Software Engineering

Class Details

[Click here and enter class meeting time]

Location to be confirmed.

Prerequisites

CSCI-UA.0201 (Computer Systems Organization) and experience in Object Oriented programming Language such as C++ or JAVA.

Class Description

Modern software is complicated, powerful, and sophisticated solving problems for every aspect of our lives and impacting the entire society. More than ever, we need to study the limitations of software/systems, and search for software engineering methodologies, standards, and tools to build efficient, reliable, robust, secure and agile software applications. This course is an intense hands-on study of techniques and methods of software engineering. The course will focus on advanced object-oriented design, web and mobile development, enterprise application development, development tools, design patterns, refactoring, code optimization, universal modeling language, threading, and user interface design. There will be a group’s final project and several individual assignments during the semester. The final project and assignments require students to follow software’s development lifecycle practices discussed during the semester: design and specification, test-driven programming, revision control systems, and object-oriented programming techniques.

Desired Outcomes

- Students learn the basic principles of software engineering.
- Students understand and critically analyze various software development lifecycles.
- Students critically analyze software systems design, identify and utilize software design patterns.
- Students understand principles of object-oriented programming; apply those principles to the design, development, and maintenance of large software systems.
Students learn how to apply software engineering techniques and tools to build mobile and web applications.

**Assessment Components**

Participation (10%), Homework (30%), Midterm (20%), and Final Project (40%).

Homework: Bi-weekly, starting from the second week of the semester. Homework will consist of one or two questions with one programming assignment.

Failure to submit or fulfill any required course component results in failure of the class. Participation entails students coming to class, asking questions, and engaging in the material by attempting labs and assisting others.

**Assessment Expectations**

- **Grade A**: 90+
- **Grade B**: 70+
- **Grade C**: 60+
- **Grade D**: < 60
- **Grade F**: Failure in any of three assessment components

**Grade conversion**

- A = 16 Félicitations
- A- = 15 Excellent
- B+ = 14 Très bien
- B = 13 Bien
- B- = 12 Encourageant/Assez bien
- C+ = 11 Moyen plus
- C = 10 Moyen
- C- = 9 Passable
- D+ = 8
- D = 7
- D- = 6

**Grading Policy**

NYU Paris aims to have grading standards and results in all its courses similar to those that prevail at Washington Square.
Here is NYU’s Attendance Policy for students studying away at a Global Academic Center:

Study abroad at Global Academic Centers is an academically intensive and immersive experience, in which students from a wide range of backgrounds exchange ideas in discussion-based seminars. Learning in such an environment depends on the active participation of all students. And since classes typically meet once or twice a week, even a single absence can cause a student to miss a significant portion of a course. **To ensure the integrity of this academic experience, class attendance at the centers is mandatory, and unexcused absences will affect students’ semester grades.** Students are responsible for making up any work missed due to absence. Repeated absences in a course may result in failure.

Beginning Fall 2014, at all Global Academic Centers, unexcused absences will be penalized with a two percent deduction from the student’s final course grade.

Other guidelines specific to NYUParis include:

- **Attendance to class and all course-related events, even outside of regularly scheduled course times, is expected and mandatory. Some class outings/make-up classes take place on Fridays.**
- **Under no circumstances will non-University-related travel constitute an excused absence from class.** DO NOT book travel until you have received and carefully studied the syllabus of each of your classes.
- **If you are not sick enough to go to the doctor, you are well enough to go to class.**
- **Doctor’s notes will be expected for all medical-related absences.**
- **No tests, quizzes, or exams will be made up.** A missed test, quiz, or exam will result in a zero. Questions about this policy should be directed to the Academic Affairs team, not your professor.

No extension is allowed except in an extraordinary situation that must be approved by the lecturer.

New York University in Paris, as an academic community, is committed to free and open inquiry, to creating an intellectual and social environment that promotes this, and to upholding the highest standards of personal and academic integrity.

All NYUP students have the responsibility to uphold these stated objectives. As a member of this community, you accept the responsibility for upholding and maintaining these standards, which include refraining from all forms of plagiarism and cheating as detailed below.

