

State University of New York Polytechnic Institute

CS 370 : Software Engineering

Spring 2016

Instructor: Dr. Chen-Fu Chiang
Time: TR 10:00 am - 11:50 am
Location: Kunsela Hall C112
Office Hours: MTWR: 12:00 pm - 1:30 pm | F:10:30 am- 12:00pm | By appointment
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Phone: 315-792-7379

Text and References

There is no course textbook. A good source for many of the topics discussed in the course is Wikipedia. Here are some useful books on software engineering:

- (1) Ian Sommerville, Software Engineering, Tenth Edition. Pearson, 2016
- (2) Christopher Fox, Introduction to Software Engineering Design. Addison Wesley, 2006
- (3) Engineering Software as a Service by Fox & Patterson, v1.1.1 or later

Some of the lecture material can be found on the course website of CS 5150 offered by Cornell

Prerequisites

It is important that you have (a) at least the minimum "C" grade in **CS 240** and (b) the completion of **CS 220** and **CS 249**.

Course Description

This course is an introduction to the practical problems of specifying, designing, building, testing, and delivering reliable software systems. Special topics include professionalism, project management, and the legal framework for software development. As a central part of the course, student teams carry out projects for real clients. Each project includes all aspects of software development from a feasibility study to final delivery.

Course Objectives

- Understand and use software development methodologies and tools, including UI sketching, user stories, behavior-driven development, version control for team-based development, and management tools for software development environments.
 - Develop the skills to collaborate in a team environment.
 - Understand and apply fundamental programming constructs and techniques including design patterns for software architecture, higher-order functions, metaprogramming, reflection, etc. to improve the maintainability, modularity and reusability of their code.
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Course Outcomes

By completing this course, students should be able to :

- Coordinate software engineering efforts within small teams
- Report on the quality of software products that they have engineered
- Develop both technical and collaboration skills
- Communicate effectively regarding development status both verbally and in writing
- Use engineering tools to support each stage of engineering

Topics

- Introduction
- Software Development Processes
 - Development in Practice
 - Steps in the Software Development Process
 - Three Types of Software Process
- Feasibility and Planning
 - Feasibility Studies
 - Project Management
- Requirement
 - Requirement Analysis
 - Scenario and Use Cases
 - Models for Requirement Analysis and Specification
- Usability & System Design
 - Usability, Evaluation and User Testing
 - System Architecture
 - Security
- Program Design & Reliability
 - Reuse and Legacy Systems
 - Design Patterns & Performance
 - Verification, Testing and Bugs
- Acceptance and Delivery
- The Business of Software Development
 - Legal Aspects of Software Development
 - Professionalism

Grading (Tentative)

The lecture format will be the basic mechanism used in the course. Computer demonstrations in the classroom will be used whenever appropriate. Assessment of student performance will use a criterion-referenced model which will include written assignments (25%), a midterm examination and a comprehensive final examination (15% each) and a project (45%).

Homeworks are with both written and programming parts. Each homework is centered around deepening your understanding of the theoretical concepts. Students are welcome to study together to work out homework solutions but the solution must be written **individually**.

The examinations will test your knowledge and problem-solving skills on all preceding lectures and homeworks. The final project provides an opportunity for you to use the tools from class to build something interesting of your choice. Projects should be done in groups. We will specify the details of the **project proposal, project progress report, project evaluation and project final report & presentation** during the semester.

Late assignment and report will not be accepted unless you have made prior arrangements with me. The acceptable format of your solution will be specified in the assignment. All examinations are closed-book. A typical grading scale will be as follows:

Percent	Grade
97 - 100	A+
93 - 96	A
90 - 92	A-
87 - 89	B+
83 - 86	B
80 - 82	B-
77 - 79	C+
73 - 76	C
70 - 72	C-
65 - 69	D+
60 - 64	D
Below 60	F

Attendance Policy

Attendance and active class participation are required. Be prepared to participate by asking and answering questions during class meetings. Please send me an email **in advance** if you know you have to miss a class.

Academic Integrity/Policy

Plagiarism and Cheating of any kind on an examination, quiz, or assignment will result at **least in an F** for that assignment (and may, depending on the severity of the case, lead to an F for the entire course). I will assume for this course that you will adhere to the academic creed of this University and will maintain the highest standards of academic integrity. In other words, **do not** cheat by giving answers to others or taking them from anyone else. The code of academic conduct is detailed in the SUNY Poly student handbook. Make-ups are only given under **extreme circumstances**. I will also adhere to the highest standards of academic integrity, so please do not ask me to change (or expect me to change) your grade illegitimately or to bend or break rules for one person that will not apply to everyone.

Accommodations for Students with Disabilities registered at SUNY Polytechnic Institute

In compliance with the Americans with Disabilities Act of 1990 and with Section 504 of the Rehabilitation Act, SUNY Polytechnic Institute is committed to ensuring educational access and accommodations for all its registered students seeking access to meet course requirements and fully participate in programs or

activities. SUNY Poly students with documented disabilities and medical conditions are encouraged to request these services by registering with the Disability Services Office and discussing your need for accommodations. For information or an appointment contact Suzanne Sprague at the Disability Services Office, located in room B101 Kunsela Hall or by phone (315) 792-7170; or e-mail **suzanne.sprague@sunypoly.edu**.