CS 320: Syllabus

CS 320 - Software Engineering and Design
Prof Hake: Sections 101 and 102

Spring 2024

Webpage: https://ycpcs.github.io/cs320-spring2024

Class times (all in KEC 119):

- Section 101: M-W-F 10:00 - 10:50 AM (Prof. Hake)
- Section 102: M-W-F 1:00 - 1:50 PM (Prof. Hake)
- Section 103: M-W-F 2:00 - 2:50 PM (Prof. Zeller - see Prof. Zeller for his syllabus)

Instructor:

- Professor Donald J. Hake II, djhake2@ycp.edu
  Office Hours: M-W-F 12:15-1:00 KEC 119 (or Dr. Babcocks's office), and by appointment

Course Description

This course describes the software development process in detail, including the software life cycle and models of software development; requirements analysis and software design techniques, such as Textual Analysis and UML, within the Object-Oriented Programing (OOP) paradigm; techniques for software quality assurance, including design reviews, automated testing, metrics, and an introduction to program verification; and software project planning, organization, and management. Students will be expected to participate in a semester-long team-programming project, as well as select, design, and implement their own individual self-learning project. Students will also gain exposure to using and interacting with ChatGPT 3.5 as a one-on-oen assistant and tutor.

There is a possibility that during this course, classroom lectures may be recorded in accordance with York College of Pennsylvania policies for Student Accessibility Services.

This syllabus is subject to revision by the instructor.

Prerequisites

CS 201 with a grade of 2.0 or higher

Textbooks

Martin Fowler, UML Distilled, 3rd ed.

Course Structure and Expectations

The overall goals of this course are to explore the issues surrounding "real world" software development, learn how to work effectively with the people involved in a software project, as well as develop self-learning skills.

The course will heavily emphasize discussion and participation. As such, you are expected to attend class and participate fully in the in-class activities. Repeated absences or failure to participate **will** negatively affect your grade.

Throughout the semester, you will be working in a team to design and implement a substantial software system. This project will allow you to apply the concepts you are learning about in the readings and the in-class activities.

Learning Outcomes

By the end of the course, you will be able to:

- Collect software requirements and develop use cases
- Develop analysis and design models
- Critique analysis and design models to suggest possible improvements
- Use analysis/design models to guide implementation
- Use analsysis/design models to create an agile development schedule using regular sprints
- Use version control to track software issues, changes, and develop a project in a team-based setting
- Assess and ensure software quality using unit tests, system tests, metrics, and static analysis
- Understand the software lifecycle
- Understand the issues involved in planning and estimation for a software project
- Research topics of your own interest, and design and develop an individual project through self-learning
- Use ChatGPT to assist in your self-learning, as well as with document preparation and project implementation

Policies

Grades

Grades are assigned on a 100-point scale:

Numeric Range	Letter Grade
90-100	A (4.0)
85-90	B+ (3.5)
80-85	B (3.0)
75-80	C+ (2.5)
70-75	C (2.0)
60-70	D (1.0)
0-60	F (0.0)

Your overall grade for the course will be determined as follows:

- Individual project, labs, and assignments: 30% **(†)**
- Contributions to team project: 40% **(*)**
- Midterm exam: 15%
- Professionalism: 15% (Attendance, Participation, Timeliness, Work Ethic, Teamwork)

(†) You must make a good faith effort to complete all of the labs and assignments. Failure to submit a good faith attempt for any assignment or lab is grounds for receiving a reduced grade for the course. Labs will be graded on a *Pass / Fail* basis. In order to receive a passing grade on a lab, your submission must have a substantial portion of the lab implemented and correctly working. You could be penalized up to 5% points off your course grade for each lab for which you do not receive a passing grade.

(*) You must make a substantial *TECHNICAL* contribution to your team software project. Although the non-technical contributions you make to your project, such as planning, communication, organization, and design are important, you must also make a *substantial contribution to the design and implementation*

***of the software*. I reserve the right to assign a reduced or failing grade for the course to any student who does not make a substantial technical contribution to their team project.**

Course website

Please check the course web page, http://ycpcs.github.io/cs320-spring2024/, regularly for important announcements.

