Shenzhen Style

Course Description

The aim of this 7 week course is to examine the form, function and style of innovation in China through the lens of one of China's greatest success stories: the city of Shenzhen.

The course will examine the roles of technological leap-frogging, government policies, open innovation networks, shanzhai (山寨) and rapid product development cycles on innovation in Shenzhen, China and the world.

I have designed the course to take advantage of NYU Shanghai's one-of-a-kind locational endowment and extensive network of experts to provide students with a unique perspective and opportunity to understand and participate directly in the Shenzhen and Chinese innovation ecosystem. Students will learn in and out of the classroom through lectures, mini-case studies and fieldwork. They will also contribute to the production of knowledge on the increasingly important topic of the Shenzhen style of innovation through regular blog posts on the course website.

The course seeks to equip students with broadband understanding of innovation in China, including business, technology, public policy and entrepreneurship. The course uses an interdisciplinary approach and emphasizes the importance of teamwork (and hard work) in the design and implementation of innovations. In addition to developing deep knowledge of the subject matter and analytical skills, students are expected to strengthen their capacity to work in teams by integrating knowledge from a diverse set of sources. Students are expected to leverage their previous experiences as relevant or explore new avenues related to their academic and career aspirations.

Out of the classroom, students will learn by 'fishing where the fish are,' and will undertake fieldwork in Shanghai at electronics markets, malls, and other areas. Students will conduct interviews during their fieldwork in order to determine user needs and desires in the area of consumer electronics or digital products and, from this information, they will specify the requirements for a novel addition to an existing electronics product. The course will culminate in an optional two-day trip to Shenzhen where students will take a crash course in lean manufacturing and will work with real product designers to further the design and development of their innovation.

The course is designed to accommodate students from all fields interested in both technical and non-technical innovation. The sessions will be conducted through guided discussion as well as lectures, guest speakers and presentations by students.

Course Structure

The course is divided into three units. The first unit provides a conceptual foundation for understanding the types and roles of innovation and the associated institutional and grassroots innovation in the process of Shenzhen's transformation from a small administrative village to the wealthiest city in China. The second unit presents individual Chinese firm and individual experiences as they moved from a state of technological catch-up to one of radical innovation. The third unit and final unit challenges the class to imagine the opportunities for innovations in China going forward, with particular attention being paid to those in the consumer electronics product industry.

Modest adjustments in the syllabus will be introduced to accommodate specialized interests by students and address important topical issues as they arise.

Course Teaching Objectives: The teaching objectives of the course are:

- To establish an understanding of the fundamental theories, concepts and forms of innovation.
- To familiarize students with the concepts and practices of technology innovation in the context of China, including the role of technological leap-frogging, government policies, open innovation networks, shanzhai (山寨) and rapid product development cycles on innovation in Shenzhen and China broadly.
- To develop an understanding of the role of design and innovation as a collaborative, multi-disciplinary group activity.
- To improve skills of presentation, case writing and product design.
- Expose students to a hybrid set of methods to understand the wide array of approaches to do research in the field of technology and innovation in China.

Course Learning Outcomes: The following learning outcomes are anticipated upon completion of this course. Students will be able to:

- Identify and apply innovation processes within real-world contexts and constraints (assessed by homework assignments, case outline and fieldwork projects)
- Understand and apply design-thinking concepts, including user testing in the design and adoption and acceptance of innovative technology products
- Represent authoritative and individual viewpoints on innovation and China (assessed through class participation, memos, fieldwork and case outline)
- Work effectively as team members and demonstrate leadership skills (assessed by fieldwork and final project)
- Communicate effectively (assessed by fieldwork and final project)

Class Participation

Class participation is essential. Students will be required to demonstrate knowledge of the readings and be able to offer a critical assessment of the contents. Students will be asked to lead class discussions and others will be expected to contribute to discussion based on the topic, readings and other relevant sources of information. Laptops are permitted in class to take notes and to follow along during demonstrations. All other devices are not to be used, and checking social media during class is prohibited.

Attendance

Attendance in all classes is mandatory. Unexcused absences and tardiness will affect your grade. If you know you are going to be absent or late, please let me know in advance so we can figure out how you can make up what you missed in class. 2 unexcused absences will lead to a failing grade.

Academic Integrity

It is a condition of passing this course that students read and adhere to the NYU Shanghai policy on academic integrity as described in the current NYU Shanghai Academic Bulletin.

Grading

- **Class Participation (25%):** will be evaluated on the basis of: (a) familiarity with the readings; (b) quality of contributions; (c) critical and creative approaches to the issue; and (c) respect for the views of others.

