee may summon students with unsatisfactory records to discuss their problems and to determine whether and under what conditions they may continue at NYUSH. In special circumstances, the committee may recommend to the Dean that students may be granted or placed on leave for a period not to exceed two semesters.

Students on academic probation may not engage in any extracurricular activities (except for major clubs) and may not hold office in these clubs without the approval of the NYUSH Academic Standards Committee.
Students on academic probation should be aware that they are usually ineligible for financial aid.

Academic Dismissal
Students dismissed from the universityfor poor academic performance 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 tuition and fees.

Academic Integrity
NYU 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.

This policy sets forth core principles and standards with respect to academic integrity for students at New York University. Each school at New York University may establish its own detailed supplemental guidelines for academic integrity, consistent with its own culture, and consistent with the University-wide general guidelines described in this document.

At NYU, 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 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 the University, 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 from diverse educational contexts and may have understandings regarding academic expectations that differ from those at NYU. NYU

values and respects all academic traditions; however, while at NYU, students are expected to adhere to the norms and standards of academic integrity espoused by the NYU 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 and 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 cell phones, computers, other technology or any other means)
·providing assistance to acts of academic misconduct/dishonesty (e.g., sharing copies of exams via cell phones, computers, other technology or any other means, allowing others to copy answers on an exam)
·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.

3. Any behavior that violates the academic policies set forth by the student's NYU school, department, or division.

New York University Shanghai Honor Code (adopted from the CAS Honor Code)
As a student in New York University 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.

Our University 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 NYUSH, 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 NYUSH and by the University 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 NYUSH:

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 Associate 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 Associate Dean for Academic Affairs believes a more severe penalty (i.e., probation, suspension, or expulsion) is warranted, they can refer the case to the Dean or his or her representative for further action.

2. In all cases of either (a) or (b), the Associate Dean for Academic Affairs will inform the student of any action in writing and send a copy of this letter to the Dean. 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 and not in

the student's major file. The Dean's office copy will also be kept in a confidential file. (The professor 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 first offense at NYUSH, the Dean will send the student by e-mail and first-class mail a notice that a second offense will result in a one-semester suspension or a more severe penalty. (The student is also called in to discuss the offense and review the consequences of the disciplinary action.)

4. For cases involving a second offense, the Dean will proceed as follows:

a. Upon receiving a second Associate Dean for Academic Affairs letter concerning a given student, the Dean will convene a three-member ad hoc committee, with no member being from the major involved, to examine the evidence. This ad hoc committee will consider if there are reasonable grounds to believe that cheating/plagiarism has occurred and if so, will affirm the suspension penalty. It will report its conclusion to the Dean within three business days.

b. If the committee affirms the suspension, the Dean will send the student by registered mail the suspension letter within two business days of receiving the report. 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 of the suspension as provided in Section 5 (below). The suspension will ordinarily be stayed during the pendency of appeal.

c. If the committee does not affirm the suspension, the report will be kept on file for a one-year period.

5. The student in all cases has the right to appeal to the Dean. In the event of an appeal, the Dean will elicit a written complaint from the faculty member and proceed as described above.

Discipline
Students are expected to familiarize themselves and to comply with the rules of conduct, academic regulations, and established practices of the University, NYUSH, and any study away site or portal campus as stated in the Discipline Procedures available here . If, pursuant to such rules, regulations, or practices, the withdrawal of a student is required before the end of the term for which tuition has been paid, a refund will be made according to the standard schedule for refunds. Below is a summary of the offenses for which students may be subject to disciplinary charges by the NYUSH Committee on Student Discipline:

1. False representation or forgery of academic documents

2. Deliberate destruction, theft, or unauthorized use of laboratory data, research materials, computer resources, or university property

3. Disruption of an academic event

4. Actual or threatened violence or harassment

   Depending on the seriousness of the offense, the following penalties may be imposed after a hearing by the NYUSH Committee on Student Discipline:

   Censure
   Written reprimand for violation of a specified regulation, including the possibility of more severe disciplinary sanction in the event of a subsequent violation of any University regulation within a period of time stated in the letter of reprimand.

   Disciplinary Probation
   Suspension of privileges or exclusion from participating in extra-curricular University activities as set forth by the NYUSH Committee on Student Discipline for a specified period of time.

   Suspension
   Exclusion from classes, as well as suspension of privileges and exclusion from other activities, as set forth in the notice of suspension for a definite period of time. A student who has been suspended and who is found "not guilty" shall be allowed full opportunity to make up whatever work was missed because of the suspension.

   Dismissal
   Termination of student status for an indefinite period. The conditions for readmission, if any are permitted, shall be stated by the committee in the order of dismissal.

   If, as a result of disciplinary action, the withdrawal of a student is required before the end of the term for which tuition has been paid, a refund will be made according to the standard schedule for refunds.

   Student Grievance
   Students in NYUSH are referred to the "Student Grievance Procedure" applicable to all the schools of New York University as found in the NYU Student's Guide. NYUSH adheres to all articles of the Student Grievance Procedure.

4. University Policies and Campus Safety

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, the University complies with the United States Family Educational Rights and Privacy Act (FERPA). This specifically means that any education records maintained by the University 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 United States 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

The Family Educational Rights and Privacy Act (FERPA) was enacted by the United States 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 United States 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, 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 United States 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 NYUSH and NYU FERPA Guidelines (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

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 University employee acting within the scope of her or his University employment, and any duly appointed agent or representative of the University acting within the scope of her or his appointment. In addition, the University 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 NYUSH or NYU. Other exceptions are listed in the NYUSH and NYU Guidelines for Compliance with FERPA.

Additional Information for Students about Records Access

Students may obtain additional information about access to their records from the NYUSH and NYU Guidelines for Compliance with FERPA. The Guidelines may be viewed online, or you can contact the NYUSH 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 NYUSH has two basic rights: privacy and a fair share of resources. It is unethical for any other person to violate these rights.

Privacy
*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.
*University resources are provided for university purposes. Any use of computing for commercial purposes or personal financial gain must be authorized in advance. Many of the agreements that the university has specifically forbid this activity.
*Computing and information resources are community resources. Theft, mutilation, and abuse of these resources violate the nature and spirit of community and intellectual inquiry.

System Administration
*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 of programs and databases is 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. 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

NYUSH 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 Dean (or the Dean's designated representative) has the authority to close the university and to specify those persons or group of persons who are free to leave or refrain from coming to campus.

Standard Operations

Unless the Dean announces that the university is closed, everyone is expected to be at work 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 department office and arrange either for a qualified substitute or for a future make-up session.

D. Freedom of Expression

NYU 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. The University 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 the University.

Rights
On NYUSH's Campus, any member of the NYUSH community may distribute printed material, offer petitions for signature, make speeches, and hold protests or demonstrations outside NYUSH buildings. All such activities must be lawful and peaceful, avoiding acts or credible threats of violence and preserving the normal operation of NYUSH. No event will infringe upon the rights or privileges of anyone not in sympathy with it, and no one will be permitted to harm others, damage or deface property, block access to NYUSH 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 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 NYUSH. Controversy cannot be permitted to abridge the freedoms of speech, thought, expression or assembly. They are not matters of convenience, but of necessity.

Responsibilities
Freedom of expression must be at once fiercely guarded and genuinely embraced. Those who exercise it serve the NYUSH community by accepting the responsibilities attendant to free expression. NYUSH and University organizations that sponsor invited guests to campus are expected to uphold NYUSH'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 University policies.

E. Health Insurance and Immunization Policy

All full-time students must be in compliance with NYUSH's Health insurance and immunization requirements. If a student fails to comply, they will not be allowed to register for classes until they are in full compliance. If the student does not receive clearance to register before the registration deadline for the semester, they will not be able to register and take classes until the next semester that they are in compliance. This policy includes first semester freshman entering NYUSH.

F. Human Subjects in Research at NYUSH

The university is committed to the protection of the rights and welfare of human subjects in research investigations conducted under the jurisdiction of the university. The university believes that review independent of the investigator is necessary to safeguard the rights and welfare of human subjects of research investigations. All research involving human subjects is conducted in accordance with federal regulations, including Title 45 of the Code of Federal Regulations, Part 46 (45 CFR 46). Under federal regulations, human subjects are defined as: living individual(s) about whom an investigator conducting research obtains:
(1) data through intervention or interaction with the individual, or
(2) identifiable private information.

An Institutional Review Board (IRB) is established under the provost to ensure adequate safeguards. The provost is responsible for the composition of the IRB with respect to: (1) the qualifications of IRB members in terms of educational background and research or other relevant experience, and (2) broad representation of relevant university interests.

This IRB is responsible for reviewing investigational procedures involving human subjects prior to the initiation of the research procedure in reference to (1) the rights and welfare of the individuals involved, (2) the appropriateness of the methods used to obtain informed consent, and (3) the risks and potential benefits of the investigations. The IRB is responsible for determining when additional expertise is required for adequate review and for obtaining that additional expertise. The IRB is further responsible for maintaining records of its review activities and decisions and for ensuring that records of informed consent are developed and kept by investigators where appropriate.

It is the responsibility of investigators who plan to use human subjects in research to obtain written consent from the IRB prior to conducting an investigation involving human subjects. It is the investigator's further responsibility to take whatever steps are determined necessary for the protection of the subjects, and to meet the reporting requirements established by the IRB.

5. 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 adviser and from the Academic Affairs Office.

Honors

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 points. 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 while enrolled either in NYUSH 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 the preceding academic year, all graduation moments included. The cutoff for summa cum laude is the GPA included within the top 5 percent of the previous year's graduating class. The cutoff for magna cum laude is the GPA included within the next 10 percent of the previous year's class. The cutoff for cum laude is the GPA included within the next 15 percent of the previous year's class. For example, the necessary GPA level for summa cum laude for students graduating in September 2017 will be based on the GPA cutoff for the top 5 percent of the combined graduates from September 2016, January 2017, and May 2017.

Major Honors
Students who have completed at least 64 points of graded work in their major may be awarded degrees with major honors if they complete the designated honors sequence in the major and maintain the requisite grade point average. There are three levels: honors, high honors, and highest 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 Dean 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 departmental honors. Should there be an exceptional circumstance in which the stipulated GPA is not maintained, the ADAA may be petitioned for an exception. If the case is compelling, the latter will inform the registrar's office of the waiver.

Honors programs must, minimally, be a two-term (8-point) experience that includes a capstone research project. The capstone project, which typically culminates in a thesis, should reflect sustained original research over two semesters. The scope and length of a thesis will vary by discipline, but the thesis is typically 40 to 60 pages in length.

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

Students with double majors in discrete, unrelated disciplines must complete honors programs in each major for which they seek honors. Students with double majors in interdisciplinary or related fields may, if the two majors concur, convene a joint honors committee to establish an interdisciplinary research program of course work that culminates in a single thesis. Similarly, in the case of joint majors, the relevant majors must work out an agreement on the requirements for honors and on the supervision and evaluation of students' theses or projects.

Dean's Award for Scholarship and/or Service
Presented by the dean of NYUSH to a graduating senior for outstanding accomplishment in either or both of these areas.

Diploma Recipient
A plaque presented to the senior selected by the dean to receive the diploma on behalf of all the members of the graduating class at Commencement. Selection is made on the basis of scholarship and/or contribution and service to the graduating class and to NYUSH.

Standard Bearer
A plaque presented to the senior selected by the dean to carry the NYUSH banner at Commencement. Awarded on the basis of contribution and service to the graduating class and to the College.

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

Senior Award in Biological and Behavioral Sciences
Awarded to the graduating senior who has excelled in **biological and behavioral**

sciences and who has contributed in a noteworthy way to the life of the campus during four years.

Senior Award in Physical Sciences
Awarded to the graduating senior who has excelled in **physical sciences** and who has contributed in a noteworthy way to the life of the campus during four years.

Senior Award in Mathematical and Engineering Sciences
Awarded to the graduating senior who has excelled in **mathematical and engineering sciences** and who has contributed in a noteworthy way to the life of the campus during four years.

Senior Award in Social Sciences
Awarded to the graduating senior who has excelled in **social sciences** and who has contributed in a noteworthy way to the life of the campus during four years.

Junior Scholarship Award
Presented by the dean of NYUSH to a member of the junior class who, in terms of academic excellence, student leadership, personality, and character, embodies the goals and ideals of NYUSH and the hopes, dreams, and personal spirit of its students.

Part Four: Academic Overview

Goal

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.

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

> ➢ A core (or general education) curriculum for the 21st century, one that is truly innovative—since its social and cultural courses are global in their scope, since writing is fully integrated into the curriculum rather than delivered in separate courses unrelated to students' other studies, and since mathematics and science are taught in a creative way that integrates these disciplines;

> ➢ 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

NYU Shanghai students will take 128 points of coursework to graduate; these courses will be distributed among core general education requirements, major requirements, and 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

Orientation will be held in Shanghai in August for three weeks prior to the start of the fall semester. The primary goals of this program will be to introduce students to the inquiry-based approach to learning of NYU Shanghai's liberal arts and sciences curriculum, to make students feel more at home both within the classroom and within the larger Shanghai community, and to foster a sense of community among students from diverse places and backgrounds. In addition to informal, non-credit instruction in language and writing, students will benefit from a robust program of complementary activities.

Study Away

Students will be expected to spend at least one semester (and up to three semesters) studying at one or more of the other campuses in the NYU Global Network. Many of the courses they need for their major are also offered at these other campuses, so that while away from Shanghai students can continue to fulfill many of their major requirements. While they are not required, three-week January Term intensive courses will be available to students, as will summer session courses at NYU Shanghai or elsewhere within the Global Network. Fall and spring semester tuition costs are covered by the yearly NYUSH tuition charges, including semesters abroad, J-Term and Summer classes incur additional tuition costs for the students that take those classes.

Majors and minors/concentrations

NYU Shanghai will offer its students an array of majors and minors/concentrations, which will be phased in over time. Those that will be offered initially are in subject areas where we anticipate the greatest demand, and also in which New York University has world-class faculty, major research strength, and international distinction. These include:

Humanities

- Humanities (integrated)
- Global China Studies[1] (interdisciplinary)

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[1] In Process

STEM (Science, Technology, Engineering, and Mathematics)

- Biological and Behavioral Sciences
- Physical Sciences
- Mathematical, Engineering, and Computer Sciences

Social Sciences

- Business and Finance
- Economics

Part Five: Core Curriculum Overview

There are five components to the NYU Shanghai core curriculum: Social and Cultural Foundations, Mathematics, Science, Writing, and Language. In each of these areas, the needs of each student will be carefully assessed upon arrival and a program of study will be developed to address them.

1. **Social and Cultural Foundations:** Courses in the Social Foundations and Cultural Foundations sequences 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. In conjunction with the writing program (see #4 below), Social and Cultural Foundations courses will teach students to ask critical questions, find unstated assumptions, assess arguments, and offer creative interpretations of the great works and ideas of the past, especially as they live on in the present.

   Required courses: Social Foundations and Cultural Foundations each have two components: a) a two-semester survey course, and b) a disciplinary course on China.

   Social Foundation: In the two-semester 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 the topic. The expectation is that *Global Perspectives on Society* will be taken in the first year.

   Students will complete the Social Foundations requirement with a disciplinary course of their choice from the category "Social Science Perspectives on China," (which may include courses on Chinese political economy, philosophy and society). This course can be taken at any point in a student's undergraduate career.

   Cultural Foundations: In *Global Perspectives on Culture*, also a two-semester course, students will be introduced to works of literature, film, and the visual and musical arts in the major genres, from different periods and traditions (largely in translation), again from a global perspective. The course will be further enhanced by a co-curricular program, in which students and faculty will explore works of artistic expression in the great city of Shanghai. The expectation is that *Global Perspectives on Culture* will be taken in the second year.

   Students will complete the Cultural Foundations requirement with a disciplinary course of their choice from the category "Chinese Arts," which may include courses in Chinese art and architecture, drama, film, literature, and music. As with the courses

in "Social Science Perspectives on China," students may take their "Chinese Arts" course at any point in their undergraduate career.

2. **Mathematics:** Considered by many to be the "universal language," mathematics provides logical and analytical tools necessary for tackling many of the important problems of our time. Quantitative skills are essential for work in the sciences and the social sciences, and they also have applications in the humanities. They are also critical to one's ability to function and to thrive in today's increasingly complex world. By the time they graduate, all NYU Shanghai students will possess a high level of mathematical proficiency.

Required courses or proficiencies: Students will have the opportunity at the beginning of their undergraduate career to demonstrate proficiency in mathematics through a placement test. Students that place out of a lower level core math class (see below) meet the requirement by taking a more advanced course according to placement exam results. Students majoring in Science, Engineering, and Economics, will take at least two mathematics courses: the first is a calculus course; the second is an integrated course on the mathematics of systems and dynamics, a course on multivariable calculus and differential equations, or linear algebra. Other students will fulfill this requirement by at least one course in either quantitative reasoning or calculus. Science and engineering students will be required to take specific mathematics courses for their majors. Finally, students in the mathematics honors major will take a set of highly advanced courses in mathematics.

3. **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 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 intellectual methods and analytical techniques that define modern science.

Required courses: The science requirement varies depending on the background and interests of the student, as follows:

- **Students who are pursuing degrees in science disciplines**—or who are taking the pre-health curriculum—will be required to take *Foundations of Science*, a rigorous, three-semester sequence of courses covering the fundamentals of basic science. Those pursuing degrees in the mathematics and engineering majors are required to take two of the three semesters in the sequence. These courses present foundational concepts from the various science disciplines in an integrated way. Emphasis is placed on science as a process, from hypothesis development to testing and experimentation, on data collection, and on drawing conclusions. All of the courses in this sequence

have a project-based laboratory component. In its totality, this sequence is the equivalent of full-year introductory courses in physics, chemistry, and biology. In order to accommodate the requirements of schools of the health professions, NYU Shanghai distinctly reports grades in physics, chemistry, and biology, under *Foundations of Science* on a student's transcript.

- **Students who are not pursuing science as a major** but have a strong interest and advanced abilities in science may take the first two semesters of the *Foundations of Science* sequence.

- **Other students** will fulfill the science requirement by taking two courses that will provide a basic understanding of scientific analytical techniques. One will be a laboratory-based course from the category "Experimental Discovery in the Natural World"; examples of such courses are *The Domain of Crystals*, *Mutations and Disease*, and *The Molecules of Life*. The other will be a non-laboratory-based course from the category "Science, Technology and Society,"; examples of such courses include *Atom and Energy*, *Interconnected: The History and Theory of Networks,*, and *Social Issues in the New Biosciences*.

4. **Writing:** NYU Shanghai students will attain a high level of sophistication in their writing and will be able to communicate effectively in a wide range of contexts. Students will develop proficiency in rhetorical and analytical modes of writing (comparison/contrast, exposition, cause/effect, description, analysis, argumentation and definition). These skills will be fostered not through a separate writing course (e.g. the typical "freshman comp" course) but rather through a "writing in the disciplines" approach that integrates writing instruction into required core courses. In addition, this intensive and integrative approach to writing is not relegated only to the outset of a student's college career but extends across the entire first two years (four semesters).

Required courses: NYU Shanghai students will participate in writing workshops offered in conjunction with the two-semester survey courses *Global Perspectives on Society* and *Global Perspectives on Culture* (see #1 above), and taught by experts in expository writing. Students in these workshops will develop fundamental writing skills through frequent assignments in which they will reflect on the materials that they study in the survey courses. Since students normally will take *Global Perspectives on Society* in the first year and *Global Perspectives on Culture* in the second year, they will have four consecutive semesters of writing instruction. Students' readiness to participate in the regular writing workshop sequence will be assessed during Orientation, and their developing proficiency will be tested throughout their undergraduate career.

5. **Language:** Language study is central to the educational mission of NYU as a Global Network University. NYU Shanghai's location and cosmopolitan student population make it all the more important for students to have access to

innovative, flexible, and effective means for learning a language. Our goal is for all NYU Shanghai students to be *fluent* in English, the language of *instruction*, and for non-native Chinese speakers to develop as much *proficiency* in Chinese, the language of *community*, as their major course of study allows.

Required courses or proficiencies: In the summer before their first year, students will receive some language instruction as part of their Orientation program (see above). This will be an opportunity for Chinese and other international students to perfect their spoken and written English skills and for non-Chinese students to have a basic introduction to spoken Chinese. Students will have room in their schedules for formal Chinese-language courses, and will benefit from a full set of courses, from the elementary level to the most advanced level. For those students who are unable to take courses in Chinese in their first two years because of heavy requirements in their major (e.g., STEM students), there will be multiple modalities of instruction that take advantage of the latest pedagogical and technological developments. These will include formal intensive coursework during the Summer Session, language labs, online study, and co-curricular language coaching with immersion experiences.

Core Curriculum Courses:

I. Social Foundations - Three Classes:

A. *Global Perspectives on Society (Two Classes)* Fall *I* and Spring *II*
B. "Social Science Perspectives on China" (one Class) Sample courses:
Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement.

The Rise of Modern China.
China's Development in a Comparative Perspective.
Traditional Chinese Wisdom and Its Transformation in Modern Times.
Intellectual History of China.

II. Cultural Foundations – Three Classes:

A. *Global Perspectives on Culture* (Two Classes) Fall *I* and Spring *II*
B. "Chinese Arts" (One Class) Sample Courses:
Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement.

Chinese Art and the Modern World.
Chinese Cinemas.
Contemporary Chinese Literature
Chinese Music from Antiquity to the Present.
Chinese Theatrical Traditions.
Contemporary Chinese Art in Shanghai.

Representing Ethnicity in Mainland China and Beyond A Comparative Study.
Shanghai Stories.

III. Mathematics – Varies by Major (see above)

Core Math classes:
Algebra and Calculus.
Calculus.
Multivariable Calculus and Differential Equations.
Introduction to Systems and Dynamics.
Linear Algebra.

IV. Science – Varies by Major (see above)

Core Science Courses:
Foundations of Science Courses
Foundations of Science I. (1+2)
Foundations of Science II. (3+4)
Foundations of Science III. (5+6)

Experimental Discovery in the Natural World Courses
The Domain of Crystals.
Mutations and Disease.
Brain and Behavior.
The Molecules of Life.

Science, Technology and Society Courses
The Atom and Energy.
Life in the Universe.
Interconnected: The History and Theory of Networks
State and Fate of the Earth.
Social Issues in the New Biosciences.

V. Writing

Writing instruction at NYU Shanghai will be delivered in twice-weekly writing workshops, taught by experts in expository writing and linked to the first-year course *Global Perspectives on Society* and the second-year course *Global Perspectives on Culture.* The works studied in these survey courses will be the primary focus of the essays that students will be asked to write in the workshops.

VI. Language – Varies by Student's Language Level and Major

Chinese language courses:
Elementary Chinese I.

Elementary Chinese II.
Intermediate Chinese I..
Intermediate Chinese II.
Advanced Chinese I.
Advanced Chinese II.
Elementary Chinese for Advanced Beginners.
Intermediate Chinese for Advanced Beginners.
Classical Chinese I
Classical Chinese II

Part Six: Overview of Majors

1. Humanities

Humanities Major

Study of the humanities lies at the heart of both the Chinese and Western intellectual traditions. How have people at different times and in different cultures understood and recorded the world they live in, and how has their experience contributed to the great moral, scientific, and aesthetic accomplishments that we have inherited? Students in the interdisciplinary Humanities major build on the critical thinking and reasoning skills developed by the core curriculum to study major issues and themes in History, Literature and Philosophy concerning the possibilities and meanings of human experience, and thereby to gain crucial interpretive and analytical skills that will serve them well in their professional and personal lives. The integrated nature of the major provides broad exposure to each of these disciplinary branches of the Humanities, while allowing students to focus in depth on one of them. It not only provides a foundation for responsible citizenship but also guides students towards grasping the larger social and cultural contexts in which work in such other areas as the sciences and social sciences has taken place in the past, and how such work affects society today and in the future.

Requirements:

1. **General Education Core Requirements: 9 courses** (see above)

2. **Major Requirements: 12 courses,** as follows:
Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement.

Humanities Core Courses (all four)
The Theory and Practice of History.
Literary Interpretation.
Central Problems in Philosophy.
Logic.

A. History Course (Three Required, one from each area)

Asia Pacific World courses (Choose One)
Chinese Civilization: A Historical Survey.
China in the Global Context.
Empires and Imperialism in East Asia.
Silk Roads Past and Present.
The Concept of China

Topics in Asia-Pacific History.

Global Thematic History (Choose One)
Global Environmental History.
Global History of Medicine.
Cold War.
Empires in World History

Other History courses (Choose One)
Modern South Asia.
The Making of the Muslim Middle East.
Africa since 1940.
The Age of Euro-American Empires.
European Thought and Culture: 1750-1870.
The U.S. in a Transnational and Global Perspective: America and the World since 1898.
The Ancient Mediterranean World
The Crusades.

B. Literature Courses (Choose Two)
Critical Theories and Methods of Literary Studies.
History and Theory of the Novel.
History of Drama and Theater.
Literary Translation.
Reading The Dream of the Red Chamber.
Country and City in Modern Chinese Literature and Film.
Representing Ethnicity in Mainland China and Beyond A Comparative Study.
Shanghai Stories.

C. Philosophy Courses (Choose One)
Biomedical Ethics.
Freedom and Responsibility.
Philosophy of Religion.
Classical Chinese Philosophy.
Modern European Philosophy.
Epistemology.
Metaphysics.
Philosophy of Science.

