CSC 481/581: Software Engineering, Spring 2023

Syllabus

Department of Computer Science
California State University, Dominguez Hills

Instructor	Dr. Brad Hollister	**Meetings**	On campus
Email	bhollister@csudh.edu	**Lecture Time**	Thursdays 7 - 9:45 PM
Home Page	http://toro.csudh.edu	**Lecture Location**	SAC 3165
Office Hours	Mondays by Appointment (Need Notice By Preceding Thurs.)	**Prerequisites**	**CSC 311, CSC 321**
Office Location	NSM B218	**Units**	3

Prerequisites: CSC 311 (Data Structures), CSC 321 (Programming Languages), with a C or better.

Course Description & Objectives: The main object of this course is to provide a general overview of software engineering and related aspects of software development. The topics include systems modeling, software design, software architecture, software evolution, configuration management, version control, build systems, software testing, software patching, working with legacy code, reverse engineering a code base, software reuse, and component-based software engineering. The course is centered on the concept of a software engineering process and includes discussion of system models for software development.

Learning Outcomes:

1. Become familiar with the concepts of software engineering, and methodologies of software development.
2. Understand software implementation techniques and software evolution.
3. Work with developers to reverse engineer an *open source project*.
4. Debug an open source project via a debugger.
5. Attend regular open source project meetings on IRC or chat.blender.org.
6. Document an open-source project via UML, and write unit test cases in accordance with the project's developers.
7. Use version control (Git), bug trackers (Phabricator), and associated web-based configuration management software.
8. Understand a build system (CMake) from a major open-source project.

Course Texts:

1. *Software Engineering*, 9th Edition, by Ian Sommerville, ISBN-13: 978-0137035151
2. *Linux Pocket Guide*, 3rd Edition, by Barret, ISBN-13: 978-1491927571 (or *Windows PowerShell Pocket Guide*: 978-1449320966)
3. *Git Pocket Guide*, 1st Edition, by Silvermann, ISBN-13: 978-1449325862

Technology Requirements

Computer:
You must have access to a reliable computer for this course. If you are on campus, and do not have a laptop, you can check out a laptop from the IT User Services Help Desk via Technology Checkout Program. In addition, the CSUDH Toro Lab offers on campus access to workstations with a wide variety of commonly used software.

Operating System:
We will be working with many open source technologies: Eclipse C++ IDE, Git, CMake, Blender source code, etc. ***In order to eliminate any potential cross-platform support issues, you should be running Ubuntu Linux.*** Thus, if you are running Windows, you will be required to create a dual-boot machine. If you are using a Mac, this is also strongly suggested, although there may be some barriers. We will discuss any issues at the time of the first assignment description.

Visit the CSUDH Academic Technology Online Courses Technical Requirements page for more information on technology requirements.

Email:
All email communications from this course will go through your Toromail. Toromail is the CSUDH student email system.

Internet and Campus Wireless Network:
You must have Internet access to participate in this course. If you are on campus, connect your laptop and mobile device to the internet using the eduroam campus wireless network.

Blackboard: We will be using the Blackboard management system for this course. Everyone must make sure they have access from http://toro.csudh.edu. All assignments, schedules, and due dates will be posted there. And some material may be turned in using it. Blackboard will also be the way you can view your current grades so far this semester. *Please see Blackboard for the course grading scale*.

481 Final grade breakdown:

- 45%: Three Exams (each 15%)
- 20%: Final Exam
- 10%: Open-Source Assignment #1
- 10%: Open-Source Assignment #2
- 15%: Open-Source Assignment #3

Grading Scale

Score Range	Grade	Score Range	Grade	Score Range	Grade
≥ 96	A	[90, 96)	A-	[87, 90)	B+
[83, 87)	B	[80, 83)	B-	[77, 80)	C+
[73, 77)	C	[70, 73)	C-	[67, 70)	D+
[60, 67)	D	[0, 60)	F	NA	

Exams: The format will be Google Forms.

For more information on Google Forms see:
https://support.google.com/docs/answer/7032287?hl=en

Exams & Final: ***Closed notes, closed book, no internet searching, no other supplemental materials***. The format will be Google Forms. Only a single browser tab is allowed for exams & finals. If you violate this policy, you will fail the exam if you cannot provide sufficient reason. **You MUST use lab machines if available for tests.**

Policy Changes: There might be changes to the stated policies in this syllabus, or other class rules during the semester. There will very likely be changes to the class schedule and due dates. Most often these changes are to help students and loosen some restrictions. Changes will be announced in class (lecture) and on Blackboard.

Import Dates:
https://www.csudh.edu/academic-affairs/academic-calendar/

Attendance Policy

Students are encouraged to attend lectures, but ***attendance will not be taken for regular lectures***. Students must attend exams, and attendance will be taken to ensure students are present for exams. The instructor considers university students to be adults, and it is their **choice** to attend regular lectures. **If you miss an exam due to circumstances beyond your control, accommodations can be made at the discretion of the instructor**. This is determined on a case-by-case basis.

Study Advice

- **Practice, practice, and practice.** Since programming/coding is a skill, like all other kinds of skills such as swimming, skating, skiing, practice is the most important approach to improve and enhance the mastery of skills. Learning by doing also means practice.
- Team learning helps students learn from each other. Peer or peer led discussions clarify your understanding about the basic concepts and problem solving approaches.
- Be prepared when you come to the classroom or lab room. Preview and post-review the materials the instructor provides.
- Complete all assignments: reading and programming, homework and projects. Check your work with sample solutions posted by the instructor to find out your strengths and weaknesses.
- Don't be shy. Communicate with the instructor in a timely manner. Keep in mind that the instructor is always ready to help you.