- **Short Quizzes (10%):** will be given at regular intervals throughout the course. These quizzes will cover the reading materials in specifically, and the course topics in general.

- **Memos and Blog Posts (15%):** short memos will be assigned as throughout the course, these memos are designed to support the course discussion and materials and should be focused on providing the reader with a recommendation to pursue or cease pursuit of a specific opportunity. Memos will be evaluated based on their completeness, how well they introduce the topic to the reader and their specific recommendations. Another memo will be the topic identification memo described in the Project section below.

- **Mini-Case Outline (20%):** of no more than 1,500 words based on the topics covered in class. The aim of the outline is to lay the groundwork for a potential case study to be

undertaken at a later date. The grading will focus on the extent to which students demonstrate familiarity with the underlying concepts.

- **Final Project (30%):** student teams will be tasked with re-imaging and imitating a product or service innovation - something I have termed Shanzhai+ (山寨+)

Equipment

This course may necessitate the use of equipment from the IMA Equipment Room. Policies and procedures for checking out, caring for, and returning equipment will be discussed during IMA Orientation (DATE X or X, mandatory) as well as in class. Be aware that keeping IMA equipment past return dates or failing to adhere to the policies of the IMA Lab WILL affect your participation grade for this course.

Projects

Topic Identification Memo
This will be one paragraph that identifies the topic that the student plans to focus on during the course. This can be in the form of a particular case study or a theme that provides a basis for the identification of a novel area of innovation . The aim of the memo is to help in the identification of the relevant procedures, literature, case studies, and contacts. Early identification of issues significantly improves the learning process and the quality of the final product.

Case Study Outline
Each student will be expected to produce an extended outline of a case study on innovation and Shenzhen (1,500 words). The outline will serve as a conceptual foundation, framework or background that will be used to analyze a specific theme. Students will be expected to demonstrate their knowledge of the literature and its relevance to a specific field of interest.

Shanzhai+
This is a group-based project where teams will be tasks with first identifying an appropriate electronics product, and then applying ethnographic methods to understand its market-fit within the China. Once that is complete, student teams will then be tasked with recommending, and ideally retrofitting the product to provide an additional function or extend it’s usefulness to an entirely new market segment.

Case study (Optional)
Students will have the option of undertaking to write a full case study on a topic related innovation in partnership with the NYU Shanghai Program on Creativity + Innovation.

Students may choose to focus on an organization they have worked with, write or document an event that took place, or explore the experiences of a certain individual. Cases generated through class will be used in the future as a reading and reference material for the class.

Resources

I've created a number of digital resources for the course (email, message board and resources list). The website will have the most up-to-date course information (check the course schedule for upcoming course readings, videos, and other info)

- Website: https://christian-grewell-knsd.squarespace.com/config [vanity URL soon]
- Class Slack Group: https://shenzhenstyle.slack.com/x-94842879364-94864013202/signup [sign up with your nyu.edu email address]
- Trello Resource Board: https://trello.com/b/Tm0JjOKL/innovation-shenzhen-style

Networking

Information on career and networking opportunities will be provided as needed. NYU Shanghai's Career Services Center maintains links with numerous startups, large firms, international organizations and alumni around the world. Additional contacts are provided through the NYU Shanghai Program on Creativity + Innovation and its partners throughout the NYU Global Network and beyond.

In addition, the course offers opportunities for establishing contacts with a wide range of entrepreneurs, professionals and institutions working on product innovation and development across a diverse set of industries in China and abroad. The focus of the network is to enable course participants to explore opportunities for future professional and academic engagement. Course participants will also have the opportunity to recommend guest speakers or professional contacts of relevance to the syllabus. Additional networking will be provided through IMA and the NYU Shanghai Program on Creativity + Innovation.

Course Overview

Unit 1: Background and Foundations

Week 1: Introduction and Innovation's Role in History
Week 2: Wired Shenzhen: China's Reform and Opening

Unit 2: Innovation in China - From Leapfrogging to Radical Innovation

Week 3: National Innovation Systems: The Chinese Internet and the Great Firewall

Week 4: Wired Shenzhen: Shanzhai and the Hardware Ecosystem

Unit 3: Opportunities and Future

Week 5: Grassroots Innovation

Week 6: Changing China: The Chinese Consumer

Week 7: Open Innovation

Class Details

Class #1 - Weds Oct 26, 1:15 - 4:15: Introduction and Innovation's Role in History

The aim of this session is to introduce the course, provide an opportunity for students to learn about each other's interests and identify opportunities for adjustment in the syllabus as well as examine examine the evolution of the field of innovation studies. We will then move on to cover a very large array of topics designed to help form the basis of a multi-dimensional socio-economic analysis of innovation in Shenzhen and China, including introducing the history of the city, the rise of private businesses, the importance of Deng Xiaoping and government policy.