D. Humanities Electives from History, Literature, or Philosophy (Choose Two)

3. **General Electives (including language courses): 11 courses**

Humanities Majors' Sample Schedule

YEAR 1	1	2	3	4
Fall	*Global Perspectives on Society I (including Writing Workshop)*	(Asia-Pacific History)	Mathematics course	Language Course or General Elective
Spring	*Global Perspectives on Society II (including Writing Workshop)*	Chinese Arts	Science course	Language Course or General Elective

YEAR 2	*1*	2	3	4
Fall	*Global Perspectives on Culture I (including Writing Workshop)*	*Literary Interpretation*	*Central Problems in Philosophy*	Language Course or Science course
Spring	*Global Perspectives on Culture II (including Writing Workshop)*	*Logic*	*Theory and Practice of History*	Language Course or General Elective

YEAR 3	1	2	3	4
Fall	General Elective	Literature Elective	Global Thematic History Course	General Elective
Spring	General Elective	General Elective	General Elective	General Elective

YEAR 4	1	2	3	4
Fall	Social Science Perspectives on China	Literature Elective	Philosophy Elective	General Elective
Spring	History Elective	Humanities Elective	Humanities Elective	General Elective

Global China Studies Major[2]

China has again become a major force in the world, while increasingly the world is drawn to China. More than the scope of the conventional Area Studies, the innovative interdisciplinary major in Global China Studies allows students to build on the knowledge and critical skills gained from the core curriculum to deepen their understanding of global currents in China, whether at the level of state and society or of individuals, and in the context of commercial, religious, cultural, political and other interactions. At the same time, students will gain a greater awareness of the extraordinary complexity of what we call "China" and how that has come about. Global China Studies majors will further their formal language study, either by an additional year of modern Chinese or a year of classical Chinese, or, in consultation with the adviser, by a year's study of another dialect or language of China. They will learn about digital humanities from the specific perspective of Global China Studies; and finally, are strongly encouraged to study abroad beyond the minimum one semester in order to expand their global experience. Majoring in Global China Studies at NYU Shanghai positions students to pursue graduate education and professional careers in a broad range of areas at the cutting edge of 21st-century experience.

Requirements:

1. **General Education Core Requirements: 9 courses** (see above)

2. **Major Requirements: 9 Courses**, as follows:
Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement.

> **Required Courses (all Six)**
> *The Concept of China*
> *Chinese Geographies.*
> *Digital Chinese Humanities*
> *Worldwide Chinese Diaspora or Representing Ethnicity in Mainland China and Beyond A Comparative Study.*
> *Advanced Chinese I and II. Or Classical Chinese I and II.*
>
> **Global China Studies Electives (Choose Three)**
> *Archaeology in China.*
> *Art of War in China.*
> *Ethnic Diversity in China*.
> *Chinese Science*.
> *Chinese Inventions in Global Context*
> *History of Chinese Medicine.*
> *Muslim Science and China.*
> *Chinese Maritime History*.

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[2] In Process

Modern Chinese Governance.
Modern Chinese Economy.
China and the Great Depression.
Chinese Revolutions.
Mao and the Chinese Revolution.
Chinese Environmental Studies.
Play and Games in Early China.
Beliefs and Social Practice in China.
China and Global Religions
China Trade in Global Context.
Tea, Silver, and Opium in China.
Global (Chinese)Texts.
20th-century Chinese Writers in Global Context.
Topics in Global China Studies.

3. **General Electives (including language courses): 14 courses**

Global China Studies Majors' Sample Schedule

YEAR 1	**1**	**2**	**3**	**4**
Fall	*Global Perspectives on Society I (including Writing Workshop)*	*The Concept of China*	Mathematics course	Language Course or General Elective
Spring	*Global Perspectives on Society II (including Writing Workshop)*	Chinese Arts	Science course	Language Course or General Elective

YEAR 2	*1*	**2**	3	**4**
Fall	*Global Perspectives on Culture I (including Writing Workshop)*	*Digital Chinese Humanities*	Science course	Language Course or General Elective
Spring	*Global Perspectives on Culture II (including Writing Workshop)*	*Worldwide Chinese Diaspora*	*Chinese Geographies*	Language Course or General Elective

YEAR 3	**1**	**2**	**3**	**4**
Fall	*Social Science Perspectives on China*	General Elective	General Elective	Language Course

Spring	GCS Elective	General Elective	General Elective	Language Course

YEAR 4	1	2	3	4
Fall	GCS Elective	General Elective	General Elective	General Elective
Spring	GCS Elective	General Elective	General Elective	General Elective

2. Biological and Behavioral Sciences major

There are two tracks within the Biological and Behavioral major: Biology and Neural Science. Students complete the major by meeting all of the requirements for one of the two tracks.

Biology Track

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 applied to study fundamental processes in organisms. As a result, there has been a transformation in the understanding of life, from the genetic networks that guide how embryos develop to uncovering—at unprecedented resolution—natural genetic variation and how life adapts to diverse environments. These and other discoveries in biology have shaped society by improving human health, enhancing rational management of our environment, developing forensic science, and augmenting the production of renewable energy with the concomitant sequestering of pollutants. In addition, the rapid growth of the life sciences has fueled new ethical and legal issues that impinge on biological discoveries and their applications.

Building on the foundational integrated science courses, students in the Biology track of the Biological and Behavioral Sciences major learn to use the contemporary tools and approaches that are available to solve problems in areas of the current life sciences. 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 advanced courses emphasize the fundamental concepts and principles mastered in the Foundations of Science sequence, continuing the emphasis on using interdisciplinary approaches to understand the natural world.

The Biology track of the Biological and Behavioral Sciences major is taught by faculty who carry out research in state-of-the-art laboratories in various areas in the life sciences. The Biology program at NYUSH 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 NYUAD, as well as with other laboratories across the NYU Global Network.

Requirements:

1. **General Education Core Requirements: 6 courses (see above)**

2. **Track Requirements: 15 courses**, as follows:

Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement.

Prerequisite courses (All Seven)
Calculus.
Foundations of Science I. (1+2)
Foundations of Science II. (3+4)
Foundations of Science III. (5+6)

Additional Required Courses (All Four)
Introduction to Systems and Dynamics.
Biostatistics.
Organismal Biology.
Organic Chemistry I.

Biology Electives (Choose four)
Applied Cell Biology.
Developmental Biology.
Immunology.
Evolution.
Genetics.
Genomics and Bioinformatics.
Microbiology and Microbial Genomics.
Systems Biology.

The Science and Mathematics courses included in the requirements of the Biology major also fulfill the requirements of the core curriculum.

3. <u>**General Electives (including language courses):** 11 Courses</u>

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

Biology Majors' Sample Schedule

YEAR 1	1	2	3	4
Fall	*Global Perspectives on Society I (including Writing Workshop)*	*Calculus*	*Foundations of Science 1*	*Foundations of Science 2*
Spring	*Global Perspectives on Society II (including Writing Workshop)*	*Introduction to Systems and Dynamics*	*Foundations of Science 3*	*Foundations of Science 4*

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YEAR 2	1	2	3	4
Fall	*Global Perspectives on Culture I (including Writing Workshop)*	*Organic Chemistry I*	*Foundations of Science 5*	*Foundations of Science 6*
Spring	*Global Perspectives on Culture II (including Writing Workshop)*	General Elective (could be *Organic Chemistry II* for pre-med students)	*Organismal Biology*	*Biostatistics*

YEAR 3	1	2	3	4
Fall	Social Science Perspectives on China	Chinese Arts	General Elective	Language Course or General Elective
Spring	Biology Elective	General Elective	General Elective	Language Course or General Elective

YEAR 4	1	2	3	4
Fall	Biology Elective	General Elective	General Elective	Language Course or General Elective
Spring	Biology Elective	Biology Elective	General Elective	Language Course or General Elective

Neural Science Track

Neural science 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. Experimental questions include issues related to biophysical and neurochemical mechanisms within single nerve cells, functional neural circuits consisting of small numbers of neurons, the behavior of large systems of neurons, and the relationship between the activity of elements of the nervous system and the behavior of organisms. The Neural Science program at NYUSH has strong interactive with the Center for Neural Science at NYU in New York as well as with other laboratories across the NYU Global Network.

Requirements:

1. **General Education Core Requirements: 6 courses** (see above)

2. **Track Requirements: 17 courses,** as follows:
Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement

> **Prerequisite courses (All Seven)**
> *Calculus.*
> *Foundations of Science I. (1+2)*
> *Foundations of Science II. (3+4)*
> *Foundations of Science III. (5+6)*
>
> **Additional Required Courses (All Five)**
> *Biostatistics.*
> *Introduction to Systems and Dynamics*
> *Introduction to Neural Science.*
> *Cellular and Molecular Neuroscience.*
> *Behavioral and Integrative Neuroscience.*
>
> **Neural Science Electives (Choose Five from Neural Science, Biology, Mathematics or Computer Science)**
> (Most Neural Science electives will be from the rubric *Special Topics in Neural Science*)
> *Development and Dysfunction of the Nervous System.*
> *Special Topics in Neural Science.*
>
> The Science and Mathematics courses included in the requirements of the Neural Science major also fulfill the requirements of the core curriculum.

3. **General Electives (including language courses): 9 courses**

Students are strongly encouraged (but not required) to take *Organic Chemistry I and II* (for course description, see Chemistry) and *Introduction to Programming* (for course description, see Computer Science) as general electives.

Neural Science Majors' Sample Schedule

YEAR 1	1	2	3	4
Fall	*Global Perspectives on Society I (including Writing Workshop)*	*Calculus*	*Foundations of Science 1*	*Foundations of Science 2*
Spring	*Global Perspectives on Society II (including Writing Workshop)*	*Introduction to Systems and Dynamics*	*Foundations of Science 3*	*Foundations of Science 4*

YEAR 2	1	2	3	4
Fall	*Global Perspectives on Culture I (including Writing Workshop)*	*Intro to Neural Science*	*Foundations of Science 5*	*Foundations of Science 6*
Spring	*Global Perspectives on Culture II (including Writing Workshop)*	*Behavioral and Integrative Neuroscience*	*Biostatistics*	General Elective

YEAR 3	1	2	3	4
Fall	General Elective (could be *Organic Chemistry I* for pre-med students)	*Cellular and Molecular Neuroscience*	Social Science Perspectives on China	Language Course or General Elective
Spring	General Elective (could be *Organic Chemistry II* for pre-med students)	General Elective	General Elective	Language Course or General Elective

YEAR 4	1	2	3	4
Fall	Chinese Arts	Neural Science Elective (Bio, Math, or NS)	Neural Science Elective (Bio, Math, or NS)	Language Course or General Elective
Spring	Neural Science Elective (Bio, Math, or NS)	Neural Science Elective (Bio, Math, or NS)	Neural Science Elective (Bio, Math, or NS)	Language Course or General Elective

3. **Physical Sciences Major**

There are two tracks within the Physical Sciences major: Chemistry and Physics. Students complete the major by meeting all of the requirements for one of the two tracks.

Chemistry Track

The focus of the Chemistry program 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. In fact, chemistry interfaces with the life sciences and with physics and mathematics.

The range of applications of modern chemistry is broad, spanning many aspects of human activities such as the improvement of agriculture, the discovery of new drugs, and the creation of new materials by learning how molecules are assembled and how they recognize one another. Chemistry drives the exciting field of nanotechnology that generates new materials for devising ever smaller electronic devices with enhanced computing or information storage characteristics; that invents novel materials for innovative applications in industry and everyday life; and that constructs novel photosensitive materials for solar energy conversion to electricity, to cite just a few examples.

Majoring in Chemistry provides strong preparation for graduate study in chemistry and biochemistry; professional education in medicine, dentistry, or patent law; and careers in industrial or pharmaceutical chemistry and biotechnology. Chemistry majors are encouraged to complete Linear Algebra if they hope to pursue graduate or professional studies in science.

Requirements:

1. **General Education Core** Requirements: 6 courses (see above)

2. **Track Requirements: 19 Courses** as follows:
Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement.

   Prerequisite courses (All Seven)
   Calculus.
   Foundations of Science I. (1+2)
   Foundations of Science II. (3+4)
   Foundations of Science III. (5+6)

Additional Required Courses (All Ten)
Multivariable Calculus and Differential Equations
Linear Algebra for applications
Probability and Statistics
Introduction to Systems and Dynamics.
Inorganic Chemistry.
Organic Chemistry I.
Organic Chemistry II.
Physical Chemistry: Quantum Mechanics and Spectroscopy.
Physical Chemistry: Thermodynamics and Kinetics.
Physical Chemistry Laboratory.

Chemistry Electives (Choose Two)
Organic Analysis.
Biochemistry I.
Biochemistry II.
Experimental Biochemistry.
Biophysical Chemistry.

The Science and Mathematics courses included in the requirements of the Chemistry major also fulfill the requirements of the core curriculum.

3. **General Electives (including language courses): 7 Courses**

Chemistry Majors' Sample Schedule

YEAR 1

	1	2	3	4
Fall	*Global Perspectives on Society I* (including Writing Workshop)	*Calculus*	*Foundations of Science 1*	*Foundations of Science 2*
Spring	*Global Perspectives on Society II* (including Writing Workshop)	*Multivariate Calculus and Differential Equations*	*Foundations of Science 3*	*Foundations of Science 4*

YEAR 2

	1	2	3	4
Fall	*Global Perspectives on Cultures I (including Writing Workshop)*	*Organic Chemistry I*	*Foundations of Science 5*	*Foundations of Science 6*
Spring	*Global Perspectives on Culture II (including Writing Workshop)*	*Organic Chemistry II*	*Introduction to Systems and Dynamics*	*Linear Algebra for Applications*

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YEAR 3	1	2	3	4
Fall	Social Science Perspectives on China	*Physical Chemistry: Quantum Mechanics and Spectroscopy*	*Physical Chemistry Laboratory*	Language Course or General Elective
Spring	Chinese Arts	*Physical Chemistry: Thermodynamics and Kinetics*	*Probability and Statistics*	Language Course or General Elective

YEAR 4	1	2	3	4
Fall	*Inorganic Chemistry*	General Elective	General Elective	Language Course or General Elective
Spring	Chemistry Elective	Chemistry Elective	General Elective	Language Course or General Elective

Physics Track

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 participate in activities ranging from the writing of realistic computer games to the modeling of financial activities, as well as the more traditional activities of physicists. Those trained in physics are found in many occupations, such as various fields of engineering, computer technology, health, environmental and earth sciences, communications, 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.

Requirements:

1. **General Education Core Requirements: 6 courses** (see above)

2. **Track Requirements:** 16 courses, as follows:
Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement.

   Prerequisite courses (All Seven)
   Calculus.
   Foundations of Science I. (1+2)
   Foundations of Science II. (3+4)
   Foundations of Science III. (5+6)

   Additional Required Courses (All Eight)
   Multivariable Calculus and Differential Equations.
   Linear Algebra
   Probability and Statistics
   Mechanics.

Electricity and Magnetism.
Quantum Mechanics.
Statistical Mechanics and Thermodynamics.
Advanced Physics Laboratory.

Physics Electives (Choose one)
Astrophysics.
Biophysics.
Computational Physics.
Nuclear and Particle Physics.
Solid State Physics.

The Science and Mathematics courses included in the requirements of the Physics major also fulfill the requirements of the core curriculum.

3. **<u>General Electives (including language courses):</u> 10 Courses**

Physics Majors' Sample Schedule

YEAR 1

	1	2	3	4
Fall	*Global Perspectives on Society I (including Writing Workshop)*	*Calculus*	*Foundations of Science 1*	*Foundations of Science 2*
Spring	*Global Perspectives on Society II (including Writing Workshop)*	*Multivariate Calculus and Differential Equations*	*Foundations of Science 3*	*Foundations of Science 4*

YEAR 2

	1	2	3	4
Fall	*Global Perspectives on Culture I (including Writing Workshop)*	*Linear Algebra for Applications*	*Foundations of Science 5*	*Foundations of Science 6*
Spring	*Global Perspectives on Culture II (including Writing Workshop)*	*Mechanics*	*Electricity and Magnetism*	*Probability and Statistics*

YEAR 3	1	2	3	4
Fall	*Quantum Mechanics*	*Advanced Physics Lab*	*Statistical Mechanics and Thermodynamics*	Language Courses or General Elective
Spring	Chinese Arts	Social Science Perspectives on China	General Elective	Language Courses or General Elective

YEAR 4	1	2	3	4
Fall	Physics Elective	General Elective	General Elective	Language Courses or General Elective
Spring	General Elective	General Elective	General Elective	Language Courses or General Elective

4. Mathematical, Engineering, and Computer Sciences major

There are five tracks within the Mathematical, Engineering, and Computer Sciences major: Mathematics, Computer Science, Computer Engineering, Electrical Engineering, and Interactive Media. Students complete the major by meeting all of the requirements for one of the five tracks.

Mathematics Track

Mathematics provides the logical and analytical tools for tackling many of the important problems of our time. By its very nature, mathematics provides the means to break many problems into manageable pieces that can be analyzed and solved. In fact, mathematical approaches have been central to solving problems and modeling phenomena in a wide array of disciplines. Probability and statistical analysis are fundamental for mapping and analyzing the human genome. Advanced mathematical theories provide the keys to analyzing the risk of rare events, a basic problem of the financial markets. In physics, geometry finds applications to particle physics, to string theory, and to cosmology. In neuroscience, exciting new research into the structure and functioning of the brain relies heavily on the insights provided by mathematical modeling. These are but a few of the contemporary problems relying on mathematical analysis. Mathematical thinking is grounded in rigor and abstraction, but draws its vitality from questions arising in the natural world as well as applications to industry and technology.

Mathematics forms the backbone of many scientific fields. It provides the theory and methods essential to understanding the fundamentals of such areas as physics, engineering, and computer science. With a firm grasp of mathematics, you'll have the widest possible base from which to launch explorations of related discipline.

Requirements:

1. **General Education Core Requirements: 6 courses** (see above)

2. **Track Requirements: 18 courses**, as follows:
Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement.

   Prerequisite courses (All Four)
   Foundations of Science I. (1+2)
   Foundations of Science II. (3+4)

   Required Mathematics Courses (All Nine)
   Analysis I.
   Analysis II.
   Analysis III.

Advanced Linear Algebra.
Algebra I.
Differential Geometry.
Theory of Probability.
Complex Variables.
Ordinary Differential Equations I.

Mathematics Electives (Choose Five)
Algebra II.
Real Variables.
Functional Analysis.
Ordinary Differential Equations II.
Topology
Number Theory.
Mathematical Statistics.
Combinatorics
Numerical Analysis.
Scientific Computations.
Fluid Dynamics.
Introduction to systems and Dynamics
Discrete Mathematics.

The Science and Mathematics courses included in the requirements of the track also fulfill the requirements of the core curriculum.

3. <u>**General Electives (including language courses):**</u> **8 Courses**

Mathematics Majors' Sample Schedule

YEAR 1	1	2	3	4
Fall	*Global Perspectives on Society I (including Writing Workshop)*	*Analysis I*	*Advanced Linear Algebra*	Language Course or General Elective
Spring	*Global Perspectives on Society II (including Writing Workshop)*	*Analysis II*	*Ordinary Differential Equations I*	Language Course or General Elective

YEAR 2	1	2	3	4
Fall	*Global Perspectives on Culture I (including Writing Workshop)*	*Analysis III*	*Complex Variables*	Language Course or General Elective
Spring	*Global Perspectives on Culture II (including Writing Workshop)*	*Algebra I*	*Theory of Probability*	Language Course or General Elective

YEAR 3	1	2	3	4
Fall	General Elective	*Differential Geometry*	*Foundations of Science 1*	*Foundations of Science 2*
Spring	Mathematics Elective	Social Science Perspectives on China	*Foundations of Science 3*	*Foundations of Science 4*

YEAR 4	1	2	3	4
Fall	Chinese Arts	Mathematics Elective	Mathematics Elective	General Elective
Spring	Mathematics Elective	Mathematics Elective	General Elective	General Elective

Computer Science Track

Computer science, rooted in mathematics and engineering, has led to revolutionary innovations in entertainment, the humanities, health, business, the news media, communications, education, scientific research, and the arts. Although it is a relatively young field, computer science has produced many of the advances of modern life that we now take for granted. It has given medical researchers tools to understand and cure diseases, enabled physicists to reshape our understanding of the universe, allowed neuroscientists to uncover the secrets of our brains, and helped biologists decipher the human genome. Computer science has rewritten the rules of the entertainment industry and has transformed the way humans communicate with each other.

A computer science degree granted by a liberal arts program is of special value today, as the world increasingly needs graduates who not only possess computer skills, but also apply them in a context of broad general learning. Graduates will be ready to take exciting and demanding jobs in the field or to continue their studies in pursuit of advanced scientific or professional degrees.

Requirements:

1. **General Education Core Requirements: 6 courses** (see above)

2. **Track Requirements: 18 courses**, as follows:
Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement.

       Prerequisite courses (`All Five`)
       Calculus
       Foundations of Science I (8 pts—FOS 1 and 2)
       Foundations of Science II (8 pts—FOS 3 and 4)

       Additional Required Courses (All Eleven)
       Discrete Mathematics
       Probability and Statistics
       Mathematics Elective
       Introduction to Computer Science
       Data Structures
       Object Oriented Programming
       Computer Architecture
       Operating Systems
       Algorithms
       Software Engineering
       Senior Project

Computer Science Electives (Choose Two)
Advanced Algorithms.
Computer Networking.
Computer Security.
Network Security.
Introduction to Game Programming.
Computer Graphics.
Digital Logic.
UNIX System Programming.
Computer Vision.
Introduction to Databases.
Theory of Computation.
Machine Learning and Data Mining.
Artificial Intelligence.
Introduction to Cryptography.
Parallel and Distributed Computing.

The Science and Mathematics courses included in the requirements of the Computer Science major also fulfill the requirements of the core curriculum.

3. General Electives (including language courses): 8 Courses

Computer Science Majors' Sample Schedule

Computer Science Majors' Sample Schedule

YEAR 1	1	2	3	4
Fall	*Global Perspectives on Society I (including Writing Workshop)*	*Calculus*	*Foundations of Science 1*	*Foundations of Science 2*
Spring	*Global Perspectives on Society II (including Writing Workshop)*	*Intro to Computer Science*	*Foundations of Science 3*	*Foundations of Science 4*

YEAR 2	1	2	3	4
Fall	*Global Perspectives on Culture I (including Writing Workshop)*	*Data Structures*	*Computer Architecture*	Language Course or General Elective
Spring	*Global Perspectives on Cultures II (including Writing Workshop)*	*Object Oriented Programming*	*Discrete Mathematics*	Language Course or General Elective

YEAR 3	**1**	**2**	**3**	**4**
Fall	Social Science Perspectives on China	*Operating Systems*	Mathematics Elective	Language Course or General Elective
Spring	Chinese Arts	*Algorithms*	*Probability and Statistics*	Language Course or General Elective

YEAR 4	**1**	**2**	**3**	**4**
Fall	*Software Engineering*	Computer Science Elective	General Elective	General Elective
Spring	*Senior Project*	Computer Science Elective	General Elective	General Elective

Computer Engineering Track

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 Engineering at NYUSH 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 web cams, 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.

The Computer 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 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 across the curriculum to develop an understanding of cultural, political, economic, environmental, and public safety considerations. In their courses, Computer Engineering students are involved in the design process and the progression of technological inventions from concept through product development and market introduction.

Requirements:

    1.   **General Education Core Requirements: 6 courses** (see above)

    2.   **Track Requirements: 20 courses**, as follows:
Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement.

    Prerequisite courses (All Five)
    Calculus
    Foundations of Science I (8 pts—FOS 1 and 2)
    Foundations of Science II (8 pts—FOS 3 and 4)

    Additional Required Courses (All fourteen)
    Discrete Mathematics
    Introduction to Systems and Dynamics
    Probability and Statistics

Introduction to Computer Science
Data Structures
Object-Oriented Programming
Circuits
Digital Logic
Computer Architecture
Operating Systems
Embedded Systems
Electronics
Senior Capstone Design Project (8 pts spanning two senior-year semesters – counted as two courses)

Computer Engineering Elective (Choose One)
Computer Networking.
Very Large Scale Integration Circuit Design.
Compilers.
Parallel and Distributed Computing.
Introduction to Databases
Computer Security.
Network Security.
UNIX System Programming.
Robotic Systems.

The Science and Mathematics courses included in the requirements of the Computer Science major also fulfill the requirements of the core curriculum.

3. General Electives (including language courses): 6 Courses

Computer Engineering Majors' Sample Schedule

YEAR 1	1	2	3	4
Fall	*Global Perspectives on Society I (including Writing Workshop)*	*Calculus*	*Foundations of Science 1*	*Foundations of Science 2*
Spring	*Global Perspectives on Society II (including Writing Workshop)*	*Introduction to Computer Science*	*Foundations of Science 3*	*Foundations of Science 4*

YEAR 2	1	2	3	4
Fall	*Global Perspectives on Culture I (including Writing Workshop)*	*Computer Architecture*	*Data Structures*	Language Course or General Elective
Spring	*Global Perspectives on Culture II (including Writing Workshop)*	*Discrete Math*	*Object-Oriented Programming*	Language Course or General Elective

YEAR 3	1	2	3	4
Fall	*Digital Logic*	*Operating Systems*	*Probability and Statistics*	Language Course or General Elective
Spring	*Circuits*	*Introduction to Systems and Dynamics*	*Embedded Systems*	Language Course or General Elective

YEAR 4	1	2	3	4
Fall	Social Science Perspectives on China	*Electronics*	Computer Engineering Elective	*Senior Design Project*
Spring	Chinese Arts	General Elective	General Elective	*Senior Design Project*

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Electrical Engineering Track

Electrical Engineering at NYUSH 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 smart phones in our pockets. But this process of innovation is never complete, and new challenges await tomorrow's electrical engineers. The Electrical 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 our state-of-the-art laboratories. In addition, the variety of specialized subjects you can investigate through elective coursework — from wireless communication to smart grid power systems — ensures a highly flexible education suited to your particular interests.

1. **General Education Core Requirements: 6 courses** (see above)

2. **Track Requirements: 20 courses**, as follows:
Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement.

Prerequisite courses (All Five)
Calculus
Foundations of Science I (8 pts—FOS 1 and 2)
Foundations of Science II (8 pts—FOS 3 and 4)

Additional Required Courses (All Eleven)
Multivariate Calculus & Differential Equations
Linear Algebra
Probability and Statistics
Introduction to Computer Science
Circuits
Digital Logic
Signals and Systems
Electronics
Electromagnetic Fields and Waves
Senior Capstone Design Project (8 pts. spanning two senior-year semesters – counted as two courses)

Electronic Engineering Elective (Choose Four)
2 electrical engineering courses from the following list of three courses:
        Control Systems, Communication Systems, Energy and Power Systems
Control Systems.

