

# IMBX-105

## Introduction to the Technology Innovation Process

### Subject to Change Statement

The syllabus and course schedule may be subject to change. Changes will be communicated via the course Slack channel and email. It is your responsibility to check email messages and course announcements to stay current.

### Instructor Information

**Zhong-Lin Lu, Ph.D., Chief Scientist & Professor, NYU Shanghai**

- 1555 Century Avenue, Room #1416
- Tuesday, 10 -11 am (or by appointment)
- [zhonglin@nyu.edu](mailto:zhonglin@nyu.edu)

**Christian Grewell, Assistant Arts Professor, Interactive Media Arts and Business**

- 1555 Century Avenue, Room #950
- Thursday, 10 -11 am (or by appointment)
- [christian@nyu.edu](mailto:christian@nyu.edu)

### Course Information

- IMBX-105
- Introduction to the Technology Innovation Process
- Tuesday and Thursday, 8:15AM - 9:30AM, Room 900
- Online Information:
  - Slack Team (for all online communication): [https://join.slack.com/t/nyu-p0a2974/shared\\_invite/zt-kh32foif-dpcS7mTzkWGQ3wll01~mnw](https://join.slack.com/t/nyu-p0a2974/shared_invite/zt-kh32foif-dpcS7mTzkWGQ3wll01~mnw)
  - Zoom: <https://nyu.zoom.us/j/92721861796>

### Course Overview and Learning Outcomes

This course is for anyone who wants to be involved in technology innovations --- not only inventors, but everyone who is interested in initiating, implementing, translating, and commercializing technology

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innovations. It will introduce the full process for the identification, invention, and implementation of new technologies.

The lectures will address three major components of the innovation process: Needs finding and screening, Concept generating and screening, and Strategy development and business planning. With case studies on innovative products from around the world, successes and failures, practical advice, and 'Getting Started' discussions, students are encouraged to learn from real projects. The brainstorm sessions and group projects are designed to encourage students to apply important lessons to their own ideas.

At the end of this course, students will gain a deep understanding of the entire technology innovation process and start work in developing or using technology innovations.

### Upon Completion of this Course, students will be able to:

- Understand, at a deeper level the technology innovation process, including how to generate a concept, screen an opportunity and develop a go-to-market strategy.
- Develop a product concept that combines science, invention and a business opportunity.
- Apply both a creative and disciplined approach to innovation.
- Present unique and novel concepts professionally to an audience of peers and experts.

## Instruction Mode

Hybrid - in-person and remote (with online group meetings throughout the semester).

## Course Materials

*Biodesign: The Process of Innovating Medical Technologies (2nd Edition)*, by P. G. Yock, S. Zenios, J. Makower, T. J. Brinton, U. N. Kumar, F. T. J. Watkins, L. Denend, T. M. Krummel, C. Q. Kurihara. Cambridge University Press, 2015. ISBN-13: 978-1107087354, ISBN-10: 110708735X.

<http://ebiodesign.org>: Companion website to the textbook. It provides readers with supplemental content, with Getting Started sections, videos, and appendices for each chapter.

*Inspired: How to Create Tech Products Customers Love*, by Kagan, Marty.

<https://www.amazon.com/gp/product/1119387507>

### Case Studies:

- Jerry Sanders, by M. Diane Burton and Katherine Lawrence. Harvard Business Publishing, 1998. Product #: 498021-PDF-ENG.
- Houston, We Have a Problem: NASA and Open Innovation (A), by Michael L. Tushman, Hila Lifshitz-Assaf, Kerry Herman. Harvard Business School, 2014. Product #: 414044-PDF-ENG
- Apple Watch: Managing Innovation Resistance, by Tania Bucic and Gaganpreet Singh. Ivey Publishing, 2018. Product #: W18034-PDF-ENG

## Course Requirements

### Quizzes (35%)

There will be three in-class quizzes made of a combination of multiple choice and short answer questions. The quizzes will be non-cumulative (they will only include materials covered since the previous exam) and closed book.

### Assignments (20%)

A variety of exercises and assignments are a part of the course. These are generally intended to serve as useful checkpoints for students and the instructors to make sure you're understanding the material.

### Group Project (30%)

The group project consists of 3 major sections, corresponding to the three major sections of the course: (1) Needs Finding and Screening, (2) Concept Generation and Screening, and (3) Strategy Development and Business Planning.