Attendance and Participation

We expect you to attend class and participate regularly in class activities. You are responsible for all material covered in class, regardless of whether or not you were present. Class time will be devoted to activities, project work, demos, and status reports. As such, it is essential that you attend class.

At a minimum, you attendance grade will be reduced by 1 percentage point for every unexcused absence over 2, and that will be factored into your Professionalism grade (which is purely subjective, based on my observations throughout the semester). Also, you are required to inform both your team and me before you miss a class (with an explanation for why you are missing class, and how you are going to make up the work). Failure to do so will negatively impact your Professionalism grade.

Reading Assignments

Reading assignments are posted on the Schedule page.

Because we will be using class time for discussion and activities, as well as lectures, it is important that you do the reading and start the labs **before class** in order to be prepared **for class**.

Posting and submission of assignments and labs

Code for assignments and labs will be posted as zip files on the course web page, http://ycpcs.github.io/cs320-spring2024/.

Written assignments will be created and submitted via Marmoset and/or shared Google Docs.

Programming assignments and labs will be submitted using the YCP server at https://cs.ycp.edu/marmoset/. If you do not already have a Marmoset account, you will receive an email containing the username and password you should use for this server. If you do have an existing Marmoset account, then use your current username and Marmoset password to access Marmoset for CS320.

Late Assignment Policy

Late assignments will be marked down 10% per day late. **No credit will be given for assignments/labs that are more than two (2) days late. However, you must still submit a good faith attempt for each assignment/lab. Failure to do so is grounds for receiving a reduced course grade.**

Late Lab Policy

The labs will be graded on a **Pass / Fail** basis. Since satisfactory completion of all of the labs is so crucial to your ability to make significant (and timely) contributions to your team project, there will **NOT** be a late grace period for any of the labs. Late submission of a lab will result in an automatic failure for that lab and up to a **5% penalty could be assessed against your course grade for failing the lab.**

Exams

This year's exam will be a take home exam. You will be allowed to use all of the course resources, as well as your labs and assigments. You are **NOT** allowed to consult with anyone else, or use any other resources to

complete the exam, **especially ChatGPT**, unless otherwise instructed that you may do so.

Academic Integrity

Academic dishonesty will not be tolerated at York College. Academic dishonesty refers to actions such as, but not limited to, cheating, plagiarism, fabrication of research, falsification of academic documents, etc., and includes all situations where students make use of the work of others and claim such work as their own.

York College of Pennsylvania's Policy

For the full policy, go to the Academic Standards section of the current Course Catalog (https://www.ycp.edu/about-us/offices-and-departments/registrar/catalogs/).

York College of Pennsylvania, as an institution of higher education, serves to promote and sustain the creation, acquisition, and dissemination of knowledge. In order to fulfill this purpose, an environment of integrity, dependability and honesty must be maintained by all members of the York College community. Without a foundation based on intellectual honesty and integrity, the very ability to uphold the academic endeavors that York College strives to pursue is inhibited.

Academic integrity involves two fundamental expectations:

- Anything you turn in as your own work is, in fact, your own work and your own words, completed without assistance, unless your instructor has given explicit permission otherwise.
- Anything you turn in is truthful. Lab data were generated in the lab (and not made up), hours worked for an internship or coop were actually worked, etc.
- YCP's academic integrity policy includes a non-exhaustive list of activities that are prohibited. Some of the commonly encountered prohibited activities include:
- Plagiarism (passing someone else's words or ideas off as one's own without proper attribution).
- Getting assistance from other students on non-collaborative assignments. You are permitted (and encouraged) to get assistance from your instructor and the Academic Success Center.
- Sharing papers, exams, homework assignments, etc. with other students (even if it wasn't your intent to cheat).
- Ghostwriting (getting someone else to write a paper/assignment, whether it is a friend, an essay mill, or a generative AI tool).
- Using unauthorized assistance on exams (e.g., cheat sheets, websites, publisher test banks, other students).
- Buying/sourcing assignment answers from other people (whether it is other students, a website like Chegg, or other online sources).
- Turning in papers/assignments completed in other classes.