Communication Systems.
Electrical Energy and Power Systems.
Instrumentation, Sensors and Actuators.
Robotic Systems.
Very Large Scale Integrated (VLSI) Circuit Design.
Advanced Circuits.
Digital Signal Processing.
Computer Networks.
Embedded Systems.

The Science and Mathematics courses included in the requirements of the Computer Science major also fulfill the requirements of the core curriculum.

3. <u>General Electives (including language courses): **6 Courses**</u>

Electrical Engineering Majors' Sample Schedule

YEAR 1	1	2	3	4
Fall	*Global Perspectives on Society I (including Writing Workshop)*	*Calculus*	*Foundations of Science 1*	*Foundations of Science 2*
Spring	*Global Perspectives on Society II (including Writing Workshop)*	*Introduction to Computer Science*	*Foundations of Science 3*	*Foundations of Science 4*

YEAR 2	1	2	3	4
Fall	*Global Perspectives on Culture I (including Writing Workshop)*	*Multivariate Calculus and Differential Equations*	*Digital Logic*	Language Course or General Elective
Spring	*Global Perspectives on Culture II (including Writing Workshop)*	*Linear Algebra*	*Circuits*	Language Course or General Elective

YEAR 3	1	2	3	4
Fall	*Signals and Systems*	*Electronics*	*Electromagnetic Fields and Waves*	Language Course or General Elective
Spring	*Probability and Statistics*	Electrical Engineering Elective	Electrical Engineering Elective	Language Course or General Elective

YEAR 4	1	2	3	4
Fall	Social Science Perspectives on China	General Elective	Electrical Engineering Elective	*Senior Design Project*
Spring	Chinese Arts	General Elective	Electrical Engineering Elective	*Senior Design Project*

Interactive Media Track

Media is constantly being reinvented. The accelerating progression of communications technologies from numbers, alphabets, and moveable type to the Internet and smartphones will continue. This track invites students to participate in the invention of new media as means of understanding the forces and characteristics of human communication. Students are encouraged to build on the liberal arts core curriculum by being ambitious in constructing imaginative uses of new media that might augment, improve, and bring both meaning and delight to people's lives. The Interactive Media track fosters the skills and conceptual understanding necessary to manipulate new media and supports the applications that students dream up. It can be described as an art program for engineers and at the same time an engineering program for artists. Perhaps the best way to describe it is as a "center for the recently possible." Interactive Media is an experimental undertaking—new classes will be regularly added to the curriculum—and students who follow this track should be prepared to join in the spirit of this experimentation and realize that they are inventing this new field along with their peers and faculty.

Requirements:

1. **General Education Core Requirements: 8 courses** (see above)

2. **Track Requirements: 9 courses,** as follows:
Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement.

   Required Courses (Both）
   Computational Media
   Communications Labs.

   Interactive Media Electives （Choose Seven）
   including at least one course from each of the following categories:
   Studio courses
   Interactive art and entertainment courses
   Design courses
   Skill development courses
   Seminars

3. **General Electives (including language courses): 15 courses**

Interactive Media Majors' Sample Schedule

YEAR 1

	1	2	3	4
Fall	*Global Perspectives on Society I (including Writing Workshop)*	*Computational Media*	Mathematics course	Language Course or General Elective
Spring	*Global Perspectives on Society II (including Writing Workshop)*	*Communications Lab*	Science course	Language Course or General Elective

YEAR 2

	1	2	3	4
Fall	*Global Perspectives on Culture I (including Writing Workshop)*	Interactive Media Elective	General Elective	Language Course or General Elective
Spring	*Global Perspectives on Culture II (including Writing Workshop)*	Social Science Perspectives on China	Interactive Media Elective	Language Course or General Elective

YEAR 3

	1	2	3	4
Fall	General Elective	General Elective	Interactive Media Elective	General Elective
Spring	General Elective	General Elective	General Elective	Interactive Media Elective

YEAR 4

	1	2	3	4
Fall	Chinese Arts	General Elective	General Elective	Interactive Media Elective
Spring	General Elective	General Elective	Interactive Media Elective	Interactive Media Elective

5. Social Sciences

Business and Finance Major

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 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 and finance major at NYU Shanghai helps students develop knowledge and skills in: corporate finance, investments management, securities trading, financial markets and accounting. It is designed to provide students with a 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, statistics, and accounting; (c) a focused introduction to finance, operations, organizational management, and marketing.

Requirements:

1. **General Education Core Requirements: 8 courses** (see above)

2. **Major Requirements: 14 courses,** as follows:
Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement.

    Prerequisites courses (All Three)
    Calculus
    Microeconomics
    Statistics for Business and Economics

Business and Finance Core classes (All Five)
Economics of Global Business
Global Perspectives on Enterprise Systems
Principles of Financial Accounting
Foundations of Finance
Corporate Finance

Core Courses (Choose Two)
Management and Organizations
Competitive Advantage from Operations
Introduction to Marketing
Information Technology in Business and Society

Additional Finance electives (Choose Two):
Futures and Options
Debt Instruments and Markets
International Financial Management
The Chinese Financial System
Mergers & Acquisitions

A Non-Finance elective in areas such as (Choose One):
Accounting
Management
Marketing

A China Business Studies course, such as (Choose one):
The Political Economy of East Asia
Contemporary Chinese Economic Issues
Doing Business in China

Calculus, required for the Business and Finance major, also fulfills the
Mathematics requirement of the core curriculum

3. **General Electives (including language courses): 10 courses**

Business and Finance Majors' Sample Schedule

YEAR 1

	1	2	3	4
Fall	*Global Perspectives on Society I (including Writing Workshop)*	*Statistics for Business and Economics*	*Calculus*	Language Course or General Elective
Spring	*Global Perspectives on Society II (including Writing Workshop)*	*Microeconomics*	Social Science Perspectives on China	Language Course or General Elective

YEAR 2	1	2	3	4
Fall	*Global Perspectives on Culture I (including Writing Workshop)*	*Global Perspectives on Enterprise Systems*	*Foundations of Finance*	Language Course or Science Course
Spring	*Global Perspectives on Culture II (including Writing Workshop)*	*Principles of Financial Accounting*	*Economics of Global Business*	Language Course or Science Course

YEAR 3	1	2	3	4
Fall	*Corporate Finance*	Major Core Elective	Finance Elective	General Elective
Spring	Chinese Arts	Major Core Elective	Finance Elective	General Elective

YEAR 4	1	2	3	4
Fall	Non-Finance Elective	Chinese Business Elective	General Elective	General Elective
Spring	General Elective	General Elective	General Elective	General Elective

Economics Major

Economics is the study of human decision-making, considered in relation to the economic tasks of life. It looks at how individuals within larger social groups, including communities, organizations, markets, and economies, make decisions about how much to work and play, spend and save. Economic analyses also consider how the economic decisions made by one group of people affect the decisions made by others. They then study how the aggregated effects of these decisions impact production, distribution, trade, and the consumption of goods and services across local regions, countries, and the world.

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: 1. Undergraduate students must be exposed to the "big ideas" and pressing social issues of our world and given economic frameworks for thinking about them; 2. meaningful study of economics requires being able to think about problems from local, regional, and global perspectives; and 3. effective economic reasoning increasingly involves a multidisciplinary approach combining the best economic thinking with the best thinking in psychology, history, and politics.

Building on these principles, the Economics major is designed to foster rigorous analytical abilities, 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:

1. **General Education Core Requirements**: 8 courses (see above)

2. **Major Requirements**: 14 courses, as follows:
Not every course listed is taught every semester, and in any given semester other courses may be offered that fulfill this requirement.

Prerequisite courses (All Four)
Calculus
Microeconomics
Statistics for Business and Economics
Introduction to Systems and Dynamics

Required Economics Courses (All Four)
Economics of Global Business.
Advanced Mathematics for Economists.
Intermediate Macroeconomics.
Econometrics.

Economics Electives (Choose Five)
History of Economic Thought.
Ethics and Economics.
Poverty and Income Distribution.
Economics of Energy and the Environment.
Urban Economics.
Money and Banking.
Financial Crises.
Economic Development.

China Studies Courses (Choose One)
The Political Economy of East Asia: China's Development in a Comparative Perspective.
Contemporary Chinese Economic Issues.
Doing Business in China.

Calculus, required for the Economics major, also fulfills the Mathematics requirement of the core curriculum

3. **General Electives (including language courses):** 10 courses

Economics Majors' Sample Schedule

YEAR 1

	1	2	3	4
Fall	*Global Perspectives on Society I (including Writing Workshop)*	*Statistics for Business and Economics*	*Calculus*	Language Course or General Elective
Spring	*Global Perspectives on Society II (including Writing Workshop)*	*Microeconomics*	*Introduction to Systems and Dynamics*	Language Course or General Elective

YEAR 2

	1	2	3	4
Fall	*Global Perspectives on Culture I (including Writing Workshop)*	*Intermediate Macroeconomics*	*Advanced Mathematics for Economists*	Language Course or Science Course
Spring	*Global Perspectives on Culture II (including Writing Workshop)*	Economics Elective	*Economics of Global Business*	Language Course or Science Course

YEAR 3	1	2	3	4
Fall	Social Science Perspectives on China	*Econometrics*	Economics Elective	General Elective
Spring	Chinese Arts	Economics Elective	Economics Elective	General Elective

YEAR 4	1	2	3	4
Fall	General Elective	Economics Elective	China Studies Elective	General Elective
Spring	General Elective	General Elective	General Elective	General Elective

Additional Majors and Minors at New York University Shanghai

Requirements for an Additional or Double Major

Successful completion of an additional major requires completing all the courses listed under the major or track requirements for that major. This can be as many as twenty or as few as nine depending on the major.

The same requirements, including the maintenance of a minimum grade point average of 2.0, apply to the second major as to the first. In some cases, courses may be applicable to both majors. Normally no more than two courses may be approved for double counting. Courses listed as prerequisites for the major do not count toward this limit. Students must obtain written approval for the shared course(s) from the Associate Dean for Academic Affairs. The second major is declared in the same way as the first but not before the fall of the student's senior year.

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 complete two majors in the standard 128 credits. In addition, in some cases the Chinese language requirement, which consists of the equivalent of four semesters (the "Chinese Language Requirement"), further limits the ability to complete two majors.

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 the student is willing to invest to satisfy all of the requirements of the additional major. In some cases this might require more than 8 semesters of undergraduate study.

Regulations Pertaining to both Major and Minor

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 the College. 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 overall 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.

Requirements for Minors

Students may minor in subjects outside their major or disciplinary area. 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 NYUSH; a course taken outside the University will not normally be allowed to substitute for a minor requirement. No course for the minor may be taken as pass/fail. Student may not use Core Curriculum classes to fill minor requirements and may only double count one course used for minor requirements for their major or an additional minor requirement.

Students interested in one of the minors offered should consult with their advisor to plan a course of study that meets their needs. Each minor track consists of at least four 4-point courses. Prerequisite and disciplinary requirements cause some minors to require more than four classes.

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

Students should request approval for a minor in the spring of their sophomore year by completing the minor declaration form available in the Registrars (Office). Students that have approval for pursuing a minor receive preference in registering for classes that meet that minor's requirements over those that do not (and who do not need to take it for their major). Students may declare more than one minor but may only receive preferred enrolment for one. Students may declare a minor up to the last semester before graduation but should do it earlier to receive the benefits described above.

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.

The courses required for NYUSH Minors are:

Biology Minor
Students choose from two concentration areas for the Biology Minor:

A. Molecular and Cell Biology Minor:
Requirements:
> *Foundation of Science I (1+2)*
> *Foundation of Science II (3+4)*
> *Foundation of Science III (5+6)*
> *Applied Cell Biology*

B. Genomics and Bioinformatics Minor:

Requirements:

Foundation of Science I (1+2)
Foundation of Science II (3+4)
Foundation of Science III (5+6)
Introduction to Genomics and Bioinformatics
Microbiology and Microbial Genomics, or Genomics and Bioinformatics, or Systems Biology

Business Minor

Requirements:

Microeconomics
Economics of Global Business
Calculus
Statistics for Business and Economics
Principles of Financial Accounting
One of the following courses:
   Management and Organizations or
   Introduction to Marketing or
   Information Technology in Business and Society
   Competitive Advantage from Operations

Economics majors must complete two of the additional courses listed below to complete the minor within the double counting limits.

Foundations of Finance
Information Technology in Business and Society
Management and Organizations
Introduction to Marketing
Competitive Advantage from Operations

Chemistry Minor

Requirements:

Foundation of Science I (1+2)
Foundation of Science II (3+4)
Foundation of Science III (5+6)
Organic Chemistry I
Organic Chemistry II

Computer Science Minor

Requirements:

Intro to Computer Programming
Data Structures

Computer Organization and Architecture
And ONE course selected from the following:
    Operating Systems
    Introduction to Game Programming
    Digital Logic
    Computer Networks
    Parallel and Distributed Computing

Chinese minor

Requirements:
    16 Chinese language course points through at least the Advanced II level. *Elementary I* and *II* do not count toward fulfilling the minor requirements. Typical plan of study: *Intermediate I*, *Intermediate II*, *Advanced I*, and *Advanced II*.

Computer Science Minor

Requirements:
    Intro to Computer Programming
    Data Structures
    Computer Organization and Architecture
    And ONE course selected from the following:
        Operating Systems
        Introduction to Game Programming
        Digital Logic
        Computer Networks
        Parallel and Distributed Computing

Economics Minor

Requirements:
    Microeconomics
    Economics of Global Business
    Statistics for Business and Economics
    Intermediate Macroeconomics
    Two additional 4-point courses from the Economics elective list.

Global China Studies minor[3]:

Requirements:
    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 fulfilment of this minor.

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[3] In Process

Humanities Minor
Requirements:
>Four classes from the required and elective list of Humanities major courses.

Interactive Media Minor
Requirements:
>*Introduction to Physical Computing and Computational Media*
>*Communications Lab*
>Two classes from the Interactive Media elective list

Mathematics Minor
Requirements:
>Four 4-credit mathematics courses at the introductory calculus level or higher. Of current math offerings, Mathematics for Economists and Mathematical Functions would NOT count for the minor.

Natural Science Minor
Required:
>*Foundation of Science I (1+2)*
>*Foundation of Science II (3+4)*

Neural Science Minor
Requirements:
>*Foundation of Science I (1+2)*
>*Foundation of Science II (3+4)*
>*Foundation of Science III (5+6)*
>*Introduction to Neural Science*
>*Behavioral and Integrative Neuroscience or Cellular and Integrative*
>*Neuroscience*

Physics Minor
Requirements:
>*Foundation of Science I (1+2)*
>*Foundation of Science II (3+4)*
>*Foundation of Science III (5+6)*
>Two Physics elective courses

Part Five: Course Descriptions

BIOLOGY

BIOL-210 *Applied Cell Biology.* Understanding the fundamental methods for growing and studying cells—the smallest units of life—is basic to biology. This course introduces students to the methods used to study cell structure and function. In the laboratory, students study the fundamentals of cell biology and the experimental approaches used to examine the cell. Topics cover cellular, subcellular, and macromolecule localization; biochemical analysis of the cell; and cell culture techniques. Accurate record-keeping, reports, and presentations are emphasized. *Prerequisite CCSC-114*

BIOL-250 *Organismal Biology.* 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-114*

BIOL-251 *Biostatistics.* The ability to organize and analyze biological and behavioral science data is an essential research tool. This course provides an introduction to the use of statistical methods for analyzing this data. It introduces methods for describing and displaying data, the role and use of probability in describing and understanding living systems, hypotheses testing, and how to design experiments. Biological and behavioral science data and R—a free, open-source statistical software package—are used to gain proficiency with these tools. *Prerequisite BIOL-250*

BIOL-252 *Immunology.* Introduction to immunology, with attention to the genetics, molecular, and cell biology of antibody production; T-cell mediated immune responses; and innate immunity. Topics include the nature of antigens, hypersensitivities, transplantation, cytokines, autoimmunity, cancer, response to infection, and vaccines. *Prerequisite BIOL-250*

BIOL-258 *Evolution*. Evolution encompasses the patterns and mechanisms that explain the diversity of organisms we observe today and during the millions of years of the geological record. Evidence is reviewed that demonstrates the common ancestry of all living things, including humans, and the mechanisms, such as natural selection, that are required and sufficient to explain this pattern of ancestry, diversification, adaptation, speciation, and biogeographic distribution. The course also uses computer and mathematical modeling to explore the fundamentals of population genetics, molecular evolution, phylogenetic systematics, and the evolution of developmental systems. *Prerequisite BIOL-250*

BIOL-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. These data are allowing scientists to explore biological function on an unprecedented scale. Familiarity with the fields of genomics and bioinformatics, which impact society on all levels, is vital for the next generation of scientists. This survey course introduces students to a broad range of topics in the fields of genomics and bioinformatics through lectures and hands-on exercises that use fundamental principles of chemistry, computer science, mathematics, and physics to understand organismal diversity through analyses of genomes. *Prerequisite BIOL-250*

BIOL-262 *Systems Biology*. This course focuses on methods to integrate the diverse data of complex networks and pathways developed from genomics, proteomics, and metabolomics and to understand how they work together forming a system with definable phenotypes. Global approaches as well as mathematical and statistical modeling to data collection and analyses are performed. *Prerequisites BIOL-250 and 261*

BIOL-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-250*

BIOL-264 *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-250*

BIOL-265 *Microbiology and Microbial Genomics.* A comprehensive description of microbes, the most abundant and diverse organisms on the planet. Organized into four modules: the microbial cell, microbial genomics, microbial development and adaptation, and microbial interactions with the host and the environment. Through lectures and critical analysis of primary literature, students are led to realize how the advent of genomics has revolutionized microbiology, a scientific discipline that is more than a century old. *Prerequisite BIOL-250*

BUSINESS AND FINANCE

BUSF-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.*

BUSF-201 *Global Perspectives on Enterprise Systems.* This course compares the development of rich and "emerging market" societies over time. Through both macro- and micro-economic perspectives, students examine political, cultural, and economic similarities and differences of national enterprise systems, paying special attention to impacts of government, financial institutions, entrepreneurship and management. *Prerequisite: None.*

BUSF-202 *Foundations of Finance.* Prerequisites: Microeconomics and Statistics for the Social and Behavioral Sciences. A rigorous course that develops the basic concepts and tools of modern finance. It explores in detail basic concepts of return and risk with a view to understanding how financial markets work and how different kinds of financial instruments are valued. These instruments, including equities, fixed income securities, options, and other derivative securities, become vehicles for exploring various financial markets and the utilization of these markets by managers in different kinds of financial institutions to enhance return and manage risk. *Prerequisites BUSF-101 and ECON-150*

BUSF-203 *Industrial and Organizational Psychology.* Personal, social, and environmental factors related to people's attitudes and performance in industry and other organizations. Topics include personnel selection and evaluation, training and development, attitudes and motivation, leadership, group dynamics, organizational structure and climate, and job design and working conditions. *Prerequisite: None.*

BUSF-204 *Innovation and Design.* Creativity and innovation are the key drivers of success for many of today's leading companies. This course will focus on developing breakthrough design thinking, an essential element of such companies' creative culture. The course provides many opportunities to apply these new ways of thinking through class exercises and a course project, where students develop creative concepts for an assigned topic. *Prerequisite: None.*

BUSF-205 *Information Technology in Business and Society.* Students in this course learn the essential tools used by today's knowledge workers, including spreadsheet modeling and analysis and database querying. They learn to recognize the large-scale systems that run modern organizations, and how to evaluate IT investments in products, services, and systems. They learn about the economics of information pricing, technological lock-in, and network effects. And they discuss a set of special topics, which may include digital music, information privacy, data mining and digital piracy.

BUSF-206 *Doing Business in China.* Subjects include the legal environment and trends, the impact of China's WTO membership, product sourcing and quality control, sales and marketing, methods of operations, and intellectual property rights. Case studies focus on areas such as alternative energy, media, and real estate are identified. Emphasis is placed on the role of and the need for cultural and historical understanding of the market as a key to success. *Prerequisite: None.*

BUSF-250 *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: None.*

BUSF-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: None.*

BUSF-302 *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: None.*

BUSF-303 *Corporate Finance.* Prerequisite: Foundations of Finance. Helps students develop an analytical framework for understanding how organizations make investment and financing decisions. There is an emphasis on understanding the theory and its applications to the real world as well as appreciating the limitations of the tools in practical settings. Specific topics include capital budgeting, investment decision rules, discounted cash flow valuation, real options, cost of capital, capital structure, dividend policy, and valuation methods such as WACC and APV. *Prerequisite: BUSF-202*

BUSF-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*

BUSF-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*

BUSF-306 *The Chinese Financial System.* Course description to follow. *Prerequisite: BUSF-202*

BUSF-350 *Principles of 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: None.*

BUSF-351 *Competitive Advantage from Operations.* Designed to give students a better understanding of how firms can gain competitive advantage from their operations function. Typically this requires the firm to achieve, at a minimum, cost, quality, and ecological parity; responsiveness and adaptability to customer needs and desires; rapid time to market; process technology leadership; and sufficient and responsive capacity. A problem-solving framework is developed that enables students to undertake managerial and technical analysis that should result in the desired comparative advantage. Both service and manufacturing case examples are utilized. *Prerequisite: None.*

BUSF-352 *Mergers and Acquisitions.* This course presents the theories and empirical evidence on mergers, acquisitions and restructuring, and analyzes the effects of various policy options on the stock values of acquirer and target companies. Findings about the reaction of stock prices to information on control transactions are used to analyze the effects of various policy options in such transactions. Topics related to M&A include evaluating acquisition targets, methods of payment in acquisitions, acquisition strategies, the use of leverage in acquisitions and the effects of acquisitions on bond values, major legal issues, case law, and defensive measures against hostile acquisitions. The course combines lecture material, case analysis, quantitative and qualitative analysis, and

discussions of relevant news of such transactions. There is an emphasis on fundamental concepts of valuation and other areas of corporate finance related to M&As. *Prerequisite: BUSF-303*

BUSF-353 *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-303 and ECON-250*

CHEMISTRY

CHEM-201 *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-110*

CHEM-250 *Organic Chemistry II*. This is a continuation of *Organic Chemistry I*, with an emphasis on multifunctional organic compounds, including topics of relevance to biochemistry and biological systems, such as carbohydrates, amino acids, peptides, and nucleic acids. The course continues the emphasis on modern analytical methods that are the cornerstone of contemporary organic analysis, with added emphasis on their application to biology and biological chemistry. *Prerequisite CHEM-201*

CHEM-281 *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. *Prerequisite CHEM-201*

CHEM-282 *Biochemistry II.* Building on the lessons of Biochemistry 1, Biochemistry 2 emphasizes analysis of basic metabolic pathways, including glycolysis, electron transport, and oxidative phosphorylation, as well as mechanisms of metabolic regulation and integration. *Prerequisite CHEM-281*

CHEM-285 *Experimental Biochemistry.* Introduction to molecular analysis of biomolecules. Selected experiments and instruction in analytical techniques used in biochemical research, including chromatography, spectrophotometry, and electrophoresis; isolation and characterization of selected biomolecules; kinetic analysis of enzymatic activity; and analysis of protein-protein and protein-DNA interactions that direct basic biochemical pathways. *Prerequisite CHEM-282*

CHEM-301 *Physical Chemistry: Quantum Mechanics and Spectroscopy.* An introduction to quantum mechanics—general principles and applications to important model systems. Covers electronic structure of one- and many-electron atoms, theory of chemical bonding in diatomic and polyatomic molecules. Includes principles and applications of molecular spectroscopy: rotational, vibrational, electronic, and nuclear magnetic resonance. Elements of photochemistry are also included. *Prerequisites CCSC-114 and MATH-112*

CHEM-302 *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. *Prerequisites CCSC-114 and MATH-112*

CHEM-310 *Biophysical Chemistry.* Applications of physical and chemical principles to topics of biochemical and biological interest with an emphasis on the basic principles underlying biophysical techniques that are used to study important macromolecules such as proteins and nucleic acids. Topics include molecular spectro- scopic techniques such as light absorption, fluorescence, and circular dichroism, as well as nuclear magnetic resonance and vibrational spectroscopy. Applications of these methods to important biophysical, biochemical, and biological problems of current interest such as protein folding, imaging, and protein-DNA and protein-protein interactions are discussed. *Prerequisites CHEM-251, 282, and 301*

CHEM-312 *Organic Analysis.* Emphasizes the application of spectroscopic methods in organic chemistry in determining molecular structure, including proton and carbon NMR, infrared spectroscopy, ultravioletvisible spectroscopy, modern methods of mass spectroscopy, and chiroptical spectroscopy. This course is particularly suitable for chemists interested in pharmaceutical fields of research and development, and applications to studies of the chemistry, properties and interactions of biologically important molecules. *Prerequisite CHEM-251*

CHEM-350 *Physical Chemistry Laboratory.* Introduction to the principles and practices of experimental methods widely used in analytical and research laboratories. Emphasizes understanding of background physicochemical theory, as well as capabilities and limitations of methods and interpretations of data. Covers instrumental methods, such as UV/visible spectroscopy, FT-IR, NMR, and fluorescence, for the systematic characterization of compounds and the use of interfaced computers for data collection and spreadsheet analysis. Studies also include an introduction to computer modeling of molecular properties. Optional experiments include fluorescence studies of protein denaturation and laser studies of excited state kinetics. *Prerequisites CHEM-301 and CHEM-302*

CHEM-410 *Inorganic Chemistry.* Studies of methods in inorganic chemistry that make use of symmetry to describe bonding and spectra of inorganic compounds with an interdisciplinary emphasis whenever feasible. Reactions and kinetics are also discussed for inorganic, organometallic, and bioinorganic compounds. Selected topics in main group chemistry are also included. *Prerequisites CHEM-201, 301 and 302*

CHINESE LANGUAGE

CHIN-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.*

CHIN-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*

CHIN-111 *Elementary Chinese for Advanced Beginners.* This course is the first part of a one-year elementary-level Chinese course designed for students who can understand and speak conversational Chinese related to daily-life situations, but have not learned to read/write Chinese characters. 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: None.*

CHIN-201 *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*

CHIN-202 *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 (7) to continue being acquainted with aspects of Chinese culture and society related to the course materials. *Prerequisite CHIN-201*