*Project Deliverable:* A final portfolio of your technology innovation that closely reflects the presentation. Below is the assessment rubric for the Project:

Component	Assessment Criteria	%
Needs finding and screening	How did you look for the needs? How do you justify the importance of the particular needs you have identified?	25
Concept generating and screening	What are the innovations in your concept? Is it a new use of an existing technology or a new technology? How well-defined is your source of innovation? Does your concept realistically address the needs?	25
Strategy development and business planning	What is your IP strategy? How can your concept be commercialized (business model)?	25
Documentation	How well-designed is your presentation and documentation?  How well documented is the portfolio? Does it include important information, is it easy to read and understand?  Does it clearly communicate the idea, the product, the value?	25

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### Class Participation (15%)

- ◆ On-time attendance: 5%  
You will lose 1% for any *unexcused* absence  
You will lose 0.5% point for late arrivals
- ◆ Class participation: 10%

### Grading of Assignments

The grade for this course will be determined according to the following formula:

Assignments/Activities	% of Final Grade
Group Project	30%
Quizzes	35%
Assignments	20%
Participation	15%

### Letter Grades

Letter grades for the entire course will be assigned as follows:

Letter Grade	Points	Percent
A	4.00	92.5% and higher
A-	3.67	90.0 – 92.49%
B+	3.33	87.5% - 89.99%
B	3.00	82.5% - 87.49%
B-	2.67	80% - 82.49%
C+	2.33	77.5% - 79.99%
C	2.00	72.5% - 77.49%
C-	1.67	70% - 72.49%
D+	1.33	67.5% - 69.99%

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D	1.00	60% - 67.49
F	.00	59.99% and lower

### View Grades

- Quiz Grades: A shared Google document (between you and the instructors)
- Midterm grades: Albert

### [Optional] NYU Global Innovation Competition

At various points in the semester, we will be gathering interested students and teams to help coach them through the [NYU Innovation Competition](#).

### Course Schedule

The link below outlines the course schedule, modes of instruction, topics, materials and assignments:

[https://docs.google.com/spreadsheets/d/1klt7FfjzmeQBrdwWdD-gFUWuGOKIMkJUp-aNS2o\\_zws/edit#gid=0](https://docs.google.com/spreadsheets/d/1klt7FfjzmeQBrdwWdD-gFUWuGOKIMkJUp-aNS2o_zws/edit#gid=0)

### Course Policies

#### Public Health Requirements and COVID-19 Student Code of Conduct

You are expected to comply with the COVID-19 Student Code of Conduct, including the requirements for assigned seating, physical distancing and face coverings. Classrooms have been configured accordingly. If you violate the COVID-19 Student Code of Conduct or fail to follow your instructor's related warnings, you may be asked to leave the classroom and/or may be subject to disciplinary action. You may review the Code on [NYU Shanghai's Community Standards page](#).

#### Attendance and Tardiness

You are expected to attend *all* scheduled classes. If you are unable to attend a class, notify us *before* that class.

#### Absences and Grades

- Unexcused absences will lead to an 1% reduction in your final participation grade.
- Late arrivals will lead to a .5% reduction in your final participation grade.

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### Absence Exceptions

*Observance of Religious Holidays:* You may miss class for the observance of religious holidays. If you anticipate being absent because of religious observance, notify me in advance so we can create a plan for making up missed work. For more on this policy: <https://www.nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/university-calendar-policy-on-religious-holidays.html>

*Competitions, Conferences, Presentations:* You are permitted to be absent from classes to participate in competitions, conferences, and presentations, either at home or out of town, as approved by the Associate Provost for Academic Affairs. Review the Undergraduate Bulletin for the conditions you must meet to obtain approval for this kind of absence.

*Extended Illness:* If you are ill and need to miss more than one week of classes, you must speak to the Health & Wellness Office. Once Health and Wellness verifies the reasons for your extended absence, I will consult with Academic Affairs and recommend the best course of action. I will not look at doctors' notes, both for your health privacy reasons and because I cannot verify the authenticity or content of the notes.

### Tardiness

Punctual arrival is mandatory for this class. Be on time. Please do not leave in the middle of class unless it is an emergency.

### Late Assignments

Assignments are due **at the date and time indicated on this syllabus**. The late penalty for any assignments is one third of a letter grade per day (an A becomes an A-, etc.) All other late assignments will earn an F.

### Electronic Devices

*Mobile Devices:* You may not use mobile devices in class unless otherwise indicated.

*Recording Class:* To ensure the free and open discussion of ideas, you may not record classroom lectures, discussion and/or activities without my advance written permission; any such recording can be used solely for your own private use. If you have approved accommodations from the Office of Disability Resources permitting the recording of class meetings, you must present the accommodation letter to me in advance of any recording. Distribution or sale of class recordings is prohibited without the written permission of the instructor and other students who are recorded.