This is not a complete list of prohibited activities. Check out the policy in the catalog for a more comprehensive list. The onus is on you, the student, to verify that any exceptions are allowed in this class by your instructor. Instructors have full discretion to assign a sanction up to and including a grade of 0 in the class for violations of the policy.

Violations will be reported to the Associate Provost of Student Success as outlined in the policy. You cannot withdraw from a class if you have been charged with an academic integrity violation.
If at any point you are unsure whether something is allowed under the academic integrity policy, please ask your instructor!

Additional clarifications for CS320

The following policy pertains to homework and graded (individual) programming assignments/labs in this course:

All homework assignments and graded (individual) programming assignments/labs are to be completed individually. I encourage you to discuss high level concepts and strategies with other students, but any work you submit **must be yours alone**.

Because the **INDIVIDUAL** assignments/labs are essential for working towards and demonstrating the achievement of the course outcomes, you must solve them on your own. You may discuss the problem and high-level (pseudo-code) approaches to solving the problem with other students. You may *not*, under any circumstances, discuss or share concrete implementation techniques or code. Examples of forbidden types of collaboration include, but are not limited to: looking at another student's code, allowing another student to see your code, viewing and/or using code from an external source such as a web page, discussing the use of specific API functions to solve a problem, giving or receiving help debugging specific code.

Direct copying of code or other work from other students, web sites, or other sources **is absolutely forbidden under any circumstances**.

Any sources (books, websites, articles, fellow students, ChatGPT, etc.) that you consult in completing an assignment **must be properly acknowledged**. In general, I strongly discourage you from using any resource not explicitly listed in the course syllabus or on the course web page. When you work on a programming assignment, it must be **your** program, not your adaptation of someone else's program.

With regard to using **ChatGPT -** athough we will be using ChatGPT extensively in class, with the exception of the ChatGPT and HTML/CSS labs, you are **strictly prohibited** from using ChatGPT (or any other AI code assistant) for **any of the other individual labs**. I may modify that policy as the semester progresses, but it is still imperative that you learn how to read code that is not your own, modify and extend that code, and learn how to troubleshoot your own mistakes. **If I suspect that a student has used ChatGPT to assist in their individual labs, I reserve the right to ask then to explain to me (and perhaps the class) how their code works, and how they arrived at their solution.**

You are allowed to (and expected to) work with the members of your team on team assignments and the team project. I will generally give you explicit permission to use the code supplied through examples, labs, and solutions for your team projects. In fact, I will encourage you to use that code as a basis for starting your project, if you happen to be working in Java and Eclipse.

All labs, quizzes, and exams **must** be completed individually.

Any violation of the course's academic integrity policy will be referred to the Dean of Academic Affairs, and could have consequences ranging from a 0 on an assignment to dismissal from the college.

Disability accommodation

York College of Pennsylvania offers a variety of accommodations to students with documented disabilities. To request accommodations, please contact Student Accessibility Services at (717)-815-1717 or sas@ycp.edu. Student Accessibility Services will discuss the confidential process of requesting accessibility services and establish the accommodations for which the student is eligible.

If you already have an accommodation memo and wish to access your accommodations in this class, please see me confidentially to discuss.

Use of Personal Technology in the Classroom

While York College recognizes students' need for educational and emergency-related technological devices such as laptops, mobile devices, cellular phones, etc., using them unethically or recreationally during class time is never appropriate. The College recognizes and supports faculty members' authority to regulate in their classrooms student use of all electronic devices.

Communication Standards

York College recognizes the importance of effective communication in all disciplines and careers. Therefore students are expected to competently analyze, synthesize, organize, and articulate course material in papers, examinations, and presentations. In addition, students should know and use communication skills current to their field of study, recognize the need for revision as part of their writing process, and employ standard

conventions of English usage in both writing and speaking. Students may be asked to further revise assignments that do not demonstrate effective use of these communication skills.