CHIN-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*

CHIN-211 *Intermediate Chinese for Advanced Beginners*. This course is designed for students who have at least one year of Chinese language learning at NYU and who,

before registering for this course, already command above-elementary aural-oral proficiency in Mandarin Chinese. The objectives are: to be able to obtain information from extended written passages; to both express and expound on, in relative length, feelings and opinions on common social and cultural topics; to expand vocabulary and learn to decipher the meaning of compound words; to develop reading comprehension of extended expository and simple argumentative passages; to solve non-complex textual problems with the aid of dictionaries; 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; to continue to become acquainted with aspects of Chinese culture and society related to the course materials. *Prerequisite CHIN-111*

CHIN-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*

CHIN-401 *Classical Chinese I* 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*

CHIN-402 *Classical Chinese II* 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*

COMPUTER ENGINEERING

CENG-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: None.*

CENG-202 *Computer Architecture.* The course introduces the principles of computer organization and basic architecture concepts. It discusses the basic structure of a digital computer and study in details formal descriptions, machine instruction sets design, formats & data representation, addressing structures, mechanization of Procedure calls, memory management, Arithmetic and Logical unit, virtual and cache memory organization, I/O processing and interrupts, the fundamentals of reliability aspects. The labs emphasize experiential learning of computer organization and architecture concepts, and require students to use learned knowledge to create and build prototypes and evaluate their performance. *Prerequisite: CSCI-101*

CENG-213 *Database Systems.* 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. *Prerequisite: CSCI-101*

CENG-302 *Compilers.* Topics include: structure of one-pass and multiple-pass compilers, symbol table management, lexical analysis; traditional and automated parsing techniques including recursive descent and LR parsing; syntax-directed translation and semantic analysis, run-time storage management, intermediate code generation; and introduction to optimization, co CSCI-101 *& CSCI-370*

CENG-303 *Parallel and Distributed Computing.* This subject aims to help students to get the most out of parallel and distributed computer systems, i.e. to understand the interaction between hardware and software parts of the system, to understand the power and limitations of parallel and distributed systems and to understand the beneficial and challenging aspects of parallelism. Upon completion of this subject the student should be able to understand the fundamental aspects of parallel and distributed processing and the theoretical limitations of parallel computing such as intractability, become familiar with taxonomies of parallel systems and performance measures for parallel systems, and write efficient parallel application program. *Prerequisite: CENG-202*

CENG-304 *Computer Security.* This course covers cryptographic systems. Topics: Capability and access control mechanisms, authentication models, protection models. Database and operating system security issues, mobile code, security kernels. Malicious code, Trojan horses and computer viruses. Security policy formation and enforcement enforcement, legal aspects and ethical aspects. *Prerequisite: CSCI-215*

CENG-306 *Intelligent Systems.* This course gives an introduction to artificial intelligence. The students will learn about intelligent agents that can make near-optimal decisions in a timely manner with incomplete information and limited computational resources. The course will address search with single and multiple agents, Markov decision processes, reinforcement learning, and tracking. The course includes problem solving and search algorithms, reasoning and fuzzy and probabilistic methods, pattern recognition and neural networks, and genetic algorithms and a brief overview of natural language processing and computer vision. The course will provide an engineering context to the mind, psychology, and neuroscience. *Prerequisite: CENG-202*

CENG-350 *Embedded Systems.* This course presents an overview of Embedded Systems covering a selection of topics including 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: CENG-202*

CENG-351 *Computer Networks.* The course introduces the basic concepts of computer and communication networks, like flow control, congestion control, end-to-end reliability, routing, framing, error-recovery, multiple access and statistical multiplexing. In-depth presentation of the different networking layers, with emphasis on the Internet reference model. Protocols and architectures such as the TCP, IP, Ethernet, wireless networks etc. are described in order to illustrate important networking concepts. Introduction to quantitative analysis and modeling of networks. The labs cover basic concepts of computer networking and applications, and require students to use existing networking APIs to create and build computer network prototypes and real-life applications. *Prerequisite: CSCI-101*

CENG-400 *Senior Capstone Design Project I. Prerequisite: Senior Standing.*

CENG-401 *Senior Capstone Design Project II. Prerequisite: COMPE-400*

COMPUTER SCIENCE

CSCI-101 *Introduction to Computer Science.* A first course in computer programming, primarily for computer science and computer engineering majors but also suitable for students of other scientific disciplines. Experience is acquired through programming projects in a high-level programming language (currently Python). The course will cover functions, decision structures, loops, files, exceptions, lists, string processing, dictionaries and sets, and additional selected programming topics. The course will also examine recent trends in computer science. Programming assignments. *Prerequisite: None*

CSCI-210 *Data Structures.* Use and design of data structures, which organize information in computer memory. Stacks, queues, linked lists, binary trees: how to implement them in a high-level language, how to analyze their effect on algorithm efficiency, and how to modify them. Programming assignments. *Prerequisite: CSCI-101*

CSCI-215 *Operating Systems.* This course discusses the operating systems that run computers. The course is designed to familiarize students with operating systems, user and program interfacing concepts. Topics include an overview of user interface, process structure, creation and context switching; system calls; process cooperation, memory management; virtual memory, I/O management; interrupt handling, file structures; directories, fault-tolerance. *Prerequisite: CSCI-210 & CENG-202*

CSCI-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: MATH-237 & CSCI-210*

CSCI-222 *Introduction to Game Programming.* 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: CSCI-101*

CSCI-304 *Network Security.* This course covers reviews networking. Topics: Basic notations of confidentiality, integrity, availability; cryptographic systems, coding and decoding messages. Cryptographic protocols for privacy, integrity, key exchange and access control. TCP/IP security; Firewalls, IPSec; secure ecommerce. Intrusion detection, prevention, response. *Prerequisite: CSCI-308*

CSCI-308 *Computer Networking.* The course introduces the basic concepts of computer and communication networks, like flow control, congestion control, end-to-end reliability, routing, framing, error-recovery, multiple access and statistical multiplexing. In-depth presentation of the different networking layers, with emphasis on the Internet reference model. Protocols and architectures such as the TCP, IP, Ethernet, wireless

networks etc. are described in order to illustrate important networking concepts. Introduction to quantitative analysis and modeling of networks. The labs cover basic concepts of computer networking and applications, and require students to use existing networking APIs to create and build computer network prototypes and real-life applications. *Prerequisite: CSCI-101*

CSCI-310 *UNIX System Programming.* This course covers programming and system administration of UNIX systems. Also covered: Shell programming, special purpose languages, UNIX utilities, UNIX programming tools, systems programming and system administration. *Prerequisite: CSCI-101*

CSCI-323 *Computer Graphics.* This course introduces the fundamentals of computer graphics with hands-on graphics programming experiences. Topics include graphics software and hardware, 2D line segment-scan conversion, 2D and 3D transformations, viewing, clipping, polygon-scan conversion, hidden surface removal, illumination and shading, compositing, texture mapping, ray tracing, radiosity and scientific visualization. *Prerequisites: CSCI-101, MATH-110 & MATH-230*

CSCI-330 *Computer Vision.* n important goal of artificial intelligence is to equip computers with the capability to interpret visual inputs. Computer vision and scene analysis is an AI area that deals with constructing explicit, meaningful descriptions of physical objects from images. It includes many techniques from image processing, pattern recognition, geometric modeling and cognitive processing. This course introduces the many techniques and applications of computer vision and scene analysis. *Prerequisites: CSCI-101; MATH-110*

CSCI-340 *Introduction to Databases.* Modeling the information structure of an enterprise. Logical design and relational database implementation using a tool such as Visio. Relational algebra and SQL as implemented in representative systems, such as Microsoft Access and Oracle. Normalization and denormalization. Introduction to online analytical processing, physical design, query processing and optimization, recovery, and concurrency. *Prerequisite: CSCI-101*

CSCI-358 *Theory of Computation.* Takes a mathematical approach to studying topics in computer science, such as regular languages and some of their representations (deterministic finite automata, nondeterministic finite automata, regular expressions) and proof of nonregularity. Context-free languages and pushdown automata; proofs that languages are not context-free. Elements of computability theory. Brief introduction to NP-completeness. *Prerequisite: CSCI-220*

CSCI-360 *Machine Learning and Data Mining.* This course introduces the field of machine learning and data mining. It covers standard machine-learning techniques, such as decision trees, nearest neighbor, Bayesian methods, support vector machines and logistic regression. The course also addresses methods for evaluating and comparing machine learning techniques. *Prerequisite: CSCI-210; MATH-110*

CSCI-370 *Object-Oriented Programming.* Object-oriented programming has emerged as a significant software development methodology. This course introduces the important concepts of object-oriented design and languages, including code reuse, data abstraction, inheritance, and dynamic overloading. Covers in depth those features of Java and/or C++ that support object-oriented. Significant programming assignments stressing object-oriented design. *Prerequisite: CSCI-101*

CSCI-372 *Artificial Intelligence.* Many cognitive tasks that people can do easily and almost unconsciously have proven extremely difficult to program on a computer. Artificial intelligence tackles the problem of developing computer systems that can carry out these tasks. Focus is on three central areas in AI: representation and reasoning, machine learning, and natural language processing. *Prerequisite: CSCI-210; MATH-110*

CSCI-378 *Introduction to Cryptography.* Provides an introduction to the principles and practice of cryptography and its application to network security. Topics include symmetric-key encryption (block ciphers, modes of operations, AES), message authentication (pseudorandom functions, CBC-MAC), public-key encryption (RSA, ElGamal), digital signatures (RSA, Fiat-Shamir), authentication applications (identification, zero-knowledge), and others, time permitting. *Prerequisite: MATH-237& CSCI-220*

CSCI-402 *Advanced Algorithms.* This course covers techniques in advanced design and analysis of algorithms. Topics: Amortized analysis of algorithms. Advanced data structures, binomial heaps, Fibonacci heaps, data structures for disjoint sets, analysis of union by rank with path compression. Graph algorithms: elementary graph algorithms, maximum flow, matching algorithms. Randomized algorithms. Theory of NP completeness and approach to finding (approximate) solutions to NP complete problems. Selected additional topics that may vary. *Prerequisite: CSCI-220.*

CSCI-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.

CSCI-420 Senior Project. At the beginning of the semester, each student will propose a senior project plan. Most projects will be software intensive, with possible integration with databases, smart phones, gaming platforms, or other technologies. The instructor will likely suggest revisions to the project plan Students were present the proposal, progress, and final project to the class.

CORE CURRICULUM

Cultural Foundations

CCCF 101 *Global Perspectives on Culture I* The first of a two-semester course that examines ten problems regarding the ways in which humans imagine and represent, for themselves and for others, their relation to their worlds—the environment they inhabit, the communities they form a part of, the groups with which they communicate. Three questions will orient students' consideration of these problems.

- What does it mean to "represent" something to someone?
- What is the *social* function of what we represent to others?
- Why, how, and with what consequences do we *interpret* and *respond affectively to* (enjoy, detest, feel moved by, become angered at) what is represented for us, or what we represent for someone else?

Each week, the entire second-year class will participate in a single two-hour class taught by the faculty member of record. Students will be divided into 25-student sections that meet in a one-hour class taught by global postdoctoral Global Academic Fellows. Students will also be divided into 15-student writing workshops that meet twice weekly for a one-hour class taught by experts in expository writing.

In the fall The course will treat the following five problems. Each problem will be addressed from a range of perspectives, and by means of different sorts of texts, drawn from different milieus and periods, though presented in a roughly chronological order.

The five central topics for fall are as follows:
1. What is a story? (Fundamentals of narrative: aetiologies, creation myths; reliability; the neurophysiology and sociobiology of the imagination.)
2. What is an image, and what can an image *do*? (Representation: Plato against Sophism; what is a "real" depiction of the world; who gets to depict, who gets to interpret; visual image, aural image, writing.)
3. What is a "world"? (Designation conventions, notion of environment, culture as a way of mediating/designating an environment for a group.)
4. "Culture" and the foundations of globalization: can "culture" be anything but *local*? (The representation of worlds, local and foreign, secular and religious, in the pre-modern and early modern period.)
5. What can culture make humans *do*, why, and to whose benefit or detriment? (Cultural forms as devices of community formation, destruction; as instruments of control or of liberation; instrumental conceptions of culture; modernity and culture for culture's sake.)

Prerequisite: None.

CCCF 102 *Global Perspectives on Culture II* The second of a two-semester course that examines ten problems regarding the ways in which humans imagine and represent, for themselves and for others, their relation to their worlds—the environment they inhabit,

the communities they form a part of, the groups with which they communicate. See CCCF-101 for the structure of the course.

The five central topics for spring are as follows:
1. What is an animal to a human, and why? (Comparative consideration of the boundaries different societies draw, in different media, at different times, between human animals and non-human animals; culture as a vehicle for establishing human-non-human distinctions.)
2. Genre, interpretation, and enjoyment: do rules travel? (Comparative cultural analysis: what is a convention? Epic and foundation.)
3. What in the world is "literature"? (Origins of the concept; literacy, representation, elites; translation: comparative early literatures.)
4. What in the world is "visual art"? (Origins of the concept; literacy, representation, elites; translation: comparative early visual studies.)
5. The Work of Culture in the Age of Digital Reproduction: can cultural forms make the future?

Prerequisite: CCCF-101.

CCCF-120 *Chinese Art and the Modern World.* A thematic introduction to Chinese art from the fifteenth century to the present, with special attention to its interaction with the rest of the world. Media include architecture, painting, porcelain, print, and installations. Topics include Chinese gardens in the West, Chinese watercolors for international trade, realism and socialist realism, and ink play and abstract expressionism. *Prerequisite: None.*

CCCF-121 *Chinese Cinemas.* The cinemas of mainland China, Hong Kong, and Taiwan have undergone a renaissance in the last 20 years. This course examines the cultural influences on these cinemas, their aesthetic forms and relationship to other media, and the relationship that these cinemas bear to each other. Directors studied include Hou Hsiao-Hsien, Chen Kaige, and Zhang Yimou. *Prerequisite: None.*

CCCF-122 *China: Cultures and Contexts*. More than a great books survey, this course seeks to bring students to a critical reading of some of the foundational texts that undergird China as a cultural and moral concept. In trying to understand and appreciate these texts, we must ask ourselves why they have commanded such a high degree of attention and respect by generations upon generations of people, who not only inherited these texts as part of their traditions, but also strove to redefine and reinvent these traditions through rigorous rereading and reinterpretation. In what ways do these texts continue to speak to us as moderns (or "postmoderns"), and to those outside the real or perceived Chinese world? To what extent do these old, even ancient, texts keep informing us when we are brought to the task of thinking and rethinking what it is to be human? *Prerequisite: None.*

CCCF-123 *Chinese Literature in the 20th Century.* A survey and critical examination of the concepts, institutions, canons, debates, experiments, and actions that gave rise to

modern and contemporary Chinese literature. The course covers a variety of genres of literature in the People's Republic of China, Taiwan, and Hong Kong. The primary goal of the course is to familiarize students as much as possible with the most representative works of 20th-century China. Students will also explore relevant topics in historical, sociological, and cultural studies of modern China, from a literary perspective. *Prerequisite: None.*

CCCF-124 *Chinese Music from Antiquity to the Present.* This course explores the development of Chinese music from antiquity and the Tang period to the present day, with a particular focus on the role that music plays in Chinese society. Genres to be studied include folk song, opera, teahouse music, temple and procession music, as well as more contemporary forms, such as avant-garde and rock music. Questions to be considered include the gendered roles of male and female performers, the relationship between rural and urban traditions, as well as both external influences on Chinese music and the influence of Chinese music outside of China. *Prerequisite: None.*

CCCF-125 *Chinese Theatrical Traditions.* This course surveys Chinese theatrical traditions from their pre-Tang origins to the present day. It focuses on three theatrical forms: 14th- century *zaju* plays, 16th- and 17th-century *chuanqi* plays, and recent theater from China, Taiwan, and Hong Kong. *Prerequisite: None.*

CCCF- 126 *Contemporary Chinese Art in Shanghai*. China's contemporary art scene has exploded in the past few decades. This course surveys the main developments in Chinese art since 1949. It includes guest lectures and visits to public museums, galleries and artists' studios. *Prerequisite: None.*

CCCF-127 *Paper Art: History and Practice.* Beginning with the Chinese arts of Zhezhi (paper folding) and Jianzhi (paper cutting) the paper craft movement has roots on all continents. This course reviews the history of both Chinese and international traditions, in addition to examining contemporary practices. Additionally, students will have hands-on experience through weekly exercises in the fundamentals of paper engineering techniques and basic conductive materials, creating movable books and sculptures.

Foundations of Science courses

Foundations of Science I

CCSC-101 & 102 *Foundations of Science 1.* "Energy and Matter;" provides a comprehensive introduction to these two fundamental concepts, which are so famously unified in the equality $E=mc^2$. Following an introduction to the physical sciences, it focuses on velocity, acceleration, forces, and energy, while simultaneously introducing students to atoms and molecules. Chemical reactions are examined, and the energy changes associated with them are investigated via a thorough analysis of the three laws of thermodynamics. Laboratory exercises focus on the guiding principles of the scientific method and an introduction to experimental design, data analysis, and scientific presentation, including technical writing.

CCSC-103 & 104 *Foundations of Science 2,* "Forces and Interactions," introduces students to fundamental forces, including gravity and electromagnetic forces. Concurrently, atomic theory, the theory of molecular bonding, and atomic and molecular structures and shapes, in which forces and energy play a role, are investigated. Students apply these concepts to understanding molecules related to the life sciences. Laboratory exercises focus on acquisition of computer skills and modeling with a continued emphasis on technical presentation. Focused disciplinary tutorials in biology, chemistry, and physics provide an opportunity for in-depth analysis and discussion of classic papers, enhanced understanding of fundamental concepts, and development of practical skill sets. Weekly discussion sections are designed to hone proficiency at solving problems in a collaborative, team environment.
Co-requisite: MATH-110

Foundations of Science II

CCSC-105, 106, & 107 *Foundations of Science 3,* "Systems in Flux," focuses on changes in systems in the physical and living worlds. Capacitors, current, and basic circuits are explored with an eye toward understanding their applications to chemical reactions and the behavior of living cells. The rates and directions of chemical reactions are explored as chemical kinetics and chemical equilibrium are investigated with a special focus on acid-base chemistry. These fundamental physical and chemical principles are used to describe basic cellular monomers and polymers including DNA, RNA, and protein, and the sequence of events that leads to information flow and its regulation in the cell nucleus. They are also applied to macroscopic systems found in the biosphere. Laboratory exercises focus on classic scientific experiments that are designed to sharpen basic laboratory skills.

CCSC-108, 109, & 110 *Foundations of Science 4,* "Form and Function," explores a question applicable to all branches of science: How does the form or shape of a physical entity set its function? This leads to another question: If a specific function is desired, can a form or shape be engineered or modified to execute or improve that function? The course examines the form/function concept in magnetic and electrical fields, the behavior and design of small molecules, and the activity of proteins as the workhorse in biological systems. Laboratory exercises require students to design experiments related to crystals and crystallography, and to examine chemical forms at the macroscopic and microscopic levels. Focused disciplinary tutorials in biology, chemistry, and physics provide an opportunity for in-depth analysis and discussion of classic papers, enhanced understanding of fundamental concepts, and development of practical skill sets. Weekly discussion section are designed to hone proficiency at solving problems in a collaborative, team environment.
Prerequisite: CCSC-104

Foundations of Science III

CCSC-111 & 112 *Foundations of Science 5*, "Propagating Change," focuses on disturbances in physical and living systems that bring about change. In physics, disturbances generate waves that are associated with the transmission of light and sound. These same waves generate responses in living organisms as sensory systems detect them, including nerves in some species. Electromagnetic waves, interactions among light, matter, and living systems, and the responses of nerve cells are examined. Changes during the maturation of organisms are explored at the molecular level as well. In addition, evolution is introduced as the fundamental means of propagating change that gives rise to new species in the living world. Laboratory exercises fuse physics, chemistry and biology as students engage in projects related to recombinant DNA technology, gene cloning, and protein synthesis and characterization.

CCSC-113 & 114 *Foundations of Science 6*, "Oscillations," examines how repetitious or cyclical events, although presumably predictable, are associated with inherent uncertainty in their outcomes. This is embodied in physics and chemistry in quantum theory and the Heisenberg uncertainty principle. But living systems, especially when populations are studied, provide countless examples of oscillatory events that possess inherent uncertainty when scientists try to predict outcomes. Indeed, this final chapter in Foundations of Science challenges students to consider the very nature of studying complex problems and systems and assessing the uncertainty associated with the scientific method. The laboratory exercises involve collaborative projects in which teams of students must apply their acquired knowledge and skills to design experiments focused on answering a question or solving a problem, keeping uncertainty in mind as they report their results and discuss additional data that would be needed to provide a better answer or solution.
Prerequisite: CCSC-110

Experimental Discovery in the Natural World.

CCEX-111 *The Domain of Crystals.* Knowing the three-dimensional structure of a molecule is important for understanding its functional properties. Is it indeed possible to visually analyze a molecule and use the observed experimental data to build a three-dimensional model? This structural information can be obtained using a variety of analytical techniques such as X-ray crystallography, and can lead to significant breakthroughs in pharmaceutics. Students grow crystals of different colors, shapes, and sizes and harvest them for physical and morphological characterization in order to understand the basic principles of atomic structure and theory, chemical bonding and reactions, thermochemistry, periodicity, and solution chemistry. *Prerequisite: None.*

CCEX-112 *Mutations and Disease.* The very word "mutations" tends to raise fear and apprehension since it is so often associated with physical deformities or exposure to harmful agents, including radiation. Perhaps such fear is warranted since many human diseases, including cystic fibrosis and cancer, are caused by "mutations", which are mere changes in the genetic information in DNA. Starting with basic concepts, this course explores important cellular macromolecules, such as DNA, and proteins as well as their three-dimensional structures that endow them with their specific functions. In fact,

understanding how mutations induce alterations to macromolecular structures often sheds light on the characteristic symptoms and prognoses of some human diseases and syndromes. Laboratory projects, which focus on introduction to computer modeling, emphasize visualizing in a three-dimensional environment the normal and altered macromolecules associated with some common but complex human maladies. *Prerequisite: None.*

CCEX-113 *Brain and Behavior.* The relationship of the brain to behavior, beginning with the basic elements that make up the nervous system and how electrical and chemical signals in the brain work to effect behavior. Using this foundation, we examine how the brain learns and how it creates new behaviors, together with the brain mechanisms that are involved in sensory experience, movement, hunger and thirst, sexual behaviors, the experience of emotions, perception and cognition, memory and the brain's plasticity. Other key topics include whether certain behavioral disorders like schizophrenia and bipolar disorder can be accounted for by changes in the function of the brain, and how drugs can alter behavior and brain function. *Prerequisite: None.*

CCEX-114 *The Molecules of Life.* Our lives are increasingly influenced by the availability of new pharmaceuticals, ranging from drugs that lower cholesterol to those that influence behavior. We examine the chemistry and biology of biomolecules that make up the molecular machinery of the cell. Critical to the function of such biomolecules is their three-dimensional structure that endows them with a specific function. This information provides the scientific basis for understanding drug action and how new drugs are designed. Beginning with the principles of chemical bonding, molecular structure, and acid-base properties that govern the structure and function of biomolecules, we apply these principles to study the varieties of protein architecture and how proteins serve as enzymes to facilitate biochemical reactions. We conclude with a study of molecular genetics and how recent information from the Human Genome Project is stimulating new approaches to diagnosing disease and designing drug treatments. *Prerequisite: None.*

Science, Society, and History. 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. *Prerequisite: None.*

CCST-121 *The Atom and Energy.* $E=mc^2$: One simple equation encapsulates the power to grant life and death in equal measure. Life associated with fusion in the sun, radiation therapy, and nuclear energy; death via nuclear bombs and nuclear disasters. This course uses nuclear physics as a prism for exploring science as a human endeavor, focusing on the physics of the atomic nucleus and its technological applications. Arguments for and against nuclear power plants are analyzed, while the power and threat of nuclear weapons are assessed. The international treaties designed to limit the spread of nuclear weapons are scrutinized, emphasizing the challenges that lawmakers and citizens face in determining and guiding the uses of nuclear power as we grapple with the moral responsibility that all of us—scientists, politicians, and citizens—must bear for ourselves,

our nations, and ultimately, for humanity. *Prerequisite: None.*

CCST-122 *Life in the Universe.* Why is Earth the only object in the solar system with obvious signs of life? How did the building blocks of life form on Earth? What is the likelihood that there are other forms of life out there? This course addresses these questions and more, by covering the chemical evolution of the Universe, the formation of our solar system, the search for and study of extra-solar planets, and the possible cosmological implications of life's existence. *Prerequisite: None.*

CCST-123 *State and Fate of the Earth.* What is the current state of Earth in terms of human well-being and human impact on Earth's natural systems? Issues such as energy, CO2, climate, agriculture, water, and material fluxes are intricately tied together as a global system that has expanded by about 3% per year. This growth rate will lead to a world in 2050 in which the average world citizen will have a life approximately equal to that of the average European or Japanese today. Will this be possible and what will be the implications for the issues above? In this inquiry-based seminar, substantial portions of the course will require students to conduct research by locating, using, and sharing technical papers and data bases, synthesizing facts and viewpoints, making presentations, and writing short technical papers that will be peer-reviewed by the other "researchers" in the class. The course includes field trips relevant to the topics above. *Prerequisite: None.*

CCST-124 *Social Issues in the New Biosciences.* While the 20th century has often been characterized as the Century of Physics, many have already named the 21st century as the Century of Genetics. Important markers highlight the speed and drama of the molecular genetic revolution. These include the technique of somatic nuclear cell transfer (with the realization of mammalian cloning and the specter of human cloning) and germ-line gene therapy (with its specter of altering the genetic makeup of future generations). Alongside these markers is the promise of stem cell cures for many human ailments and diseases, and DNA identification technology to exonerate the innocent and convict the guilty. But this is only the beginning, since the newest developments promise to go far beyond "cure" to delve into human "enhancements" of mental acuity and physical prowess. This course examines these and other developments, lodging the heated debates that each generates in both social and cultural histories and current incarnations. *Prerequisite: None.*

CCST-125 *Interconnected: The History and Theory of Networks*. Since the formation of trade routes connecting early civilizations, networks have been central to human exchange. Silk, jade, gold, and other goods, as well as the cultural elements of language, art, scientific discovery, philosophy and religion traveled the 6,500 km between southeast Asia and southern Europe on an elaborate system of trails, roads and waterways. This course will explore the development of several human made networks beginning with these early trade routes. Further consideration will be given to the construction of transcontinental railways, the development of electrical telegraph and telephone systems, in addition to the evolution of modern digital communication platforms such as the world wide web. The cultural conditions that encouraged the emergence of these networks, as well as the social outcomes resulting from their adoption, will both be explored through

readings and critical dialog. Students will become familiar with: economic principles; network theories and topologies; the development and standardization of protocols; methods for encoding information; concerns about infrastructure, logistics, and security; as well as legislation governing information ownership, privacy, and censorship. Students will also be asked to consider the future of networks as it relates to themes such as crowd-sourcing, software-defined networks, and the Internet of Things. *Prerequisite: None.*

Social Foundations

CCSF-101 & 102 *Global Perspectives on Society* **I and II**
In this two-semester course, we will examine ten central questions concerning life as a human being. Each topic will be engaged through the close study of several texts that have been recognized as important over the course of history. The texts will reflect contrasting perspectives of different individuals, cultures, and time periods.