Activities:

- Course Introduction
- Build Course Toolkit
- Forms and Functions of Innovation
- Design SZ trip fundraising strategy and teams
- ProtoLab #1 - Prototypes as the center of conversation

Read:

Abramovitz, M. 1986. "Catching Up, Forging Ahead, and Falling Behind," Journal of Economic History, Vol. 46, No. 2, pp. 385-406.

Gustav Ranis and John C. H. Fei, 1961. "A Theory of Economic Development," The American Economic Review, Vol. 51, No. 4, pp. 533-565.

Juma, C. 2014. "Complexity, Innovation, and Development: Schumpeter Revisited," Journal of Policy and Complex Systems, Vol. 1, No. 1, pp. 4-21.

Dosi G. 1982. "Technological paradigms and technological trajectories." Research Policy, 11: 147-162.

Class #2 - Weds Nov 2, 1:15 - 4:15: Wired: Shenzhen + China's Reform and Opening

This class session will begin with a viewing of wired: Shenzhen, and end with a special presentation and discussion with David Li, one of the world's foremost experts on Shenzhen, innovation and Shanzhai (山寨).

Activities:

- Video: Shenzhen, The Silicon Valley of Hardware
- Introduction to Shanzhai
- Discussion with David Li

Watch:

- How to Solder
- Laser Cutter Safety Video
- 3D Printing Basics (do not eat filament)
- Laser Cutter Basics (skip to 1:20 for actual information, don't cut pizzas in the laser cutter)

Read:

- The Little Village That Could
- The Twilight of Shenzhen's Great Urban Village
- 邓小平科技思想与早期深圳自主创新的实践 [Chinese - translation will be provided]
- McKinsey on Semiconductors

Class #3 – Weds Nov 9, 1:15 - 4:15: National Innovation Systems: The Chinese Internet, Great Firewall and Chinese Innovation

The aim of this session is to highlight the importance of national innovation systems and support on the development of innovations in China and the world. In particular, we will take a look at the development of innovations within the context of China's communications infrastructure and data control systems (e.g., the Great Firewall). We will end the session with a discussion on a particularly interesting area of digital innovation in China: Bitcoin - where we will be joined by special guest, Bobby Lee, one of China's first bitcoin entrepreneurs and founder of BTCChina.

Activities:

- Lecture: Institutional Innovation Systems

- Programming Fun with the Great Firewall
- Special guest - Bobby Lee - CEO and Founder of BTCChina

Class #4 – Weds Nov 16, 1:15 - 4:15: Wired Shenzhen: Shanzhai and Hardware Startups

Our fourth class session will focus heavily on the concept of hardware manufacturing, with a special emphasis on hardware startups and the digital and physical innovation ecosystems that support them. In addition, we will cover must-know concepts related to rapid manufacturing and the Shenzhen manufacturing process.

Activities:

- Lecture + Discussion: Manufacturing 101
- Rapid Prototyping Lab #2

Class #5 – Weds Nov 23, 1:15 - 4:15: Grassroots Innovation

This course will focus on exploring bottom-up innovations - the inventors, scrappy startups and myriad communities that arguably represent China's future source of economic growth and creative destruction. These are the innovations that are informed more by daily necessities and desires of their markets, rather than the top-down innovation programs and those that are present within popular culture.

Activities:

- Lecture + Discussion
- Rapid Prototyping Lab #3: Life Hacks

[Optional] Shenzhen Trip – Fri Nov 25 - Sun Nov 27

This trip is optional, and dependant upon a successful funding campaign by the course. We will be designing the agenda together as a class. Some options are to spend a day in Shenzhen's massive electronics markets choosing components for our products, as well as checking out one of China's first automated factories.

Class #6 – TBD [A SATURDAY], 1:15 - 4:15: Changing China: The Chinese Consumer

Ethnographic analysis and an awareness and appreciation of consumer habits, tastes and the changes therein are becoming essential to understanding innovation in China today. This class will take place off campus, between two distinctly separate but related locations in Shanghai.

The aim of the session is to allow students to observe the Chinese consumer in one of his/her natural habitats.

Activities:

- Mapping the Chinese Consumer Exercise
- Electronics Market Trip
- Shopping Mall Trip

Class #7 – Weds Dec 7, 1:15 - 4:15: Open Innovation

The final class session will begin with a discussion of the important role open innovation plays in both Shenzhen and China in general. We will end the session with each team presenting their Shanzhai+ products!

Activities:

- Lecture: Open Innovation
- Product Presentations