Cases of plagiarism at NYUParis will be brought to the attention of NYUParis academic administration as well as the implicated student’s home school Dean.

**PLAGIARISM:** a form of fraud, presenting someone else’s work as though it were your own

- A sequence of words from another writer who you have not quoted and referenced in footnotes
- A paraphrased passage from another writer’s work that you have not cited.
- Facts or ideas gathered and reported by someone else
- Another student’s work that you claim as your own
- A paper that is purchased or “researched” for money
- A paper that is downloaded free of charge from the Internet

**CHEATING**

- Copying from another student's exam or quiz

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1 NYU’s “Policies and procedures for students studying away at a Global Academic Center”
2 NYU’s Expository Writing Department’s Statement on Plagiarism
3 NYU Statement on Plagiarism
4 NYU Statement on Plagiarism
- Giving or receiving unauthorized assistance (crib sheets, internet, etc.) during an exam or quiz
- Having someone take your exam
- Accessing an exam or quiz in an unauthorized fashion prior to its administration
- Collaborating with other students or unauthorized persons on a take-home exam
- Using the same written material for two courses without the express permission of both instructors
- Fabricating or falsifying data

### Required Text(s)

- Freeman *et al.*, “Head First Design Patterns”. ([source](#))

### Supplemental Text(s) (not required to purchase as copies are in NYU-L Library)

- Liang, “Intro to Java Programming”. ([source](#))
- Griffiths *et al.*, “Head First Android Development”.
- Bloch, “Effective Java”.

### Internet Research Guidelines

[Click here and enter guidelines on Internet Research, if appropriate]

### Additional Required Equipment

Students are encouraged to bring their own laptops to the lab sessions.

### Session 1

Introduction to Software Engineering and OOP

[Enter date]

[Click and enter essay deadlines/work due]

[Click and enter co-curricular activities, etc.]

### Session 2

Java Programming Language Part I

[Enter date]

[Click and enter essay deadlines/work due]

[Click and enter co-curricular activities, etc.]

### Session 3

Java Programming Language Part II (Advanced)

[Enter date]

[Click and enter essay deadlines/work due]

[Click and enter co-curricular activities, etc.]

### Session 4

Version control systems

[Enter date]

[Click and enter essay deadlines/work due]
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<tr>
<th>Session</th>
<th>Topic</th>
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<td>Integrated development environments</td>
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<td>Object modeling</td>
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<td>Design pattern: strategy</td>
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<td><strong>Session 7</strong></td>
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<td><strong>Session 8</strong></td>
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<td><strong>Session 10</strong></td>
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<td><strong>Session 11</strong></td>
<td>Model-View-Controller</td>
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<td>Lambda expressions (Java)</td>
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**Session 12**  
Android development Part I

[Enter date]
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**Session 13**  
Android development Part II

[Enter date]
[Click and enter essay deadlines/work due]

**Session 14**  
Midterm Exam

[Enter date]
[Click and enter essay deadlines/work due]

**Session 15**  
Design pattern: composite

[Enter date]

**Session 16**  
Software processes

**Session 17**  
User stories

**Session 18**  
Object equality and hashing

**Session 19**  
Design pattern: decorator

**Session 20**  
Selenium web testing

**Session 21**  
Multithreaded programming

**Session 22**  
*Technical presentations*

**Session 23**  
*Technical presentations*
Session 24

Technical presentations

Session 25

Design pattern: factory (simple, “standard,” abstract)

Session 26

Project presentations

Session 27

Project presentations

Session 28

Project presentations

Classroom Etiquette

- No eating in class.
- No cell phones in class.
- Leaving class to go to the bathroom or yawning in class is considered rude in France.

Required Co-curricular Activities

[Click here and enter information about required activities, whether organised by NYU or not.]

Suggested Co-curricular Activities

[Click here and enter information about suggested activities, societies, lectures, etc.]

Your Instructor

[Please brief text about yourself, possibly positions, publications, research specialism, conferences etc.]