While studying each topic, students will be encouraged to consider, and to revisit, three central questions:

- When we speak about the world, present or past, how do we know that things are "true"?

- When we speak about ethical duties, is everything contextual, relative, and socially constructed, or are there "universals"?

- When we speak about "great books," why and in what ways do certain texts acquire special significance?

The format of the course will follow a weekly pattern. On two days, students will be divided into 25-student sections that meet in a 75-minute class taught by Global Postdoctoral Fellows.   On a third day, the entire first-year class will participate in a single 75-minute class taught by the Vice Chancellor. Students will also be divided into 15-student writing workshops that each meet in two 75-minute classes a week taught by experts in expository writing.

The ten central topics are as follows:

Fall Term:

Strangers and Strangers (duties not to harm, duties to help, etc.)
Property, Labor, and Economic Exchange
Sovereignty and Law (natural law, positive law, rights, etc.)
War, Collective Violence, and International Relations
Humans, Other Species, and the Environment
Prerequisite: None.
Spring Term:

Gods and Mortals (creation myths, sacrificial cultures, reincarnation, etc.)
Women and Men (gender, sexuality, role differentiation, etc.)
Parents and Children (families, communes, duties of care and obedience, etc.)
Races, Ethnic Communities, and Nations
The Human Body, Health, and Medicine
Prerequisite: CCSF-101

CCSF-120 *The Rise of Modern China.* This course focuses on China's social and intellectual developments in its modern period (e.g., late Qing Dynasty to the present). The primary objectives of this course are (1) to understand the different aspects and the historical trajectories of modern Chinese thought; (2) to examine the forces driving China's move from its imperial age to its modern age; (3) to discuss the impact and influence of the ideas of Sun Yat-sen, Mao Zedong, Deng Xiaoping, Jiang Zemin, and Hu Jintao. Three interconnected themes will be highlighted throughout the course, namely, China's modernization process, the revitalization of China as an ancient civilization, and its pursuit of socialist ideals. *Prerequisite: None.*

CCSF-121 *China's Development in a Comparative Perspective.* 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: None.*

CCSF-122 *Traditional Chinese Wisdom and Its Transformation in Modern Times.* This course provides a brief survey of Chinese philosophy from the pre-Qin period to the present. To capture the quintessence of traditional Chinese wisdom, it focuses on the three most influential schools of thought in ancient China, namely Confucianism, Taoism, and Buddhism. Students examine the evolution of Confucianism from classic Confucianism (Confucius, Mencius, and Xunzi) to Neo-Confucianism in the Song and Ming dynasties (Zhu Xi and Wang Yangming), that of Taoism from classic Taoism (Laozi and Zhuangzi) to Neo-Taoism in the Wei and Jin dynasties (Wang Bi and Guo Xiang), as well as the sinicization of Buddhism, taking Zen Buddhism as a paradigm case. In modern times, against the background of the exchange between Chinese and Western cultures, traditional Chinese wisdom obtained a new lease on life through the creative work of modern Chinese thinkers. Under the heading of the modernization of traditional Chinese wisdom, students examine the three most prominent schools of 20th-century Chinese philosophy, namely contemporary Neo-Confucianism (Liang Shuming, Xiong Shili, He Lin, and Mou Zongsan), the Tsinghua school of realism (Jin Yuelin, Feng Youlan, and Zhang Dainian), and Chinese Marxism (Mao Zedong, Feng Qi, and Lu Zehou). *Prerequisite: None.*

ECONOMICS MAJOR

ECON-150 *Microeconomics.* Basic microeconomic principles: applications of supply and demand analysis; consumer choice; theory of the firm under perfect and imperfect competition; game theory and strategy; and theory and policy issues in market imperfections, such as monopoly and antitrust, externalities and regulation, imperfect information and regulation, income distribution, etc. *Prerequisite: None.*

ECON-201 *Advanced Mathematics for Economists.* In order to enter the economics major, students must have completed Calculus and Mathematics of Systems and Dynamics. This course builds on those courses by introducing students to the way in which advanced mathematical techniques in calculus and statistics are applied to empirical problems in economics. *Prerequisite: MATH-160*

ECON-202 *Intermediate Macroeconomics.* Study of aggregate economic analysis with special attention paid to the determination of the level of income, employment, and inflation. Critically examines both the theories and the policies associated with them. *Prerequisites: ECON-150 & 201*

ECON-203 *History of Economic Thought.* Begins with a short introduction to mercantilism, then moves to the classical school, examining the contributions of its main figures (Smith, Malthus, Ricardo, Mill, and others). Ends with Marx's reaction to classical doctrines and the Marginalist Revolution of the late 19th century, which set the foundation of modern neoclassical economics. Conceptually, covers a variety of topics but focuses on two main entities: first, the normative aspects of the debate on the factors determining the value of commodities and the related issue of the principles that ought to govern the allocation of wealth; and second, various theories of economic growth and historical change, including predictions made on the future of capitalism. *Prerequisite: ECON-150*

ECON-204 *Ethics and Economics.* Study of the interface between ethical and economic theories. Specific topics covered include a brief overview of various ethical ideas, an analysis of the ethical presuppositions of modern economic theory (especially welfare economics), utilitarian ethics, the moral status of free exchange, the ethical implications of imperfect knowledge between bargaining parties, cost-benefit analysis and human rights, the economic content of the "general welfare," and laissez-faire. *Prerequisite: ECON-150*

ECON-205 *Poverty and Income Distribution.* Defines poverty and welfare. Analyzes who the poor are, why some people are rich and others poor, equality of opportunity, income and status, inequality, trends in the degree of inequality, government's role in income distribution, and international comparisons of inequality. *Prerequisite: ECON-150*

ECON-206 *Economics of Energy and the Environment.* Economic analysis of major policy issues in energy and the environment, both domestic and international. Emphasis

on market solutions to various problems and market limitations in the allocation of environmental resources. Energy issues focus on OPEC and world oil markets, with attention to reducing oil import vulnerability; taxation and regulation of production and consumption; conservation of natural resources; and the transition to alternative energy sources. Environmental issues include policies to reduce pollution. Substantial attention is paid to global warming caused by consumption of fossil fuels. *Prerequisite: ECON-150*

ECON-207 *Urban Economics*. The city as an economic organization. Urbanization trends, functional specialization, and the nature of growth within the city; organization of economic activity within the city and its outlying areas, the organization of the labor market, and problems of urban poverty; the urban public economy; housing and land-use problems; transportation problems; and special problems within the public sector. *Prerequisite: ECON-150*

ECON-208 *Money and Banking*. Money supply; banking as an industry; banks as suppliers of money; the Federal Reserve System and monetary control; monetary theory; and contemporary monetary policy issues. *Prerequisite: ECON-150*

ECON-209 *Financial Crises.* This course will allow students to understand the origin and evolution of financial crises. Various policy options that may prevent and mitigate financial crises and the restructuring of the global financial architecture to prevent or limit future crises will be examined. Although the course will focus mostly on the US and on the most recent financial crisis, it will also examine earlier financial crises in the US (such as the Great Depression) and past financial bubbles such as the 17th century Dutch Tulip mania and the 1997 Asian crisis. *Prerequisite: ECON-150*

ECON-211 *The Political Economy of East Asia: China's Development in a Comparative Perspective.* 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: ECON-150*

ECON-212 *Contemporary Chinese Economic Issues.* This course presents a practical and timely overview of the dynamic set of issues related to the major, ongoing changes in the Chinese economy and their effects both in China and abroad. Topics of discussion cover major issues on the macroeconomic, microeconomic, and political-economical front in China today: what China has done and where it is going, China's coming onto the world economic stage, market entry and access issues, dealing with important cultural issues, moving goods and capital around China, the "winners" and "losers" coming out of the reform, the ongoing process of China's transition from a primarily agricultural to a primarily industrial/service economy, protecting trade secrets, and other key issues. The

readings are meant to be a background to build knowledge, and as this will be structured as a seminar, students are encouraged and graded on their active class participation and address issues of personal interest regarding the Chinese economy. *Prerequisite: ECON-202*

ECON-250 *Economics of Global Business.* This course examines the forces driving toward globalization: the integration of national business activities into globally competitive markets. International trade is a key driver of global integration. The role of comparative advantage as a determinant of the location of production is examined. Also examined are the reasons for and effects of government policies that create impediments to international trade. The second part of the course surveys the role of money and finance in global economic activity. The role of exchange rates as key variables in global finance is introduced. Also examined is the role of government policies toward the foreign exchange market, including the choice between fixed and floating exchange rates and the use of exchange controls to create impediments to currency exchanges. The course also introduces the concept of foreign direct investment and discusses the rising importance of multinational corporations. *Prerequisite: ECON-150*

ECON-255 *Economic Development.* Studies the problem of economic underdevelopment, with special reference to the countries of Asia, Latin America, and Africa. The building blocks of economic theory are used to understand the historical experiences of these countries. Macroeconomic topics covered include economic growth, income distribution, and poverty, with particular emphasis on the concept of underdevelopment as a circular, self-reinforcing trap. Microeconomic topics include the study of particular markets that are especially relevant to developing countries: those for land, labor, and credit. Notions of market fragmentation, limited information, and incentive problems receive emphasis. Ends with international issues: trading patterns, capital flows, and global financial crises are studied from the viewpoint of developing countries. *Prerequisite: ECON-150*

ECON-301 *Econometrics.* Examines a number of important areas of econometrics. The topics covered include identification and estimation of simultaneous equations models; model specification and testing; estimation of discrete choice models; and the analysis of duration models. In addition to covering the relevant theoretical issues, the course includes the application of these methods to economic data. *Prerequisite: ECON-201*

ELECTRICAL ENGINEERING

EENG-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-SH 110.*

EENG-301 *Advanced Circuits.* The course concentrates on differential and multistage amplifier, current mirrors, current sources, active loads; frequency response of MOSFET, JFET and BJT amplifiers: Bode plots; feedback amplifiers, gain-bandwidth rule and feedback effect on frequency response; Class A, B and AB output stages; op-amp analog integrated circuits; piecewise-linear transient response; determination of state of transistors; wave-shaping circuits; MOS and bipolar digital design: noise margin, fan-out, propagation delay; CMOS, TTL, ECL; and an alternate week laboratory. The course studies design and analysis of analog integrated circuits, frequency response of amplifiers, feedback amplifiers, TTL and CMOS digital integrated circuits. *Prerequisite: EENG-251.*

EENG-303 *Signals and Systems.* This course centers on linear system theory for analog and digital systems; linearity, causality and time invariance; impulse response, convolution and stability; the Laplace, z- transforms and applications to Linear Time Invariant (LTI) systems; frequency response, analog and digital filter design. Topics also include Fourier Series, Fourier Transforms and the sampling theorem. Weekly computer-laboratory projects use analysis- and design-computer packages. The course establishes foundations of linear systems theory needed in future courses; use of math packages to solve problems and simulate systems; and analog and digital filter design. *Prerequisite: Math-112*

EENG-304 *Electromagnetic Fields and Waves.* Electromagnetic wave propagation in free space and in dielectrics, starting from a consideration of distributed inductance and capacitance on transmission lines. Electromagnetic plane waves are explored as a special case. The reflection and transmission of pulsed sources at discontinuities are discussed, while impedance transformation and matching are presented for harmonic time dependence. Snell's law and the reflection and transmission coefficients at dielectric interfaces are derived for obliquely propagation plane waves. Guiding of waves by dielectrics and by metal waveguides is demonstrated. Alternate-week laboratory. Objectives: Establish foundations of electromagnetic wave theory applicable to antennas, transmissions lines and materials; increase appreciation for properties of materials through physical experiments. *Prerequisite: CCSC-110.*

EENG-306 *Instrumentation, Sensors and Actuators.* The course focuses on electrical circuits and components, passive and active filtering for signal conditioning, dynamic measurement system response characteristics, analog signal processing, digital representation, data acquisition, sensors, actuators and actuator characteristics. Studies of measurement systems via computer simulation also are discussed. The laboratory experiments draw upon examples from all disciplines of engineering such as data

acquisition, operational amplifiers, temperature measurement, and motion and force measurements. *Prerequisite: EENG-251.*

EENG-322 *Electronics.* This course focuses on circuit models and amplifier frequency response, op-amps, difference amplifier, voltage-to-current converter, slew rate, full-power bandwidth, common-mode rejection, frequency response of closed-loop amplifier, gain-bandwidth product rule, diodes, limiters, clamps and semiconductor physics. Other topics include Bipolar Junction Transistors; small-signal models, cut-off, saturation and active regions; common emitter, common base and emitter-follower amplifier configurations; Field-Effect Transistors (MOSFET and JFET); biasing; small-signal models; common-source and common gate amplifiers; and integrated circuit MOS amplifiers. The alternate-week laboratory experiments on OP-AMP applications, BJT biasing, large signal operation and FET characteristics. The course studies design and analysis of operational amplifiers; small-signal bipolar junction transistor and field-effect transistor amplifiers; diode circuits; differential pair amplifiers and semiconductor device-physics fundamentals. *Prerequisite: EENG-251.*

EENG-351 *Analog and Digital Communication Theory.* The course introduces the principles of the various analog communication fundamentals. Amplitude modulation and demodulation, angle modulation and demodulation. Noise performance of various receivers and information theory with source coding theorem are also dealt. The labs emphasize experiential learning of basic analog and digital communication theory concepts and applications, including experiments demonstrating analog and digital modulation techniques. *Prerequisite: EENG-303*

EENG-352 *Control Systems.* The course introduces the principles of dynamic system modeling, analysis, and feedback control design with extensive, hands-on computer simulation. Modeling and analysis of dynamic systems. Description of interconnected systems via transfer functions and block/signal-flow diagrams. System response characterization as transient and steady-state responses and error considerations. Stability of dynamical systems: Routh-Hurwitz criterion and Nyquist criterion. Graphical methods for dynamical system analysis and design: root locus and Bode plot. Computer-aided feedback control design for mechanical, aerospace, robotic, thermo-fluid, and vibratory systems. *Prerequisite: MATH-112*

EENG-353 *Very Large Scale Integrated (VLSI) Circuit Design.* The course offers an overview of integrated circuit-design process: planning, design, fabrication and testing; device physics: PN junction, MOSFET and Spice models; inverter static and dynamic behavior and power dissipation; interconnects: cross talk, variation and transistor sizing; logic gates and combinational logic networks; sequential machines and sequential system design; subsystem design: adders, multipliers, static memory (SRAM), dynamic memory (DRAM). Topics include floor planning, clock distribution, power distribution and signal integrity; Input/Output buffers, packaging and testing; IC design methodology and CAD tools; implementations: full custom, application-specific integrated circuit (ASIC), field programmable gate arrays (FPGA). The course provides foundations of VLSI design and

custom VLSI design methodology and state-of-the-art CAD tools. *Prerequisite: EENG-322.*

EENG-354 *Electrical Energy and Power Systems.* Introduction to electric-energy sources, energy-storage devices, energy economics, environmental issues and electrical hazards. Principles of electric power systems transmission and distribution. Basic electromechanical conversion systems pulse and distribution transformers, induction rotating machines. Principles of electric energy conversion, static power supplies, static controllers and electric-power quality. Fundamentals of power management heat-sinks and cooling systems. Experiments with basic electrical machines. *Prerequisite: EENG-304.*

EENG-355 *Digital Signal Processing.* The course introduces the principle concepts of discrete-time signals and systems, frequency analysis, sampling of continuous time signals, the z-transform, implementation of discrete time systems, the discrete Fourier transform, fast Fourier transform algorithms, filter design techniques. The labs cover experiential learning of digital signal processing concepts, and require students to use knowledge to create and build prototypes that demonstrate their understanding of the material covered in the lecture. *Prerequisite: EENG-303*

EENG-356 Communication Systems. he course introduces the principles of the various analog communication fundamentals. Amplitude modulation and demodulation, angle modulation and demodulation. Noise performance of various receivers and information theory with source coding theorem are also dealt. The labs emphasize experiential learning of basic analog and digital communication theory concepts and applications, including experiments demonstrating analog and digital modulation techniques. *Prerequisite: EENG-303*

EENG-375 *Robotic Systems.* This course presents an overview of Robotics covering a selection of topics including Controls, Localization, Motion Planning, Sensing, Kinematics, and Human-Robot Interaction. Practical lab and simulation exercises complement the lectures. The students will further specialize and consolidate their knowledge through semester-long hands-on projects that involve the design, implementation, and testing of robotic systems and applications. *Prerequisite: EENG-352.*

400 - Senior Capstone Design Project I. Prerequisite: Senior Standing.

401 - Senior Capstone Design Project II Prerequisite: EENG-400

GLOBAL CHINA STUDIES[4]

GCHN-110 *The Concept of China.* From the Warring States period to the present, what have Chinese and others understood to be the meaning of "China," and what have been the broad implications of this understanding? This course is divided into four chronological periods: Antiquity—from the period of the 'central kingdoms' to the formation of the early empire; Middle Period—China Among Equals; Early Modern: 1350-1910—China, Global Trade, and Imperialism; Modern: 1910-present—China Redux *Prerequisite: None.*

GCHN-201 *Digital Chinese Humanities*
This course introduces students to computational thinking with specific reference to Global China Studies, and provides a foundation for future research. Areas of focus may include the creation, enhancement, and analysis of digitized written texts, especially primary sources; methodologies for the use of the internet as a research and translation tool; the production and processing of photographs: audio recordings: video clips: and geospatial data. *Prerequisite: None.*

GCHN-202 *Archaeology in China*: Archaeological discoveries since the early twentieth century and especially in recent years have transformed our understanding of China's past. This courses addresses those discoveries, introduces students to the art and science of Chinese paleography, and to issues related to site preservation and the world cultural heritage. *Prerequisite: None.*

GCHN-203 *Art of War in China*: Strategic thought and military practice from Sun Zi to Mao, with attention to the relationship of representations to reality. Introduces to Chinese military history on its own terms rather than viewed through Western eyes. *Prerequisite: None.*

GCHN- 204 *Ethnic Diversity in China*. Aims to dispel the image of China as monolithic and unvarying by focusing attention on the ebb and flow of in-migration and out-migration in China and on the historical role of ethnic and minority peoples and individuals in China at every level, from everyday life to scientific collaboration to religious belief to leadership. *Prerequisite: None.*

GCHN-206 *Global (Chinese)Texts*. Global and local perspectives in the production and consumption of literary texts. The course will focus on a single text or the work of a single author that serves or could serve as the focal point for a cultural heritage that belongs to the entire globe. What made a text "global" in its own day; how has its afterlife transformed it into a global cultural commodity, and how do global media forms carry on its cultural legacy today? *Prerequisite: None.*

GCHN-207 *20th-century Chinese Writers in Global Context*. How were 20th-century Chinese writers affected by events and literary contexts beyond China? Topics include

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[4] In Progress

Ibsen and Lu Xun, Russian revolutionary writers and their Chinese counterparts; Bloomsbury and the Crescent Moon Society; and more. Students will gain an understanding of the complex influence of the written word across cultures. *Prerequisite: None.*

GCHN-220 *Chinese Science*: This course adopts an interdisciplinary approach to the study of Chinese science and technology analyzed in their intellectual, social, and cultural and global context. We will examine the history, philosophy and anthropology of science and technology in China, including its intersection with natural philosophy, and will also assess the conclusions about culture and national power that used science and technology as the basis of comparison. *Prerequisite: None.*

GCHN-221 *Chinese Inventions in Global Context*. To what extent were the "four great inventions" for which China is known--the compass, gunpowder, printing and paper—the product of collaboration and how did they both enable China to expand its reach into the world beyond its borders and attract outsiders into China? *Prerequisite: None.*

GCHN-222 *History of Chinese Medicine*. Introduction to the history of Chinese medicine: its origins and transformations. We will explore the history of healing and the medical professions in China from earliest times down to the present, taking into account the interactive development of Traditional Chinese medicine and Western biomedicine, and of developments and discoveries in China and overseas. Students will become familiar with some of the canonical literature on medicine in China and will gain an understanding of the ways in which those texts and ideas have influenced medical practices. *Prerequisite: None.*

GCHN-223 *Muslim Science and China*. Chinese-Islamic scientific exchanges across the Silk Roads, covering such areas as astronomy, anatomy, chemistry and other fields as well as the interaction of science and religion in a non-western context. *Prerequisite: None.*

GCHN-224 *Chinese Maritime History*. Investigates China's long tradition of shipbuilding and navigational practice in terms of internal riverine communication, coastal defense, and ocean voyages; its early naval dominance; the famous Ming treasure fleets that sailed as far the Persian Gulf and the east coast of Africa; Qing shipyards; and recent developments. *Prerequisite: None.*

GCHN-240 *Modern Chinese Governance*. This course provides a basic understanding of Chinese government and political culture. It explores the structures and dynamics of contemporary Chinese politics and the impact on society of recent policies of reform and opening up. Topics include China's political institutions, the role of charismatic leaders, the Communist Party, Party factions, the People's Liberation Army, ethnic minorities, urban workers, the transformation of the countryside, and relations between the central and local government. *Prerequisite: None.*

GCHN-241 *Chinese Revolutions*: Revolutions both successful and unsuccessful in China; foreign influences and their significance in this context. Ideology, participation, leadership, strategies and tactics adopted by such diverse groups as the White Lotus, Taiping, and Boxers; the 1911 nationalist and 1949 communist revolutions, and their legacies. *Prerequisite: None.*

GCHN-242 *Mao and the Chinese Revolution.* This course introduces the historical relationship established in the twentieth century between Mao Zedong, his philosophy of history and revolution, and the Chinese Revolution in global context. The course provides a thematic lens through which to view one aspect of modern Chinese and global history. The working premise is that the revolution made Mao as much as Mao made the revolution. We will investigate Mao's thought and theories, as well as his revolutionary practice, not as biographical artifacts but as products of and contributors to the revolutionary situation in China and the world in the twentieth century. We end with Mao's afterlives. *Prerequisite: None.*

GCHN-243 *Chinese Environmental Studies*. How and why has the understanding of humans' relationship to nature changed in China, and how effectively has the Chinese state responded to environmental challenges at the local, national and global levels? Examines changing approaches to resource exploitation and sustainable development taking into account the impact of different political frameworks. *Prerequisite: None.*

GCHN-250 *Chinese Geographies*. This course examines questions of geography, topography, and ethnography from the early imperial period to the present with special attention to Chinese borderlands. Topics include the relation between center and periphery; cross-border relations; the changing population of residents and sojourners. Han and minorities; travel and transportation networks; and trade and material exchanges including the "tributary system". *Prerequisite: None.*

GCHN-251 *Worldwide Chinese Diaspora* This course introduces students to the history and complexities of worldwide Chinese migrations and diasporic communities, including change over time and evolving global diasporic relationships and interactions. A signature Global Network University course, it may be coordinated with parallel courses held at other sites in the network, so that student research on the multiple inflections of the Chinese experience of diaspora globally is both collaborative and comparative. *Prerequisite: None.*

GCHN-260 *Modern Chinese Economy*. Examines the major economic transitions (and failures to transform) in China since the establishment of the People's Republic, and spends considerable time on the current transition from a centrally planned economy to a state-dominated market economy, considering possible future trajectories. *Prerequisite: None.*

GCHN-261 *China and the Great Depression*. How a combination of global economic depression, domestic political instability, imperialist remnants, and partial occupation

affected Chinese economy and society in the 1930s, paying attention to regional and urban/rural difference. *Prerequisite: None.*

GCHN-262 *China Trade in Global Context*. Overview of Chinese international trade from the ancient Silk Roads to the advent of Europeans and from Chinese control of eighteenth-century intra-Asian markets to its entry into the World Trade Organization. *Prerequisite: None.*

GCHN-263 *Tea, Silver, and Opium in China*. The extent to which Chinese tea, American silver and Indian opium changed the face of global trade and drove the great age of imperialism is a key explanatory factor in the history of the past 500 years. Examines the ways in which trade in all these commodities revolved around China and the Chinese people, at home and abroad, as both producers and consumers. *Prerequisite: None.*

GCHN-280 *Play and Games in Early China*. Combines academic study with an experiential approach to the topic of games and, more generally, participatory entertainment in early China. Thus in addition to thinking about the meaning of play as a universal human activity and contextualizing examples of popular games from the Chinese tradition with background reading on related philosophical and cosmological beliefs, students learn the fundamentals of the ancient Chinese game of *weiqi* (go), a favorite pastime of scholars since at least the Han dynasty. Students will be introduced to online resources that allow them to play the game in real time with opponents from around the world, and may also visit local Shanghai *weiqi* clubs. *Prerequisite: None.*

GCHN-281 *Beliefs and Social Practice in China*. Introduction to the core principles of various traditional Chinese systems of belief and to the diverse, eclectic and changing ways in which these were put into practice by Chinese men and women before the modern era. *Prerequisite: None.*