### Instructional Technology

*Email Communication:* I will contact you regularly via the NYU Classes system. You should check for emails from me (reminders, logistics, updates, etc.) at the email address connected to NYU Classes.

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Please note that I will try to respond to your emails within 24 hours. Do not expect immediate responses to emails sent late at night or on the weekends.

*Assignment Notification:* All assignments will be posted to our class NYUClasses site. You are responsible for looking at NYUClasses after each class period to learn about the next homework assignment.

*Instructional Tools:* We will be using Slack to communicate and share instructional resources in this class. You can learn about the tools used in this class through the [Student Digital Learning Toolkit](#). You are responsible for communicating with us in a timely fashion if you are facing any challenges using these tools.

### Academic Honesty/Plagiarism

Carefully read NYU Shanghai's *Statement on Academic Integrity* (in the Undergraduate Bulletin). Breaches of academic integrity could result in failure of an assignment, failure of the course, or other sanctions, as determined by the Academic Affairs office.

### Disability Disclosure Statement

NYU Shanghai is committed to providing equal educational opportunity and participation for students with disabilities. It is NYU Shanghai's policy that no student with a qualified disability be excluded from participating in any NYU Shanghai program or activity, denied the benefits of any NYU Shanghai program or activity, or otherwise subjected to discrimination with regard to any NYU Shanghai program or activity. Any student who needs a reasonable accommodation based on a qualified disability should register with the [Moses Center for Student Accessibility](#) for assistance. Students can [register online](#) through the Moses Center and can contact the Academic Accommodations Team at [shanghai.academicaccommodations@nyu.edu](mailto:shanghai.academicaccommodations@nyu.edu) with questions or for assistance.

### Title IX Statement

Title IX of the Education Amendments of 1972 (Title IX) prohibits discrimination on the basis of sex in educational programs. It protects victims of sexual or gender-based bullying and harassment and survivors of gender-based violence. Protection from the discrimination on the basis of sex includes protection from being retaliated against for filing a complaint of discrimination or harassment. NYU Shanghai is committed to complying with Title IX and enforcing University policies prohibiting discrimination on the basis of sex. Mary Signor, Executive Director of the Office of Equal Opportunity, serves as the University's Title IX Coordinator. The Title IX Coordinator is a resource for any questions or concerns about sex discrimination, sexual harassment, sexual violence, or sexual misconduct and is available to discuss your rights and judicial options. University policies define prohibited conduct, provide informal and formal procedures for filing a complaint and a prompt and equitable resolution of complaints.

#### Links to the Title IX Policy and related documents:

- Sexual Misconduct, Relationship Violence, and Stalking Policy

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- Procedures for Complaints Against Students
- Procedures for Complaints Against Employees
- Resource Guide for Students
- Resource Guide for Employees

## Academic Resources

### ARC Services

The Academic Resource Center (ARC) offers both individual, one-on-one tutoring as well as group sessions in a variety of ways, in a variety of courses. You can log on to [WOnline](#) to book an appointment with a Global Writing & Speaking Fellow or a Learning Assistant (LA). The Global Writing & Speaking Fellows conduct individual consultations on writing, speaking, reading, and academic skills coaching. LAs provide both individual and small-group tutoring support in over 30 STEM, Business, Economics, IMA/IMB, and Chinese Language classes. Visit [shanghai.nyu.edu/arc](http://shanghai.nyu.edu/arc) for more information about ARC services.

### Library Support

#### Library Services

The Library is available to support your research needs. They have access to over 20,000 print resources, 2,000 DVDs, and 1,000 databases (including over a million e-books, as well as streaming audio and video and image databases).

Librarians with expertise in your research topic are available to meet either *in person* or *online* [by appointment](#) or [by email](#) to help you navigate the research process, from developing a research question and formulating a research strategy, to selecting databases, requesting materials, and citing your sources. Visit [shanghai.nyu.edu/library](http://shanghai.nyu.edu/library) for more information on:

- 24/7 access to e-books, e-journals, streaming media, and databases
- Booking one-on-one consultations for research help
- [Asking the Library](#) questions via chat or e-mail

#### Electronic Reserves

Students can access course readings using their NYU credentials for courses they currently enrolled in at <https://ares.library.nyu.edu/>

#### Interlibrary Loan Service

For materials not available to you immediately, you can request scanned copies of a book chapter or journal article through our [Interlibrary Loan \(ILL\) service](#). If you don't know which chapter you need, you can request a Table of Content through ILL.