GCHN-282*China and Global Religions* Buddhism, Islam and Christianity in China from ancient times down to the present; adoptions, adaptations, and transformations *Prerequisite: None.*

GCHN-290 *Topics in Global China Studies*, specific topics vary from semester to semester. *Prerequisite: None.*

HUMANITIES

HUMN-201 *The Theory and Practice of History.* What is history? This course offers an introduction to theories and practices of history drawn from different parts of the world. It considers the utility of such different historical sources as written documents, excavated artifacts, oral histories, and visual culture and how to balance contradictory accounts of the same event. *Prerequisite: None.*

HUMN-202 *Literary Interpretation.* Introduces students to the demands and pleasures of university-level investigation of literature. Students develop the tools necessary for advanced criticism, including close-reading skills, knowledge of generic conventions, mastery of critical terminology, and skill at a variety of modes of analysis, from the formal to the historical. Also emphasizes the writing process, with the production of four to five formal papers. *Prerequisite: None.*

HUMN-203 *Central Problems in Philosophy.* This course introduces students to the discipline of philosophy by way of several philosophical problems, including skepticism, the ethics of punishment, and the existence of God. But philosophy is more than a set of specific problems. It is a way of attacking problems. We focus on the method of philosophy: clear, careful, analytical reasoning. We practice this method and hone our philosophical skills both in class discussions and in written work. *Prerequisite: None.*

HUMN-204 *Logic.* All philosophers are wise. Socrates is a philosopher. Therefore, Socrates is wise. Our topic is the nature of this therefore. Logic is the science of reasoning—the study of the ways in which statements support or contradict one another. We investigate the logical structure of everyday language and see how the correctness or incorrectness of reasoning depends on this structure. We develop a formal language in order to make this structure more perspicuous. *Prerequisite: None.*

HUMN-210 *Modern South Asia.* Situated at the center of the Indian Ocean world, the South Asian region is home to over a billion people, and is the site of a rich and vibrant history. The course explores this history, with a focus on understanding major political, economic, cultural, and environmental changes as they affected ordinary people and shaped the nature of collective identities (religious, caste, class, regional, linguistic, national, etc.) in the region over time. Learning how collective identities have been produced historically will enable you to appraise and navigate competing models of nationalism, cosmopolitanism, and universalism in the world today. *Prerequisite: None.*

HUMN-211 *The Making of the Muslim Middle East.* Islam changed and shaped the Middle East, the Mediterranean world, and South Asia following its emergence in the seventh century. Muslims subsequently developed and expressed their faith in the disciplines of law, theology, and mysticism, even as their religious communities fractured into a variety of Sunni and Shi'a groups. This course focuses on primary sources to examine the richness of Islamicate civilization in the pre-modern world, including inter-religious relations as well as political and economic trends. *Prerequisite: None.*

HUMN-212 *Africa since 1940.* Examines how Africa got to be where it is now. Covers the period from the beginning of the crisis that shook colonial empires in the 1940s through the coming to power of independent African governments on most of the continent in the 1960s to the fall of the last white regime in South Africa in 1994, by which time the already independent countries of Africa had found themselves in deep crisis. By bridging the conventional divide between "colonial" and "independent" Africa, the course opens up questions about the changes in African economies, religious beliefs, family relations, and conceptions of the world around them during the last half century. Students read political and literary writings by African intellectuals, as well as the work of scholars based inside and outside Africa, and view and discuss videos. The course emphasizes the multiple meanings of politics—from local to regional to Pan-African levels—and aspires to give students a framework for understanding the process of social and economic change in contemporary Africa. *Prerequisite: None.*

HUMN-213 *The Age of Euro-American Empires.* Examines European expansion in the early modern period and the creation of an interconnected Atlantic world with particular emphasis on North America and the Caribbean; the roles of Europeans, American natives, and Africans in forming systems of trade and patterns of settlement; the evolution of slavery; and the development of new political structures, changing religious beliefs, and evolving family relationships in America. The course also assesses the imperial context of these developments. *Prerequisite: None.*

HUMN-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.*

HUMN-215 *The U.S. in a Transnational and Global Perspective: America and the World since 1898.* This course is designed to explore ways of narrating a history of the United States that are not wholly contained within the territory of the United States. It seeks to identify histories larger than that of the United States within which the history of America is embedded and entangled, with the aim of rethinking the basic narrative of American history. Chronologically, it examines America's place in the world from the Spanish-American War to the presidency of Barack Obama. Themes range from immigration and economics to culture and politics in their global and transnational aspects. The course focuses on readings and discussion. *Prerequisite: None.*

HUMN-216 *The Ancient Mediterranean World* The ancient Mediterranean, from Spain to Egypt and the Levant, is the cradle from which Western civilization grew. This course covers the different cultures of the region, with particular interest in their interaction and the conquest of the entire region by Rome. The course examines the complex dynamics of Rome's relationship to its subject peoples, as Roman trappings were overlaid upon native traditions. *Prerequisite: None.*

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HUMN-217 *The Crusades*. The history of the Crusades (1095–1291 C.E.) is an important chapter in European imperialism and a manifestation of deep religious conviction. Examines the background in Europe leading to the Crusades; the social, political, and economic situation in the eastern Mediterranean before the Crusades; the fortunes of the Crusader (Latin) Kingdom of Jerusalem; and the reactions of Europeans and Easterners to one another. Examines and reevaluates the legacy of the Crusades on both the Eastern and the Western worlds. *Prerequisite: None.*

HUMN-218 *Global Environmental History*. This course offers an overview of global environmental history with a focus on the period from 1500 C.E. to the present—a time marked by a dramatic intensification in the use of land, water, and energy resources around the world. Our central goal is to understand the relationship between globalization, natural resource use, and environmental change, and to explain how this relationship unfolded (and continues to unfold) differently in major world regions. This course assumes no background knowledge in either world or environmental history. *Prerequisite: None.*

HUMN-219 *Global History of Medicine*. This course explores the history of medicine from a global perspective. We study both the circulation and exchange of ideas, texts, and materia medica among different regions, and explore how healing was differently practiced and experienced in regions characterized by distinctive disease ecologies, social relations, and cultural understandings of illness and the body. In teasing out the relationship between "global" and "local", we probe important questions about the agency of non-western and lower-class people in shaping the history of medicine, including "western" biomedicine. *Prerequisite: None.*

HUMN-220 *Cold War*. The subject is the Cold War as global conflict. The course focuses on Europe and the Third World, as well as on the United States and the Soviet Union. It examines issues in international politics and diplomacy, nuclear rivalry, and the culture of the bomb, Cold War economic competition and development policies, and the impact of the Cold War on culture and gender in various countries. *Prerequisite: None.*

HUMN-221 *Chinese Civilization: A Historical Survey*. This course surveys Chinese civilization from its pre-historical origins to around 1800. For over two thousand years, China stood as a major center of civilization in East Asia, and its cultural influence reached far beyond. Students are introduced not only to the formation and development of Chinese civilization but also to the continuous contacts and exchanges between China and the outside world. The main topics on which the course focuses are the formative/axial age (700-200 B.C.E.), the first unification and the early empires (200 B.C.E.-200 C.E.), the medieval transformation (750-1200 C.E.), and the later imperial period and the advent of early modern society (1400-800 C.E.). The goal of this survey is to give students a better understanding of the essence of Chinese culture, the historical patterns within China's past, and the achievements and scope of Chinese civilization. *Prerequisite: None.*

HUMN-222 *China in the Global Context.* This course examines China in the global context since long before the coming of Europeans in the 1500s. Topics include religion and belief systems, including Buddhism, Confucianism, Daoism, Christianity, and Islam; trade in tea, silver, opium, foodstuffs, silk, and other exotica; intellectual exchange; art; law; travel; diasporas; shipping; weaponry; foreign representations of China and Chinese representations of others. *Prerequisite: None.*

HUMN-223 *Empires and Imperialism in East Asia.* This course examines empire building and cultural encounters in the East Asia region, comparing the character of empires across time and space, as well as the politics of human diversity. We look at the nuts and bolts of empire building, as well as how cultures of conquest shape identity (especially ethnicity and gender) and regional geopolitics. *Prerequisite: None.*

HUMN-224 *Silk Roads Past and Present.* Aspects of the Silk Roads from ancient times to the very recent past, including actual conditions and representations, accurate, and imagined. For centuries travelers have moved between China and points west along the various ancient routes that became known as the Silk Roads. The area they covered, corresponding to most of today's Central and Inner Asia, remains a contested area drawing global attention from various powers vying for control. *Prerequisite: None.*

HUMN-225 *Topics in Asia-Pacific History*. Course topics may include: ancient China; the Mongols; food and drugs in Chinese history; history of Vietnam; Asian diasporas past and present; Japan in World War II; Pacific Rim history; and others. *Prerequisite: None.*

HUMN-260 *Critical Theories and Methods of Literary Studies.* Major texts in critical theory from Plato to Derrida are considered in relation to literary practice. The first half of the course focuses on four major types of critical theory: mimetic, ethical, expressive, and formalist. The second half turns to 20th-century critical schools, such as Russian and American formalism, archetypal criticism, structuralism, psychoanalytic criticism, feminism, reader-response theory, deconstruction, and historicism. *Prerequisite: None.*

HUMN-261 *History and Theory of the Novel.* An introduction to the history of the novel in a comparative context, with special emphasis on contemporary critical theory (including circulation studies, deconstruction, new historicism, and psychoanalysis). Theoretical readings include works by Bakhtin, Barthes, Lukacs, McKeon, Moretti, and Watt, among others. *Prerequisite: None.*

HUMN-262 *History of Drama and Theater.* Examines selected plays central to the development of world drama, with critical emphasis on a cultural, historical, and theatrical analysis of these works. Texts are drawn from the major periods of Greek and Roman drama; Japanese classical theater; medieval drama; theater of the English, Italian, and Spanish Renaissance; French neoclassical drama; English Restoration and 18th-century comedy; and Russian dramatic traditions. Genres to be considered include romanticism, naturalism, realism, antirealism, and postcolonial theater. *Prerequisite: None.*

HUMN-263 *Literary Translation.* This course explores the craft of and the market for literary translation. Why do some translators aim for familiarity and others for estrangement? What is gained and lost in a text's cultural relocation? Translation, and translation projects such as Abu Dhabi's Kalima, play a pivotal role in shaping intercultural exchange and globalizing literary markets and canons. The course involves conversations with translators and authors in Abu Dhabi and abroad. Case studies include The Epic of Gilgamesh, the quatrains of Khayyam, sonnets of Shakespeare and Camões, and modern and contemporary works by Borges, Pessoa, Saramago, Kundera, Ondaatje, and Paz Soldan. *Prerequisite: None.*

HUMN-264 *Reading The Dream of the Red Chamber.* *The Dream of the Red Chamber* is an epic literary classic produced by Cao Xueqin in the middle of the 18th century. Following the traditional form of Chinese fiction, known as "the chaptered novel," it covers a vast terrain of Chinese culture and social life and is widely regarded as the culmination of the vernacular novel of imperial China and a synthesis of Chinese aesthetic and philosophical traditions. With the tragic love story between two teenage members of an aristocratic clan in southern China at its dramatic center the novel intimately explores the questions concerning what is eternal and what is ephemeral; love and affection, or "qing," as the heart of being that both animates and destroys life; the nature of individual talent and its fragility; the excesses and decadence of the privileged; as well as the growing, if hidden, social and class tensions. Its manifold structure, intricate plot development, coupled with its dazzling array of memorable characters, makes this novel the most complex and colorful of all times. Both reading and discussions are conducted in English. *Prerequisite: None.*

HUMN-265 *Country and City in Modern Chinese Literature and Film.* The story of modern China is, in a sense, the story of the transformation of a rural society into an urban, industrial one. This change has altered people's experience and consciousness and, in turn, their cultural visions and artistic expressions. This course focuses on the tension and mutual dependency between country and city in modern China as viewed through the prism of Chinese fiction and film. The class discusses such works as Lu Xun's *Hometown* and *New Year's Sacrifice*, Mao Dun's *Spring Silkworm*, Shen Congwen's *Vegetable Garden*, Ailing Chang's *Sealed Off*, and Shi Zhecun's *One Evening in the Rainy Season*, and such films as *Crows and Sparrows* and *The World Prerequisite: None.*

HUMN-266 *Shanghai Stories.* This course provides an introduction to the history and culture of Shanghai through the eyes of Chinese and foreign fiction 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, and young urban youth pursuing cosmopolitan lifestyles in the global city of today.

HUMN-267 *Representing Ethnicity in Mainland China and Beyond A Comparative Study.* This course introduces students to the various theories, practices, and representations of multiculturalism in mainland China, Taiwan, Hong Kong, and

Singapore from the 20th century onwards. Setting focus on how ethnicity (minzu) and race (zhongzu) emerge as a historically grounded and changing public discourse, we engage in a comparative examination of multiculturalism as an incomplete ideal. Within and across each of these multiethnic, or multiracial, societies where Han Chinese constitute the majority, we ask how nation-building processes bear on the transformation of minority culture, and vice versa. Toward the end of the course, we also probe the growing impact of domestic and transnational labor migration on the so-called ethnic mosaic. Our goal is not only to understand diversity as a social reality; in asking how such a reality finds voice in various artistic forms including short story, novel, documentary and fiction film, we also train students to do the rigorous work of literary and cultural criticism.

HUMN-280 *Biomedical Ethics.* An examination of the pressing moral questions that arise in medical practice and research. Do we have a basic right to health care? Are euthanasia and physician-assisted suicide ever morally permissible? Do we have the right to decide the course of our medical treatment, or to determine the timing and manner of our own deaths? Do we have a right to privacy and confidentiality? Should we allow medical research that harms animals (or that makes use of human stem cells)? Are there compelling moral objections to genetic testing or genetic engineering? *Prerequisite: None.*

HUMN-281 *Freedom and Responsibility.* Do we have free will? Some philosophers have argued that if our actions are causally determined, then freedom of the will is impossible. Others have argued that freedom does not depend on the truth or falsity of causal determinism. Is free will possible in a world where every event is causally determined? Are there different kinds of freedom? If so, are all kinds of freedom equally worth having? Must we act freely in order to be responsible for our actions? Do the social institutions of reward and punishment depend for their justification upon the existence of responsible, free agents? We discuss the nature of persons, action, freedom, and responsibility in an effort to answer these questions. *Prerequisite: None.*

HUMN-282 *Philosophy of Religion.* An examination of several major questions that arise in philosophical discussions of religion, such as: Is it always irrational to form beliefsabout matters which transcend the realm of the empirical, given that such beliefs cannot be directly supported by evidence? If so, then many religious beliefs are irrational. Is this the case, or can religious beliefs be supported by other means? Can philosophical reflection help us to prove the existence of God? Can it bring clarity to such puzzling matters as God's relationship to time, or the question of how a benevolent and omnipotent God could permit the existence of evil? Alternatively, is the entire project of evaluating religious discourse as a set of claims about transcendent realities misguided, perhaps because religious language work differently than the language we use to speak about ordinary objects? *Prerequisite: None.*

HUMN-283 *Classical Chinese Philosophy.* An examination of important ideas and texts in the Chinese philosophical tradition, including those developed in Confucianism, Daoism, Mohism, and Chinese Buddhism. *Prerequisite: None.*

HUMN-284 *Modern European Philosophy.* 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.*

HUMN-285 *Epistemology.* Considers questions such as the following: Can I have knowledge of anything outside my own mind—for example, physical objects or other minds? Or is the skeptic's attack on my commonplace claims to know unanswerable? What is knowledge, and how does it differ from belief? *Prerequisite: None.*

HUMN-286 *Metaphysics.* Discusses general questions concerning the nature of reality and truth. What kinds of things exist? Are there minds or material bodies? Is change illusory? Are human actions free or causally determined? What is a person and what, if anything, makes someone one and the same person? *Prerequisite: None.*

HUMN-287 *Philosophy of Science.* An examination of philosophical issues about the natural and social sciences. Central questions include: What is the nature of scientific explanation? How does science differ from pseudoscience? What is a scientific law? How do experiments work? *Prerequisite: None.*

INTERACTIVE MEDIA

INTM-101 *Introduction to Physical Computing and Computational Media*
This course expands the students' palette for physical interaction design in addition to exploring how computation can add to human communication. This fourteen week course is divided in two parts. The first portion focuses on physical computing and examines the limitations of the mouse, keyboard and monitor interface of today's computers, and start instead with the expressive capabilities of the human body. We consider uses of the computer for more than just information retrieval and processing, and at locations other than the home or the office. The platform for the class is a microcontroller, a single-chip computer that can fit in your hand. The core technical concepts include digital, analog and serial input and output. Core interaction design concepts include user observation, affordances, and converting physical action into digital information. The second portion of the course focuses on fundamentals of programming as well as more advanced techniques such as text parsing, image processing, networking, computer vision, and 3D graphics. The Java-based 'Processing' programming environment is the primary vehicle. *Prerequisite: None.*

INTM-120 *Communications Lab*. An introductory course designed to provide students with hands-on experience using various technologies including social software and web development, digital imaging, audio, video and animation. The forms and uses of new communications technologies are explored in a laboratory context of experimentation and discussion. The technologies are examined as tools that can be employed in a variety of situations and experiences. Principles of interpersonal communications, media theory, and human factors are introduced. Weekly assignments, team and independent projects, and project reports are required. *Prerequisite: None.*

INTM-201-219 Studio Courses. These courses are to be taken in conjunction with one or more other, disciplinary courses. Students are expected to generate an idea or ideas inspired by the other course(s) and then build something with new interactive technology, supporting their investigations in the other field(s). Examples might be a device for monitoring traffic at a particular street corner, for a sociology class, or a data visualization for an economics class.

INTM-220-239 Interactive Art and Entertainment Courses. Examples include *Big Games*; *Constructing Generative Systems*; *Big Screens*; *Reading and Writing Electronic Text*; *The Nature of Code*; *Video Sculpture*; *Collective Storytelling*; *New Interfaces for Musical Expression*; *Time*; and *Site-Specific*.

INTM-240-259 Design Courses. Examples include *Cabinets of Wonder*; *Creating Community Environments*; *Design for Digital Fabrication*; *Developing Assistive Technology*; *Spatial Media*; *Giant Stories/Tiny Screens*; *Designing Conversational Spaces*; *Data Representation*; and *Sensitive Buildings*.

INTM-260-279 Skill Development Courses. Examples include *Basic Analog Circuits*; *Visual Communication*; *Computational Cameras*; *Dynamic Web Development*; *Introduction to Dataflow Programming*; *Understanding Networks*; *HTML5*; and *UX Design*.

INTM-280 *Global Media—China*. This course looks at the transformation of China's media landscape over the past two decades through market reforms, commercialization and new technology – including the drastic growth of tabloid newspapers and magazines; the transformation of television into a multi‑billion dollar industry, with ambitions to go global; and the equally significant
rise of the Internet and, with it, the growing influence of online public opinion, along with the way in which this has led to significant changes both in China's traditional media, and in the way the country is governed. The course will also look at continuing tensions between those seeking to push for greater openness in the media, and the censors and ideological critics who believe it has already gone too far.

INTM-300-320 Seminars. Examples include *Future of the Infrastructure*; *Social Facts*; *Recurring Concepts in Art*; *When Strangers Meet*; *Identity and Evasion*; *Animals, People, and Those In-Between*; and *Principled Design*

MATHEMATICS

MATH-009. Algebra and Calculus. This course is designed as both a preparation for the calculus sequence and an introduction to basic mathematical tools used in applied mathematics. Much of this course revolves around the notion of function, but the emphasis is on algebraic properties. Functions under study in this course include polynomials, rational functions, trigonometric functions, exponential functions, and logarithmic functions. Other topics covered include vector geometry in two and three dimensions, matrix algebra, conic sections, sequences and series, binomial expressions, and data modeling. *Prerequisite: Placement via NYUSH mathematics placement exam.*

MATH-110. Calculus. This course presents the foundations of calculus by examining functions and their derivatives and integrals with a view towards applications. Topics addressed include basic techniques of differentiation and integration for functions of one variable, including linear approximation, optimization, and modeling with differential equations, forming an essential treatment of calculus for any applied science. *Prerequisite: Placement via NYUSH mathematics placement exam.*

MATH-112. Multivariable Calculus and Differential Equations. This course explores functions of several variables and applications of calculus to differential equations, which arise in virtually all fields of applied mathematics; examples include equations of motion, chemical reactions, and current flow. Topics addressed include surface and line integrals, divergence, gradient, curl, and the theorems of Gauss, Green, and Stokes, as well as first and second-order differential equations. *Prerequisite: MATH-110.*

MATH-117. Linear Algebra. Linear systems appear throughout the applied sciences; examples include chemical equations, electrical networks, and heat distribution. This course covers linear algebra and its applications. Topics discussed include systems of linear equations, matrices and their determinants, eigenvectors and eigenvalues, quadratic forms, and matrix decompositions, all with a view towards applications. *Prerequisite: MATH-110.*

MATH-150. Probability and Statistics. Probability and statistics continue to have increasing relevance in all of the applied sciences. This course introduces those subjects with emphasis on applications, using the ideas of calculus as a foundation. Topics discussed include random variables, probability distributions, moments, conditional probability, laws of large numbers, Markov chains, statistical inference, hypothesis testing, multiple regression, and Markov chain Monte Carlo methods. *Prerequisite: MATH-110.*

MATH-160. Introduction to Systems and Dynamics. This is a post-calculus mathematics course that is designed to prepare students to enter a broad set of majors, from natural sciences through social sciences. Specific topics include elements of

network theory, linear algebra, and differential equations. These topics are integrated to provide a unifying course that introduces analysis methods and mathematical models for understanding dynamical behavior of networks or populations of interacting units, such as genetic and neuronal circuits in biology or social networks of friends. *Prerequisite: MATH-110.*

MATH-201. Analysis I. This is an honors course in calculus for mathematics majors, covering material essential to preparation for advanced courses in analysis. Topics covered include limits and continuity, derivatives of higher order, extrema, the mean-value theorem, L'Hôpital's rule, Taylor expansions, the implicit and inverse function theorems, definite integrals, the fundamental theorem of calculus, functions of several variables, partial derivatives, constrained extrema, multiple integrals, line and surface integrals, and the theorems of Gauss, Green, and Stokes. *Prerequisite: Placement via NYUSH mathematics placement exam. Co-requisite: Math-208*

MATH-202. Analysis II. This course is a continuation of Analysis I. Topics covered include the real number system, metric spaces, connectedness, compactness, completeness, Riemann integrability, uniform convergence, and power, Taylor, and Fourier series. *Prerequisite: MATH-201.*

MATH-203. Analysis III. This course is a continuation of Analysis II, 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: MATH-202.*

MATH-204. Algebra I. This introduction to abstract algebra introduces the notions of group, ring, and field. Topics covered include symmetric and linear groups, the Sylow theorems, polynomial and quotient rings, ideals, unique factorization, the Nullstellensatz, field extensions and finite fields. *Prerequisites: Math-201 & Math-208*

MATH-205. Algebra II. A continuation of Algebra II, this course emphasizes ideas in representation theory. Topics covered include representations and characters of finite, compact, and Lie groups, induced representations, the theorems of Artin, Brauer, and Peter-Weyl, Lie algebras, algebraic geometry, and applications of representation theory to algebra and physics. *Prerequisite: MATH-204.*

MATH-208. Advanced Linear Algebra. This is an honors course in linear algebra for 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: Placement on NYUSH mathematics placement exam. Co-requisite: Math-201*

MATH-225. Real Variables. This course is a continuation of the analysis sequence with a focus on measure and function spaces. Topics covered include Lebesque measure and integration, abstract measure spaces, Lebesgue differentiation, the Radon-Nikodym theorem, Fubini's theorem, Lp and Hilbert spaces, the Riesz representation theorem, and Fourier series. *Prerequisite: MATH-203.*

MATH-226. Functional Analysis. 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: MATH-225.*

MATH-228. Fluid Dynamics. This course is an introduction to the dynamical processes that drive the circulation of the atmosphere and ocean, and their interaction. Lectures will be guided by consideration of observations and experiments, with the goal of developing an understanding of the unifying principles of planetary fluid dynamics. Topics include the global energy balance, convection and radiation (the greenhouse effect), effects of planetary rotation (the Coriolis force), structure of atmospheric circulation (the Hadley cell and wind patterns), structure of the oceanic circulation (wind-driven currents and the thermohaline circulation), and climate variability, including El Niño and anthropogenic warming. *Prerequisite: MATH-201.*

MATH-233. Theory of Probability. 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 approximation, random variables, probability distributions, generating functions, and Markov chains and their applications. *Prerequisite: MATH-201.*

MATH-234. Mathematical Statistics. A continuation of Theory of Probability, this course is an introduction to the mathematical foundations and techniques of modern statistical analysis for the interpretation of data in the quantitative sciences. Topics covered include the mathematical theory of sampling, normal populations and distributions, Chi-squared, t, and F distributions, hypothesis testing, sequential analysis, correlation, regression, analysis of variance, and applications to the sciences. *Prerequisite: MATH-233.*

MATH-237. Discrete Mathematics. 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. *Prerequisite: MATH-201.*

MATH-240. Combinatorics. This course introduces basic concepts in combinatorics and techniques for counting and enumeration. Topics covered include generating functions, the principle of inclusion and exclusion, Polya counting, graph theory, and modern algorithms and data structures for graph-theoretic problems. *Prerequisite: MATH-201.*

MATH-241. Number Theory. This introduction to number theory builds on the ideas of abstract algebra, but also employs analytic techniques. Topics covered include arithmetic functions, congruences, the prime number theorem, primes in arithmetic progression, quadratic reciprocity, the arithmetic of number fields, approximations, transcendence theory, p-adic numbers, and diophantine equations of degrees two and three. *Prerequisite: MATH-204.*

MATH-251. Scientific Computing. This course is intended to provide a practical introduction to computational problem solving. Topics covered include the notions of well-conditioned and poorly conditioned problems, forward and backward stability of an algorithm, basic techniques for numerical solutions of linear and nonlinear equations, numerical optimization, principles of numerical interpolation, differentiation and integration, splines and quadrature schemes, numerical methods for solving ordinary differential equations, matrix factorizations and computational techniques, and basic principles of the discrete (fast) Fourier transform, with applications to signal processing, data compression and solutions of differential equations. *Prerequisite: MATH-201 & MATH-208.*

MATH-252. Numerical Analysis. 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: MATH-201 and MATH-208.*

MATH-262. Ordinary Differential Equations. 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: MATH-201 and MATH-208.*

MATH-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: MATH-262.*

MATH-264. Dynamical Systems. This course introduces dynamical systems from a geometric viewpoint. Topics will include dynamics of maps and of first and second-order differential equations: stability, bifurcations, limit cycles, and dissection of systems with fast and slow time scales. Chaotic behavior will be introduced in various contexts, including one-variable maps (e.g., the logistic) and fractal sets. Applications will be drawn from physics and biology. *Prerequisite: MATH-201.*

MATH-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 continuous, and applications to fluid flow. *Prerequisite: MATH-201 and MATH-208.*

MATH-290. Topology. 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: MATH-202.*

MATH-292. Differential Geometry. This course investigates the differential properties of curves and surfaces. Topics covered include differential manifolds and Riemannian geometry. *Prerequisite: MATH-203.*

NEURAL SCIENCE TRACK

NEUR-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: CCSC-110*

NEUR-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-201*

NEUR-260 *Development and Dysfunction of the Nervous System.* This course will explore how the nervous system develops in normal animals, and how genetic and epigenetic factors can disrupt these processes. Lectures on normal developmental mechanisms will be interleaved with those on disorders to provide a solid foundation for our discussions of abnormal events during maturation. The lectures on normal development cover a broad range of topics including differentiation, axon outgrowth, synapse formation, specificity of connections, and plasticity. The lectures on dysfunction include autism, dyslexia, mental retardation, specific language impairment, hearing loss, blindness, ADHD, demyelinating or neurodegenerative disorders, and axon regeneration. The major goals of the course will be understand the extent to which current theories can explain the etiology of each disorder, and to learn how basic research can best facilitate advances in our knowledge and, ultimately, lead to treatments or cures. *Prerequisites: CCSC-114 & NEUR-251*

NEUR-280 *Special Topics in Neural Science.* A seminar course providing in-depth treatment of an area of current interest neuroscience. Lectures will present background material and address current problems in the area related to the topic. Students will read and discuss review articles and current literature on the topic. Course content will be determined on a semester-by-semester basis. Possible topics include "Decision Making"; "Neurobiology of Learning and Memory"; "Signal Processing in Neural Networks"; "Intro to Computer Modeling of Neuronal Systems"; "Cognitive Neuroscience"; "Can Exercise Change Your Brain?"; "Molecular Mechanisms of Memory"; "Color Vision"; and "Neuroeconomics and Decision-Making." *Prerequisite: BIOL-201*

NEUR-301 *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

PHYSICS TRACK

PHYS-210 *Computational Physics.* Introduction to computational physics, with an emphasis on fields of current research interest where numerical techniques provide unique physical insight. Topics are chosen from various branches of physics, including numerical solution of ordinary and partial differential equations, eigenvalue problems, Monte Carlo methods in statistical mechanics, field theory, dynamical systems, and chaos. *Prerequisites: CCSC-114 & MATH-112*

PHYS-250 *Mechanics.* Intermediate-level course on the principles and applications of dynamics. Topics include rotational kinematics and dynamics, conservation laws, central force motion, Lagrange's and Hamilton's equations, normal modes and small oscillations, accelerated reference frames, Fourier analysis, and chaos theory. *Prerequisites: CCSC-114 & MATH-112*

PHYS-251 *Electricity and Magnetism.* Introduction to Maxwell's equations with applications to physical problems. Topics include electrostatics, magnetostatics, the solution of the Laplace and Poisson equations, dielectrics and magnetic materials, electromagnetic waves and radiation, Fresnel equations, transmission lines, and wave guides. *Prerequisites: CCSC-114 & MATH-112*

PHYS-252 *Solid State Physics.* Solid state physics cover the principles of crystallography; crystal structure; lattice vibrations; band theory—metals and insulators; semiconductors; magnetism; and superconductivity. Topics of current interest such as high temperature super- conductivity, quantum Hall Effect, and fullerenes may be included, depending on interest. *Prerequisite: PHYS-250*

PHYS-255 *Biophysics.* Introduction to the physical mechanisms underlying biological processes. Elements of equilibrium and nonequilibrium statistical mechanics are used to explain how the molecular-scale components of biological cells store and process information, how they organize themselves into functional structures, and how these structures cooperatively endow organisms with the ability to eat, move, respond to the environment, communicate and reproduce. *Prerequisite: PHYS-250*

PHYS-301 *Quantum Mechanics.* Designed to provide a rigorous mathematical introduction to quantum mechanics, this course covers the Schrödinger and Heisenberg description of quantum systems, application to basic atomic structure and simple boundary condition problems, quantum statistics, and perturbation theory. *Prerequisites: CCSC-114 & MATH-117*

PHYS-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: PHYS-250*

PHYS-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: CCSC-114*

PHYS-314 *Astrophysics.* Introduction to modern astrophysical problems with an emphasis on the physical concepts involved: radio, optical, and X-ray astronomy; stellar structure and evolution; white dwarfs, pulsars, and black holes; and galaxies, quasars, and cosmology. *Prerequisite: PHYS-250*

PHYS-315 *Nuclear and Particle Physics.* The phenomenology and experimental foundations of nuclear and particle physics are explored in this course, with emphasis on the fundamental forces underlying particle interactions. *Prerequisite: PHYS-250*

STUDY AWAY SITE COURSES

ARTCR-UE 9077 *Contemporary Art, Architecture and New Media in China.* 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. In this seminar course, 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.

ART-UE 9380 *Projects in Photography: Art in Translation.* Students will work with traditional and digital photographic practices to engage with the people, art, and traditions of China. The class will include field trips to museums, galleries and studios, allowing students to interact with outstanding local photographers, media-based artists, and the city's creative community. Assigned readings will help students understand the historical and theoretical context of photographic work, and deepen the meaning of critiques and discussions. Experimentation will be encouraged, and students will respond to the experiences, ideas, and influences they encounter abroad through the work they create. Projects may range from classical photographs to digital prints and installation.

BPEP-UB 9042 *The Political Economy of East Asia.* This course introduces students the main characteristics of economies in East Asia with historical perspective and political assessment. Its main purpose is to explore the political, cultural and historical aspects behind the rapid economic growth in the past decades in the region. It also discusses the differences of market institutions and mechanisms in main countries in East Asia and the trend of economic cooperation and integration. This course will also examine the challenges that the East Asian Economies, especially the Chinese economy, are facing and tries to help students to have a better understanding of East Asia.

EAST-UA 9053/HIST-UA 9053 *Modern Chinese History Since 1840.* In this course we will select a number of critical issues in modern Chinese history to examine the political, social and cultural transformations of modern China. Topics of lectures include Confucianism and its modern fate, popular movements, the Great Leap Forward Movement, the role of Shanghai in modern China, Tiananmen Movement and the prospect of Chinese political reforms. The course will be approached through lectures, site visits, class discussions, and research.

EAST-UA 9540 *Chinese Film and Society*. This course will examine Chinese cinema from its infancy to contemporary film within a social, political and cultural context, focusing specifically on films produced in mainland China. While acknowledging the importance of examining Chinese cinema in the general framework of national tradition and identity, this course also emphasizes the transnational or pan-Asian nature of Chinese film productions at present. In this way, it is hoped that the course will not only help students cultivate a greater command over current trends and debates in analysis and theorization of Chinese cinema, but also help facilitate students' understanding of Chinese cinema/culture in the context of globalization.
No prior knowledge of Chinese cinema and culture is required. All films carry English subtitles. All works are read in English.

ENVST-UA 9450 *Topics in Environment Values and Society: Chinese Environmental Governance*. 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.

EXLI-UF 9301 *Experiential Learning I: Contemporary Chinese Culture and Society*.
This course aims to complement and enhance the internship experience. Students will learn to critically examine their fieldwork in order to reflect upon what their particular, concrete experience reveals about life in contemporary Shanghai. Throughout the course each student will develop an independent research paper that provides a theoretical framework and argument within which to analyze their internships. Through assignments and one-on-one meetings, students will learn to choose a research topic, create a bibliography, and prepare a research paper. The course will combine lectures with site visits, film viewing, guest speakers and individual meetings with the instructor. Class work will be based on current issues on the topic of Chinese society, politics, law, business, and culture. Students are encouraged to keep abreast of news regarding China from various sources of media.

JOUR-UA 9202 *Methods and Practice: Journalism*. This class is taught by Duncan Hewitt, who has many years of experience as a journalist in China. 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.

LWSOC-UA 9251 *Topics in Law & Society: Law, Culture, & Politics in China*. This course will study China's governance in the context of America's own governance system. We will consider how to compare American and Chinese governance systems, and whether and how concepts can be translated between them—so that the countries, and their citizens can learn from, and cooperate with, one another. In the process, we hope to learn about China, but also to reflect—in the light of 9/11 and Iraq-- more deeply on our own understanding of how American governance works—and how it is seen by the world.

MCC-UE 9451 *Global Media Seminar – Media in China*. This course looks at the transformation of China's media landscape over the past two decades through market reforms, commercialization and new technology. It covers topics including the drastic growth of tabloid newspapers and magazines; the transformation of television into an advertising-driven, multi-billion dollar industry with global ambitions; and the dramatic rise of the Internet and the growing influence of online public opinion, which has led to changes both in China's traditional media, and (sometimes) in the way the country is governed. The course will also look at tensions between those seeking to push for greater openness in the media, and censors and ideological critics who believe it has already gone too far.

MCC-UE 9993 *Introduction to Digital Media: Cyberculture in China.* This course introduces the philosophy of cybernetic machines with reference to the technological trends affecting contemporary China. Topics will include: Chinese cyberspace and the Great Fire Wall; the revolutionary potential of microblogs; hacking; gaming; the ICT economy, maker innovations and machine intelligence.

MGMT-UB 9001 *Management and Organizations*. This course investigates the nature, functions, and responsibilities of the management of organizations. The course develops an analytical approach to the identification, structuring, analysis, and solution of organizational problems, and introduces students to organizational policies and structures, functional areas, and production processes (including resource allocation, measurement and evaluation, and control), leadership style, and organizational adaptation and evolution. Teaching methodologies include lectures, case analysis and class discussion.

MKTG-UB 9006 *Introduction to Marketing*. This course explores the field of marketing by introducing and developing central concepts and philosophies of marketing, and exploring the relationship of marketing with other business disciplines. Keeping in mind the perspectives of both producer and consumer, the course examines the planning

required for the efficient use of marketing tools in the development and expansion of markets. The course concentrates on the principles, functions, and tools of marketing, including quantitative methods. Ethical issues in marketing are also addressed. In addition to lecture, the course uses case studies and student projects as methods for student learning.

POL-UA 9770 *International Politics and U.S.-China Relations*. This course aims to introduce students to the basic dynamics of strategic thinking and policy-making of both China and the U.S., to give an overview of the history of U.S.-China relations, and to discuss a number of key contemporary issues in the relationship in some detail.

RELST-UA 9270 *Religion and Society in China: Gods, Ghosts, Buddhas and Ancestors.* 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

SCA-UA 9042 *Internship Seminar and Field Work.* This course aims to complement and enhance the internship experience. Students will learn to critically examine their fieldwork in order to reflect upon what their particular, concrete experience reveals about contemporary life in Shanghai. Throughout the course each student will develop an independent research project that provides a theoretical framework and argument within which to analyze their internships. Through assignments and one-on-one meetings students will learn to choose a research topic, create a bibliography, write a basic research proposal, and produce a final research paper. Classroom meetings consist of reading based discussions, which focus on some of the crucial issues impacting the workplace in today's urban China (e.g., internet restrictions, guanxi, migrant labor and white collar workers.). These are complimented by a series of guest speakers who will present on issues such as the Chinese internet in China, the music industry in China, and marketing and entrepreneurialism.

SCA-UA 9634 Global Connections: Shanghai. This course examines Shanghai's attempts to position itself at the forefront of the largest and fastest process of urbanization the world has ever seen. It explores the city's attempts to build itself into the future metropolis of 21st century. It does so by facilitating a deep engagement with the city that combines reading based discussions on issues of urbanism, capitalism and creativity with in depth field trip explorations.
The course has 3 separate but interrelated components:
1. Field-trips designed to provide a direct engagement with the issues of the course.
2. Reading-based lecture and seminar discussions
3. An individual research project.

SOIM-UB 9006 *Law, Business & Society* Every professional business person must be aware of how legal systems work and effect business decisions. Furthermore, the interaction between Law and Business is multidimensional involving international, ethical, and technological considerations. In this course, students examine how key areas of business law, including contracts, torts, and business organizations, influence the structure of domestic and international business relationships. Students actively participate in legal studies designed to enhance business skills such as analytical thinking, written communication, oral presentation, conflict resolution, and team work problem-solving.

SOIM-UB 9065 *Organizational Communication and Its Social Context* In this course, students learn how to increase their communication effectiveness for business and professional goals. During the semester, students focus on the strategic implications of communication for modern organizations. A variety of assignments are given to stress the following communication competencies: written, spoken and nonverbal communication basics for business; effective team communication strategies; informative, persuasive and collaborative presentations; communication techniques for required junior and senior year projects. Students regularly receive personal feedback about their writing and their oral presentations from the instructor.

Appendices

Leadership

Yu Lizhong
Chancellor

Yu Lizhong joined NYU Shanghai from ECNU, where he served as president from 2006 – 2012. Prior to his presidency at ECNU, Yu also served as president of Shanghai Normal University. As Chancellor of NYU Shanghai, he serves as Chairman of the Board of NYU Shanghai.

Chancellor Yu's research focuses on environmental processes, environmental change, and sustainable development. He has published over 150 refereed papers in major journals and is widely recognized as an influential scholar in the field, serving on the boards of multiple educational, environmental, and scientific organizations throughout China. A skilled researcher and dedicated teacher, Yu is also an experienced administrator, having served in several important administrative capacities throughout his career at ECNU. It was under his leadership and forward-thinking global vision that ECNU embarked upon an ambitious path of growth and internationalization, cementing ECNU's reputation as an institution of higher education with global impact.

Chancellor Yu received his undergraduate degree in Geography from ECNU and his Ph.D. in Geography from the University of Liverpool. He also holds honorary doctorates from Montclair State University, École Normale Supérieure, the University of Loughborough, and the University of Liverpool.

Jeffrey S. Lehman
Vice Chancellor

Jeffrey Lehman is the Vice Chancellor of NYU Shanghai, where he oversees all academic and administrative operations. Lehman is an internationally acclaimed leader in higher education, having served as dean of the University of Michigan Law School, the eleventh president of Cornell University, and the founding dean of the Peking University School of Transnational Law.

Prior to joining the University of Michigan Law School, Lehman served as law clerk to Frank M. Coffin, Chief Judge of the United States Court of Appeals for the First Circuit and Associate Justice John Paul Stevens of the United States Supreme Court. He then spent four years at Caplin & Drysdale, a Washington, D.C. law firm. Throughout his professional and academic career, Lehman has volunteered his time and energy to nonprofit organizations that share his commitments in the fields of higher education, law,

and technology.

Vice Chancellor Lehman received an undergraduate degree in mathematics from Cornell University, an M.P.P. from the University of Michigan, and a J.D. from the University of Michigan Law School. He is a multi-award winner for his work both in the US and abroad, including the Friendship Award, which is China's highest honor for "foreign experts who have made outstanding contributions to the country's economic and social progress." Lehman is also a recipient of an honorary doctorate from Peking University.

Xiao-Jing Wang
Provost

Xiao-Jing Wang is the Provost of NYU Shanghai, and Professor of Neuroscience at New York University. As Provost, Wang serves as NYU Shanghai's chief academic officer, setting the university's academic strategy and priorities, and overseeing academic appointments, research, and faculty affairs. Before joining NYU in the fall of 2012, Wang was Professor of Neurobiology at Yale University. At Yale he also served as the Director of the Swartz Center for Theoretical Neuroscience, and held secondary faculty appointments in Physics, Applied Mathematics and Psychology.

Wang is an expert on the neurobiology of executive and cognitive functions. His group has pioneered neural circuit models of the prefrontal cortex, which is often called the "CEO of the brain". In particular, Wang is known for his work on the cellular basis of short-term memory, neural mechanisms for decision-making, communication and synchronization through inhibitory neurons in the brain. His research group is now embarking on a new initiative of developing neurobiologically-realistic large-scale brain circuit models of cognitively-controlled flexible behavior.

Wang received his Bachelor of Science and Doctor of Philosophy in Physics, both with the highest distinction, from the University of Brussels, Belgium. He is a recipient of an Alfred P. Sloan Research Fellowship, a National Science Foundation CAREER Award, a John Simon Guggenheim Memorial Foundation Fellowship, and the Chinese Government's 1000 Talent Award. Wang is also a Fellow of the American Association for the Advancement of Science.

Joanna Waley-Cohen
Dean of Arts and Sciences

Joanna Waley-Cohen is Dean of Arts and Sciences for NYU Shanghai and Professor of History at New York University, where she has taught Chinese history since 1992. As Dean, she is responsible for recruitment of faculty, curriculum oversight, and intellectual development of the humanities, social sciences, and natural sciences. Waley-Cohen received her B.A. (1974), and her M.A. (1977) in Chinese Studies from Cambridge University, where she was a member of Girton College, and her Ph.D. (1987) in History

from Yale University. Her research interests include early modern Chinese history; China and the West; and Chinese imperial culture, especially in the Qianlong era. She has received many honors, including archival and postdoctoral fellowships from the American Council of Learned Societies; Goddard and Presidential Fellowships from NYU; and an Olin Fellowship in Military and Strategic History from Yale. Waley-Cohen's books include *The Culture of War in China: Empire and the Military under the Qing Dynasty* (I.B. Tauris, 2006); *The Sextants of Beijing: Global Currents in Chinese History* (W.W. Norton, 1999); and *Exile in Mid-Qing China: Banishment to Xinjiang, 1758-1820* (Yale University Press, 1991). Her current scholarly projects include a study of daily life in China c.1800, and a history of culinary culture in early modern China.

Eitan Zemel

Dean of Business and Engineering

Eitan Zemel is the Dean of Business and Engineering at NYU Shanghai. He also serves as the W. Edwards Deming Professor of Quality and Productivity and as the Vice Dean for Global Programs and for Executive Education at New York University Leonard N. Stern School of Business. Professor Zemel joined the faculty of the Stern School in 1998 and has served in a succession of leadership positions in the school including as Founding Chair of the IOMS Department (Information, Operations and Management Sciences) and as Vice Dean in charge of the MBA Program, the Langone Part Time MBA Program, the Executive MBA Program, the TRIUM Global Executive Program and the newly Launched Global Masters Program in Business Analytics, among others. Prior to joining Stern, Professor Zemel served as the Harold L. Stuart Professor of Operations Research at the J. L. Kellogg Graduate School of Management, Northwestern University where he also served as a founding Director of the Master of Management in Manufacturing Program and as Chair of the Managerial Economics and Decision Sciences (MEDS) Department.

For over 20 years, Professor Zemel's research was mainly concerned with computations, algorithms and complexity. He developed the concepts which were used in the first practical algorithm for solving large knapsack problems, and which are still used in almost every efficient algorithm for this problem. Other areas of research lately include supply chain management, operations strategy, service operations and incentive issues in operations management. His writing has appeared in numerous publications including *Econometrica, The SIAM Journal on Applied Mathematics, Operations Research, Mathematics of Operations Research, Games and Economic Behavior*, and *Annals of Operations Research*. He served on the editorial boards of various publications such as *Manufacturing Review, Production and Operations Management, and Management Science*, and *Manufacturing and Service Operations*. Professor Zemel is a coauthor of the book *Managing Business Process Flows*.

Professor Zemel received his Bachelor of Science in Physics and Mathematics (with distinction) from the Hebrew University in Jerusalem, his Master of Science in Applied Physics from The Weizmann Institute of Science in Israel, and his Doctor of Philosophy

in Operations Research from the Graduate School of Business Administration at Carnegie Mellon University.

Keith Ross
Vice Dean of Business and Engineering

Keith Ross is the Vice Dean of Business and Engineering at NYU Shanghai and the Leonard J. Shustek Distinguished Professor in the Department of Computer Science and Engineering at NYU. He has published extensively on Internet privacy, Internet piracy, peer-to-peer networks, Internet security, and video distribution in the Internet. Author of the textbook, Computer Networking: A Top-Down Approach, which is the most popular textbook on computer networking, both in the US and internationally, and has been translated into fourteen languages. He is the recipient of numerous best-paper awards, and his work has been featured extensively in the media, including *New York Times*, NPR, *Le Monde*, Bloomberg Television, and Huffington Post. He is both an ACM Fellow and an IEEE Fellow.

Tyra Liebmann
Dean of Students

Tyra Liebmann is Dean of Students for NYU Shanghai. She is responsible for the overall student life experience of the international community of scholars at NYU Shanghai, emphasizing intercultural communication and engagement across a broad spectrum of activities for students from diverse backgrounds.

Liebmann recently served as Co-Interim Dean of the Wagner Graduate School of Public Service at NYU, where she has been Associate Dean of Student Affairs and Administration since 2004. Prior to joining NYU, she was the Chief Operating Officer at Safe Horizon, the leading victim assistance organization in the US, and a second responder organization in the 9/11 crisis, partnering with government, nonprofit, and private sector entities to facilitate recovery. Liebmann also served in New York City government as Deputy Director of the Mayor's Office of Operations under two administrations; and worked in the private sector as a principal consultant for a financial services firm. Her own teenage experience of living with a family in Kabul, Afghanistan forged her commitment to cross-cultural experience and education. Ms. Liebmann received her Master of Public Administration degree from the Kennedy School of Government at Harvard University.

FACULTY

Marie Albenque
 is Visiting Professor of Mathematics at NYU Shanghai. A CNRS researcher at École Polytechnique, Paris, she received her PhD in Computer Science in Université Paris Diderot in 2008. She specializes in interactions between combinatorics and probability and in particular in models of random trees, maps and graphs.

Shaul K. Bar-Lev
Professor of Statistics, University of Haifa, Israel. Past President, Israel Statistical Association; past Dean of Research of the University of Haifa; associate editor, *Mathematical Methods of Statistics* and *Advances and Applications in Statistics*; Fellow of the American Statistical Association for outstanding contributions to the Statistical Profession, in particular for contributions to statistical theory, especially on exponential families of distributions; and for work in effectively establishing statistical support and consulting activities.

Amy Becker
Senior Lecturer and Director of the Writing Program for NYU-Shanghai. Former Lecturer in NYU's Expository Writing Program, where she taught first-year writing courses for native and non-native English speakers; served as a mentor to new teachers; served as a mentor in the Undergraduate Writing Tutors Program, and provided writing consultation for courses across the disciplines. Former Critical Thinking and Writing Instructor for NYU Abu Dhabi's Summer Academy. Presented work on writing centers and peer tutoring programs at Northeast Writing Center Association conferences. Member of the Association of Writers and Writing Programs.

Matthew Belanger
Assistant Professor of Media Arts & Technology at BMCC, City University of New York. Internationally exhibited artist whose work has been featured in numerous publications including El Paś, The Boston Globe, and Boing Boing. Co-director of his own organization, Greylock Arts, a non-commercial arts space located in the northern Berkshires. Experienced entrepreneur and software developer having worked on interactive media projects for companies such as General Electric, Fidelity Investments, NYSE, and Cadbury.

Thomas Bender
University Professor of the Humanities, NYU. Member of the American Academy of Arts and Sciences. Former Guggenheim Fellow, Rockefeller Humanities Fellow, Getty Scholar, and Mel and Lois Tukman fellow at the New York Public Library. Fellow, Center for Advanced Studies in the Behavioral Sciences, Stanford University. Winner of the Frederick Jackson Turner Prize. A scholar of intellectual and urban history, his many

books include the pathbreaking *A Nation Among Nations: America's Place in World History*.

Jane Burbank

Collegiate Professor and Professor of History and Russian and Slavic Studies, NYU. Taught previously at Harvard University, University of California at Santa Barbara, University of Michigan, Ecole des Hautes Etudes en Sciences Sociales; and Humboldt University. Winner of the World History Association Book Prize for *Empires in World History,* co-authored with Fred Cooper.

David Cai

Professor of Mathematics and Neural Science, Courant Institute of Mathematical Sciences. Specializes in Applied Mathematics, Theoretical and Computational Neuroscience.

Xinying Cai

is Assistant Professor of Neural and Cognitive Sciences at NYU Shanghai (starting Fall 2014). He received his PhD in Bioengineering from Arizona State University. His postdoctoral work at Yale University and Washington University in St Louis focused on understanding the neurobiology of value-based decision-making. His current research and teaching interest is in Neuroeconomics, which seeks to elucidate the neural underpinnings of economic choice behavior. His research has appeared in leading scientific journals such as *Neuron* and *Journal of Neuroscience.*

Peng Chen

Chinese Language Instructor of NYU Shanghai, has an MA in Linguistics and Applied Linguistics from East China Normal University.
Chen Laoshi has taught elementary-level Chinese, intermediate-level Chinese and heritage Chinese for more than 5 years at ECNU, USST, CIEE and NYU Shanghai.

Chen, Yuxin

Yuxin Chen is Global Network Distinguished Professor of Business at NYU Shanghai. He was formerly the Polk Brothers Professor in Retailing and Professor of Marketing at the Kellogg School of Management at Northwestern University, prior to which he taught at NYU's Stern School of Business for a decade. Prof Chen's primary research areas include competitive strategies, data-driven marketing, Internet marketing, pricing, retailing, structural empirical models, Bayesian econometric methods, and behavioral economics. His research has appeared in journals such as the Journal of Marketing Research, Management Science, Marketing Science and Quantitative Marketing and Economics. He received the Frank M. Bass Dissertation Paper Award for best marketing paper derived from a PhD thesis published in an INFORMS-sponsored journal and the 2001 John D.C. Little Award for the best marketing paper published in Marketing Science or Management Science for his research on targeted marketing. He currently

serves as Associate Editors for the Journal of Marketing Research , Management Science, Marketing Science, and Quantitative Marketing and Economics. He also serves as a Senior Editor for Production and Operations Management Journal (POMS) and was on the editorial board of the Journal of Marketing.

Professor Chen received his B.S. in Physics from Fudan University, a MSBA and a Ph.D. in Marketing from Washington University in St. Louis. He also studied in Computer Science Department in the Graduate School of Zhejiang University.

Brandon Conlon
is Language Lecturer at NYU-Shanghai. Started teaching ESL/EFL in Prague in the mid-1990's. For the past nine years, he has lived and taught in China, most recently at Xian Jiaotong-Liverpool University, Suzhou, Jiangsu, where he designed a language course for English and Communication students in their second year. He has designed and taught a range of language intensive courses that include English for academic purposes, composition, culture, lexicology, and introductory linguistics. Currently pursuing an EdD with the University of Liverpool. Member of Teachers of English to Speakers of Other Languages, USA (TESOL).

Frederick Cooper
Professor of History, NYU, specializing in the history of empires and colonialism and of Africa. Elected to the American Academy of Arts and Sciences in 2001. Taught previously at the University of Michigan and has been a visiting professor at Ecole des Hautes Etudes en Sciences Sociales, Paris, and the Ecole Normale Supérieure, Paris. Winner of the Herskovits Prize of the African Studies Association, a Guggenheim Fellowship, fellowships at the Center for Advanced Study in the Behavioral Sciences and the Wissenschaftskolleg, and most recently the World History Association prize for *Empires in World History*, co-authored with Jane Burbank.

Adrien Deloro
Associate Professor of Mathematics, Université Pierre et Marie Curie. Received his PhD in pure Mathematics from Université Paris Diderot in 2007. Winner of the Sacks Prize. Former Hill Assistant Professor at Rutgers University.
Especially interested in logic and algebra, more specifically model theory and group theory, and their relations.

David Fitch
Professor of Biology. NYU. Winner of many awards including from the National Institutes of Health, Fulbright Foundation, and National Science Foundation. Member of the Society. of Developmental Biology, Society for Molecular Biology and Evolution, Society of Nematologists, American Association for the Advancement of Science, Genetics Society of America, The Harvey Society, New York Academy of Science. His research focuses on genetic regulatory architecture and molecular interaction network

underlying the process, morphogenesis, whereby cells adopt particular shapes, and the changes in these processes responsible for the evolution of cell shape diversity.

Roderick Hills, Jr.

William T. Comfort III Professor of Law, New York University Law School. Taught previously at the University of Michigan Law School, Stanford Law School, Columbia Law School, Harvard Law School, and the Yale Law School. Winner of the Paul M. Bator Award for significant public impact through scholarship, excellence in legal scholarship, a commitment to teaching, and a concern for students.

Pierre Hohenberg

Professor Emeritus of Physics, NYU. Member of the National Academy of Sciences. Fellow of the American Physical Society, the American Association for the Advancement of Science, and the American Academy of Arts and Sciences. Winner of the Fritz London Prize, the Max Planck Medaille, and the Lars Onsager Prize. Hohenberg's research and teaching interests are in statistical and condensed matter physics, foundations of quantum mechanics and the philosophy of science.

David Hollinger

Preston Hotchkiss Professor of History, University of California, Berkeley, with a particular interest in intellectual and religious history and the history of race and ethncity in the United States. Fellow American Academy of Arts and Sciences. Has been a Guggenheim Fellow, a Fellow of the Center for Advanced Study in the Behavioral Sciences, a Member of the Institute for Advanced Study, and Harmsworth Professor of the University of Oxford. Past President (2010-2011) Organization of American Historians.

Tzu-hui Celina Hung

Tzu-hui Celina Hung is Assistant Professor of Literature at NYU Shanghai. Most recently she was a Visiting Assistant Professor and Andrew W. Mellon Postdoctoral Fellow at the University of California, Los Angeles (UCLA). She received her Ph.D. in Comparative Literature from the State University of New York at Stony Brook. Her research and teaching interests include China-West and inter-Asian comparative studies, Sinophone literature and visual culture, Anglophone literature, Asian migration and diaspora, Southeast Asian studies, creolization, multiculturalism, critical theory, and comparative ethnic studies. Her current book project theorizes the practices and articulations of creolization in the Sinophone Pacific.

Nicolas Jaquemet

Professor at Université de Lorraine and at the Paris School of Economics, France. He is also a research fellow of the Institut Universitaire de France. His research focuses on applied microeconomics, using both econometrics and laboratory experiments, and have applications in a wide range of fields, such as labor market policies, environmental

economics and health economics. He is the author of numerous research articles, which have been published in top tier journals such as Games and Economic Behavior, the European Economic Review, the Journal of Health Economics or the Journal of Environmental and Economics Management. He is also the author of a reference textbook in French on econometrics for graduate students and on hiring discrimination.

Chai Jing

Chai Jing, graduated from Institute of Global Chinese Language Teacher Education, East China Normal University, has over four years' experience in Chinese language teaching, focusing on elementary and intermediate level. With one year teaching in Washington and Lee University in the US and three years in other universities and institutes in Shanghai, Chai Jing has developed a dynamic and tech-based teaching style.

Ernest Gilman

is Professor of English at New York University and is a former Guggenheim and ACLS Fellow and Director of NYU's Summer in London Program. He is the author of numerous books and articles in the field of Renaissance literary and visual culture and in the literary history of medicine and disease, most recently *Plague Writing in Early Modern England.*

Amy Goldman

Amy R. Goldman's passion is literature and culture and she has spent nearly 20 years in Europe and Asia, on and off, following the call of both. She received both her Ph.D (UC Davis, 1996) and her BA (Princeton, 1978, honors) in Comparative Literature. Her undergraduate formation centered in the modern European novel, with a secondary interest in Near Eastern studies. Her doctoral work, which expanded her early interest in cross-cultural perspectives, was based in an interdisciplinary comparison of Chinese and Western culture and included emphases in British literature, French medieval literature and Chinese myth. Her research interest in women and creation narratives— mythological, philosophical, religious and literary—shaped her dissertation "Beginning With Women: Reverence and Subjection in Cosmogonies of China and the West," which drew on the Daodejing, Chinese ethnic minority myths, Hesiod, Aeschylus, Genesis, Gnostic texts, and others.

Dr. Goldman has taught Comparative Literature at the University of California at Davis, Fudan University, Colorado College, and the University of Memphis, for which she was also Resident Director of their China Program in Shenzhen. In addition to her teaching, Dr. Goldman is also a professional editor and writer; her current narratives are inspired by the odd yet rich syncopations intrinsic to the intercultural life. When she is not teaching in China she can be found on retreat in India.

Hillary Hua

is Director of Laboratories of NYU Shanghai. She received her Ph.D. in chemistry from Rensselaer Polytechnic Institute in 2002. She was the Director of Undergraduate Laboratories (2009-2013) and Lecturer for the Chemistry Department at Stanford University (2006-2013). Prior to that, she was an Assistant Professor in the Chemistry Department at Siena College in New York. She has taught Organic Chemistry, Organic Chemistry Laboratories and General Chemistry Laboratory. Her research interests involve chemical education, effective learning and teaching and chemistry courses development.

Zhongping Jiang

Dr. JIANG received the B.Sc. degree in mathematics from the University of Wuhan, Wuhan, China, in 1988, the M.Sc. degree in statistics from the University of Paris XI, Paris, France, in 1989, and the Ph.D. degree in automatic control and mathematics from the Ecole des Mines de Paris, Paris, France, in 1993.

From 1993 to 1998, he held visiting researcher positions with several institutions including INRIA (Sophia-Antipolis), France, the Department of Systems Engineering in the Australian National University, Canberra and the Department of Electrical Engineering in the University of Sydney. In 1998, he also visited several U.S. universities. In January 1999, he joined the Polytechnic Institute of NYU at Brooklyn as an Assistant Professor of Electrical Engineering, where he is currently a Professor. His main research interests include stability theory, optimization, robust and adaptive nonlinear control, with special emphasis on applications to underactuated mechanical systems, communication and biological networks. He has authored or co-authored four book chapters, over 90 journal papers and numerous conference papers.

Dr. Jiang has served as a Subject Editor for the International Journal of Robust and Nonlinear Control, an Associate Editor for Systems & Control Letters and IEEE Transactions on Automatic Control. He served as an Associate Editor of the IEEE CSS Conference Editorial Board during 2000 - 2002. He is Honorary Professor of Automatic Control at Nankai University, China

Dr. Jiang is the recipient of a prestigious Queen Elizabeth II Fellowship Award from the Australian Research Council, a CAREER Award from the U.S. National Science Foundation, a JSPS Invitation Fellowship Award and a Young Investigator award from the NSF, China.

Eun Joo Kim

received her PhD in English from the University of Minnesota, where she has taught courses in the departments of Asian Languages and Literatures, English, and Writing Studies. Her research interests include translation, multilingual literatures, Asian American studies, and diaspora studies.

Moshe Kim

Professor of Economics, University of Haifa, Israel. Founder and past director of the Barcelona Banking Summer School at the Graduate school of Economics or the Universitat Pompeu Fabra in Barcelona; past director of the endowed chair of banking at Humboldt University of Berlin; invited senior distinguished fellow at the Swedish School of Economics in Helsinki (Hanken); Institute research professor at the German Institute for Economic Research. Professor Kim is widely published and is co-author of *MicroEconometrics of Banking, Methods, Applications and Results.*

Raphaël Lefevere
Received his Ph.D. in Mathematical Physics from the University of Louvain (Belgium) in 1999. He went on to conduct postdoctoral research at the University of Helsinki (Finland) and in Kyoto University (Japan) before joining the Probability and Stochastic Models Laboratory in Paris Diderot University (France) in 2004. His main research focus is on Statistical Mechanics.

Wenshu Li
is Assistant Professor of Practice of Biology at NYU Shanghai. She received her doctoral degree in Genetics in Fudan University in China, and was a visiting scholar in the College of Medicine in the University of Illinois at Chicago in the US. Her research interests are cancer biology and stem cell biology, focusing on the molecular pathways that control the self-renewal and proliferation of cells. She is the author with Yu Hou, Ming Ming, Long Yu, Amber Seba and Zhijian Qian of "*Apc* regulates the function of hematopoietic stem cells largely through *β-catenin*-dependent mechanisms." ***BLOOD*** 2013,121(20): 4063-72

Fanghua Lin
Silver Professor of Mathematics, Courant Institute of Mathematical Sciences, NYU. Winner of the Bocher Memorial Prize of the American Mathematical Society, and the Shiing-shen Chern Prize, and Member of the American Academy of Arts and Sciences.

Eduardo Mayer-Wolf
Professor of Mathematics at the Technion, Israel Institute of Technology. Member of the Israel Mathematical Unioin, American Mathematical Society, the European Mathematical Society and the Institute of Mathematical Statistics. His research interests lie in the discipline of Probability and Stochastic Processes, and more specifically the areas of Stochastic Analyisis in Gaussian and non-Gaussian spaces, Fractional Brownian motion, Non-linear filtering and Information Theory in Abstract Wiener space.

Alberto Minguez
Associate Professor of Mathematics at the Université Pierre et Marie Curie and the Ecole Normale Supérieure of Paris. Received his PhD in pure Mathematics from Université Paris Sud in 2006 and continued his postdoctoral research at the University of East

Anglia (U.K.) and the Kyoto University (Japan). Especially interested in logic and algebra, more specifically model theory and group theory, and their relations.

Maria E. Montoya

Associate Professor of History, NYU, specializing in History of the American West, Environmental, Labor, and Latina/o history. Professor Montoya served for several years as Director of Undergraduate Studies in History, coordinating history courses across the Global Network University and mentoring honors students in the NYU New York History Department. She is the lead author of the forthcoming U.S. History Textbook, Global Americans.

Charles Newman

Silver Professor of Mathematics, Courant Institute of Mathematical Sciences, NYU. Fellow of the American Mathematical Society, Fellow of the Institute of Mathematical Statistics, Member of the International Association of Mathematical Physicists, Member of the US national Academy of Sciences, Member of the American Academy of Arts and Sciences, Member of the Brazilian Academy of Sciences.

Mary Nolan

Professor of History, NYU. Fellow, Shelby Cullom Davis Center at Princeton, ACLS, DAAD, and the Humboldt Foundation. Winner of the American Historical Association's George Louis Beer Prize in International History and the Hans Rosenberg Article Prize of the Conference Group on Central European History. Author most recently of *The Transatlantic Century: Europe and America, 1890-2010,* her new research is on neoliberalism and human rights. She is on the editorial boards of the journals International Labor and Working-class History and Politics & Society.

Avraham Parola

Professor of Biophysical Chemistry and Carol and Barry Kaye Chair in Applied Science, also former Dean of the Faculty of Natural Sciences and Chairman of the Chemistry Department at Ben Gurion University (BGU), Israel. Visiting Assoc. Professor, Dana-Farber Cancer Institute, Department of Tumor Immunology, Harvard Medical School, National Research Council (NRC) Senior Visiting Scientist, Naval Medical Research Institute, and Visiting Professor, Department of Chemistry, University of Sydney. Member of European Cooperation in the field of Scientific and Technical Research.

Marianne R. Petit

Associate Professor of Arts, Department of Interactive Telecommunications Programs, Tisch School of the Arts. Co-director of her own organization, Greylock Arts, a non-commercial arts space located in the northern Berkshires. Her artwork has appeared internationally in festivals and exhibitions currently including Mass MoCA's Kidspace, has been featured in WIRED and broadcast on IFC and PBS. In addition, her pop-up

books are in numerous collections including the San Francisco Museum of Modern Art, the Berlin Public Library, and the Boston Public Library.

David Perry

is a Language Lecturer at NYU Shanghai. He received an MFA in Literary Translation in 1993 from the University of Iowa's Department of Cinema and Comparative Literature, and in 1994 he moved to New York, where he was active in the downtown poetry community, publishing his first book of poems, *Range Finder* (AiP) in 2003. In 2006, he moved to Shanghai, where he taught creative writing at the NYU Global Academic Center and writing in the NYU Liberal Studies Core Program. He has taught literature and creative writing courses at the University of Iowa, St. John's University, the Kansas City Art Institute, and the University of Missouri-Kansas City. He has published numerous poems, translations, and critical writings on contemporary poetry and art in a range of publications, including translations of the German poet Bert Papenfuß in *New European Poets* (Graywolf); recent performances include a collaboration with the artist Zhang Jianjun (张建军) at Shanghai's Himalayas Art Museum. His writing and research interests include the effects of globalization on contemporary English-language writing and literature, translation theory and practice, contemporary poetry and poetics, urban theory, science fiction, and cyberculture.

Ma Ping

has a MA in Applied Linguistics and holds the senior certificate of Teaching Chinese as a Foreign Language issued by the National Education Department. With more than ten-year experience in teaching Chinese to foreigners. Ms. Ma used to work as a Chinese instructor in New York University Shanghai Center and East China Normal University. Ms Ma has gained good reputation from her students with her dynamic and clear class instructions. Her fluent English also helps her communicate with the students and explain the grammar. The students in her class are mainly from the States, Europe and Asia. She also has attended in various language projects, including the summer program of UCLA, Emlyon Business School in Shanghai and Kazakhstan, Saudi Arabian groups, etc. Also, Ms Ma used to teach Chinese at all levels, including beginner, intermediate and advance ones. Ms Ma pays more efforts to improve the practical language abilities of her students, teaching them how to speak like a Chinese. She's patient and helpful and her class is also informative and interesting as most students evaluated her instructions and class.

David Schley

Lecturer in the Writing Program for NYU-Shanghai. Received his Ph.D. in history from Johns Hopkins University in 2013. Teaches academic writing and American history. Former Allen Grossman Teaching Fellow in Expository Writing; Dean's Teaching Fellow at JHU. Research focuses on nineteenth-century U.S. urban history and the history of capitalism. Publications include "Tracks in the Streets: Railroads, Infrastructure, and Urban Space in Baltimore, 1828-1840," forthcoming in the *Journal of Urban History*

Xiaobo Shui

received her MA degree on Teaching Chinese as a Second Language from East China Normal University (ECNU) in June 2012. She worked as a Chinese teacher in University of Virginia Shanghai summer program in 2010 summer vacation. And then she took internships in the Alliance for Global Education as a part-time Chinese teacher in the past two years. Meanwhile, she worked for Critical Language Scholarship program as a Chinese teacher in 2011 and 2012 summer vacations. She entered NYU Shanghai in 2012. During the past years, she taught all kinds of courses for students at different Chinese levels, such as oral Chinese, Chinese newspaper reading, Chinese culture, and ancient Chinese, etc.

Paul Romer

Professor of Economics, Stern School of Business, NYU and Director of NYU-Stern Urbanization Project. Fellow of the American Academy of Arts and Sciences. Taught previously at Stanford University, the University of Chicago, and the University of California Berkeley. Winner of the Recktenwald Prize in Economics.

Lean Scheen

Lena Scheen received her Ph.D. in Chinese Literature from Leiden University in the Netherlands in 2012. Her research explores the cultural, social, and mental impact of urbanization in China, focusing on cultural production in Shanghai. Together with Jeroen de Kloet, she is the co-editor of *Spectacle and the City: Chinese Urbanities in Popular Culture and Art* (Amsterdam University Press, 2013), and is currently completing a manuscript entitled *Shanghai: Literary Imaginings of a City in Transformation*, to be published in late 2013. Scheen previously taught at Leiden University and the University of Amsterdam.

Schley, David

David Schley is Lecturer in the Writing Program for NYU-Shanghai. Received his Ph.D. in history from Johns Hopkins University in 2013. Teaches academic writing and American history. Former Allen Grossman Teaching Fellow in Expository Writing; Dean's Teaching Fellow at JHU. Research focuses on nineteenth-century U.S. urban history and the history of capitalism. Publications include "Tracks in the Streets: Railroads, Infrastructure, and Urban Space in Baltimore, 1828-1840," forthcoming in the *Journal of Urban History*.

Clay Shirky

Associate Professor at the Arthur L. Carter Journalism Institute, where he was previously a Distinguished Writer in Residence, and Associate Arts Professor in the Tisch School of the Arts Interactive Telecommunications program. Author of three books on social media: *Cognitive Surplus* (2010), which was translated in 2011 into Chinese as 下班時間扭轉未來, *Here Comes Everybod*y (2008), translated in 2009 as 皮建勇的博客 and *Voices from the Net* (1994). Fellow at the Berkman Center for Internet and Society, and

2010 Edward R. Murrow Visiting Lecturer at Harvard's Joan Shorenstein Center on the Press, Politics, and Public Policy. He has been twice listed as one of Foreign Policy magazines Top 100 Global thinkers. His writings on the internet and media can be found at shirky.com.

Harold Sjursen

Professor of Philosophy and Global Ethics, New York. University Polytechnic Institute. Member American Philosophical Association, Association for Asian Studies, Columbia University Seminar on Neo-Confucian Studies. Taught previously at Augustana College and the New School for Social Research.

Daniel Stein

Dean of Science and Professor of Physics and Mathematics, NYU. Fellow of the American Association for the Advancement of Science and of the American Physical Society. Taught previously at Princeton University and the University of Arizona.

Catherine Stimpson

University Professor and Professor of English, NYU. Past President of the Modern Language Association, Past President of the Association of Graduate Schools. Former Dean of the Graduate School of Arts and Science, NYU. Founding editor of the *Signs: Journal of Women in Culture and Society*.

Jennifer Tomscha

is Language Lecturer in the Writing Program at NYU-Shanghai. Former Lecturer in the English Department Writing Program at the University of Michigan, where she developed and taught first-year writing and creative writing courses. Also a former Lecturer at the New England Literature Program, a residential study-away term that brings University of Michigan students to rural New Hampshire to study classic American texts. Earned a Master of Fine Arts in fiction writing from the University of Michigan, and was awarded a 2011 Helen Zell Postgraduate Fellowship in Creative Writing. Has published fiction in the literary magazine *Glimmer Train*, among others. Holds a Master of Theological Studies from Harvard University. Member of Phi Beta Kappa and the Association of Writers and Writing Programs.

Jessica Valdez

is Lecturer in the Writing Program for NYU-Shanghai. Received Ph.D. in English from Johns Hopkins University in 2013. Teaches academic writing and British literature. Former Allen Grossman Teaching Fellow in Expository Writing; Dean's Teaching Fellow at Johns Hopkins University. Research focuses on Victorian literature, specifically the relation between journalism and the novel. Publications include "Dickens's 'Pious Fraud': The Popular Press and Narrative's Potential for Social Control," in *Victorian Periodicals Review*. Work in progress includes the article, "The Jewish Dickens: Israel Zangwill and Multilingualism in *Children of the Ghetto.*"

Xingyu Wang

is Laboratory Instructor at NYU Shanghai. She received her Ph.D. in Chemistry from New York University. Her research focuses on development and application of polarizable protein force field; glycoproteins and their biological functions; protein folding; molecular dynamics simulation and drug design. Wang previously taught General Chemistry and Physical Chemistry at New York University. A member of the American Chemical Society and the New York Academy of Sciences, she has published her research in *Chemical Physics Letters, the Journal of Physical Chemistry* and the *Journal of Molecular Modeling.*

Kenneth Ward

Kenneth Ward received his PhD in Pure Mathematics from Oklahoma State University and has taught mathematics, physics and economics at the University of Chicago, the Enrico Fermi Institute, and Oklahoma State University. His research has covered a range of pure and applied topics from game theory to arithmetic geometry, and has applications including civil law and cryptography. Most recently, his work has examined connections between transcendental numbers and finite fields. As an educator, one of his primary interests is the development of accessible mathematics curriculum. He has served as an instructor in teaching initiatives across the U.S. for over a decade, including National Science Foundation programs for gifted students and secondary school instructors, research programs for graduate students, and training programs for undergraduates interested in finance or engineering.

Yisong Yang

is Professor of Mathematics at Polytechnic Institute of New York University and a Fellow of the American Mathematical Society. His research is in partial differential equations and mathematical physics.

Song Ying

holds a master's degree in Teaching Chinese as a Foreign Language. Song Ying has been teaching foreigners Chinese for more than three years. Song Ying has worked in NYU Shanghai as an intern for one semester. Also she used to work as a Chinese instructor in Shanghai University Of Engineering Science and East China Normal University. Her students are mainly from the United States, Europe and Asia. Song Ying has the experience of teaching students at all levels, including elementary, intermediate and advanced ones. Her English is good which helps her explain the language rules clealy and communicate with her students well. Song Ying cares about her students' needs while teaching them Chinese. Also, she's patient and her class is always full of fun.

John Zhang

Professor of Chemistry. Winner of many awards and fellowships including Camille and Henry Dreyfus New Faculty Award, National Science Foundation Presidential Faculty

Fellow, Alfred P. Sloan Foundation Research Fellow, and Camille Dreyfus Teacher-Scholar.

Jun Zhang

Professor of Physics and Mathematics and Co-Director of the Applied Math Laboratory, NYU Courant Institute of Mathematics. Research interests include physics of fluids, which include biomechanics or bio-locomotion (organism swimming and flying), geological fluids (thermal convection, continental drift), solid-on-solid friction, and self-organization phenomena at microscopic scales.

Lu Zhang

is the Laboratory Instructor for Foundations of Science at NYU Shanghai. Lu Zhang received her PhD degree in Chemistry from New York University and has worked as a teaching assistant in the course of Organic Chemistry and Energy and Environment at New York University. She is a recipient of an NYU Henry M. MacCracken Graduate Fellowship.

Qiyi Zhang

Associate Director for Chinese Language Program of NYU Shanghai, has an MA in Foreign Linguistics and Applied Linguistics from Shanghai Institute for Foreign Trade in 2007. Ms. Zhang started to work for NYU Shanghai Study Away Site starting in 2006. She also taught for two years (2002-2004) at Zhejiang Normal University and three semesters at CIEE. Her research interest centers on Chinese language pedagogy and cross-cultural studies.

2013-2014 Academic Calendar

Fall Semester

Freshman Move In Day	Sunday, August 11
Freshman Orientation Begins	Monday, August 12
Study Away Move In Day	Monday, August 26
Study Away Orientation Begins	Tuesday, August 27
Fall 14-week and Fall 1 Classes Begin	Monday, September 2
Mid-Autumn Festival Holiday	Thursday, September 19 - Saturday, September 21
Legislative Day	Sunday, September 22 (classes meet on a Thursday schedule)
Holiday: Fall Break	Monday, September 30 - Sunday, October 6
Last Day of Fall 1 Classes	Friday, October 25
First Day of Fall 2 Classes	Monday, October 28
Midterm Grades Deadline	Friday, November 8
Registration for Spring 2014 Semester Begins	Monday, November 18
Last Day of Fall 14-week and Fall 2 Classes	Friday, December 13
Reading Day	Saturday , December 14
Final Exams	Monday, December 16 - Wednesday, December 18
Final Grades Deadline	Grades are due 72 hours after the scheduled final exam date.

Winter Break

Winter Break	Thursday, December 19 - Sunday, January 5

Optional January Term

January Term Classes Begin	Monday, January 6
Last Day of January Term Classes	Thursday, January 23
Spring Festival Holiday	Friday, January 24 - Sunday, February 9

Spring Semester

Study Away Move In Day	Wednesday, February 5
Study Away Spring Orientation Begins	Thursday, February 6
Spring 14 and Spring 1 Classes Begin	Monday, February 10
Last Day of Spring 1 Classes	Friday, March 28
Spring 2 Classes Begin	Monday, March 31
Spring Recess (includes Qingming Holiday)	Monday, April 7 - Sunday, April 13
Midterm Grades Deadline	April 11
China Labor Day Holiday	Thursday, May 1 - Saturday, May 3
Legislative Day	Sunday, May 4 (classes meet on a Thursday schedule)
Classes End - Spring Term	Friday, May 23
Reading Day	Saturday, May 24
Final Exams	Monday, May 26 - Wednesday, May 28
Final Grades Deadline	Grades are due 72 hours after the scheduled final exam date.