Required Computer Software/Hardware Capabilities

Students can use their own computers and install required software. If students have any problem with installing software, please contact the university IT department (`https://www.csudh.edu/it/`).

Computer Literacy Skills Expectations

It is expected that students will

- Use Microsoft Word for word processing unless otherwise approved by the instructor,
- Be familiar with using email as a communication tool and check your official campus emails at least every other day;
- Be able to access websites and online course materials which may require Flash and other plug-ins;
- Use the library databases to find articles, journals, books, databases and other materials;
- Have regular access to a computer and internet access for the term of this course.
- ***Know how to program using the Java programming language and associated development environments.***

Academic Integrity

Academic integrity is of central importance in this and every other course at CSUDH. You are obliged to consult the appropriate sections of the University Catalog and obey all rules and regulations imposed by the University relevant to its lawful missions, processes, and functions. **All work turned in by a student for a grade must be the students' own work.** Plagiarism and cheating (e.g. stealing or copying the work of others and turning it in as your own) will not be tolerated, and will be dealt with according to University policy. The consequences for being caught plagiarizing or cheating range from a minimum of a zero grade for the work you plagiarized or cheated on, to being dropped from the course.

Americans with Disabilities Act

CSUDH adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with temporary and permanent disabilities. If you have a disability that may adversely affect your work in this class, I encourage you to register with Student Disability Resource Center (SdRC) and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the SdRC. For information call (310) 243-3660 or to use the Telecommunications Device for the Deaf, call (310) 243-2028 or go to: `https://www.csudh.edu/sdrc/`

Behavioral Standards

Behavior that persistently or grossly interferes with classroom activities is considered disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students' ability to learn and an instructor's ability to teach. The instructor may require a student responsible for disruptive behavior to leave class pending discussion and resolution of the problem and may also report a disruptive student to the Student Affairs Office (WH A-410, 310-243-3784) for disciplinary action.

Resources for Students in Need

If you are struggling financially, can't afford healthy, nutritious food, or need stable housing, take advantage of these resources on campus. https://www.csudh.edu/student-services/food-shelter-resources/food-resources/

· DH Eats App – Look for it in the Apple App Store

· CalFresh – Financial aid for food to help stretch your grocery budget. Email calfresh@csudh.edu with your eligibility questions. Or make an appointment: https://dh-calfresh.appointlet.com.

· Housing Referrals – Contact the Basic Needs Coordinator to go over temporary housing solutions. mkirk@csudh.edu

· Basic Needs Food Distribution Events – The basic needs program is providing (4) meals and fresh produce to students every other Thursday. Event registration link will be sent out via toromail and iToros app.

· Farmers' Market – Turn 10 CalFresh dollars into $20 worth of fresh produce through the DH Farmers' Market's "Market Match" program: Tues 10-2 in the Sculpture Garden.

· Toro Food Pantry – Another nutrition assistance program available to any CSUDH student. They also stock toiletries and menstrual products

Schedule: ***The following is a tentative schedule. Dates and topics are subject to change.***

Week	Date	Lecture Topic	Reading
1	Jan. 26	Course Intro; Survey Introduction to Software Engineering	 Chapter 1
2	Feb. 2	System Modeling 1	Chapter 5
3	Feb. 9	System Modeling 2 System Modeling 3	Chapter 5 Chapter 5
4	Feb. 16	*Asg #1: Description, Walk-Thru, & Git Intro - Part One;* **Assignment #1 Due: Mar. 23rd 11:59 PM** *Asg #1: CMake Walk-Thru & Blender Build - Part Two;* Forum for Exam #1 Questions; Practice Exam Questions	**Notes:** Core Blender Development | SpringerLink
5	Feb. 23	**Exam #1**	
6	Mar. 2	Behavioral Models, Activity UML Diagrams, State UML Diagrams, OMG Specification Design & Implementation Intro, Design Patterns	Chapter 5 Chapter 7
7	Mar. 9	Implementation Issues Implementation Issues *cont*.	Chapter 7 Chapter 7
8	Mar.16	Open Source Development Configuration & Change Management	Chapter 7 Chapter 25; **Notes:** Core Blender Development | SpringerLink
9	Mar. 23	Version Control *Assignment #2 Description & Walk-thru;* **Assignment #2 Due: Apr. 20th 11:59 PM**	Chapter 25 **Notes:** Core Blender Development | SpringerLink
		Mar. 26 thru Apr. 1 Spring Recess - No Classes or Office Hours / Advising	
10	Apr. 6	Build Systems Part One Build Systems Part Two & Release Management; Forum for Exam #2 Questions; Practice Exam Questions	Chapter 25 Chapter 25
11	Apr. 13	**Exam #2**	
12	Apr. 20	Testing Overview, Validation & Verification, Intro to Development Testing *Assignment #3 Description & Walk-thru;* **Assignment #3 Due: May 18th 11:59 PM**	Chapter 8
13	Apr. 27	Development Testing continued: Unit Testing, etc. Component Testing, System Testing, Release Testing; Forum for Exam #3 Questions; Practice Exam Questions	Chapter 8 Chapter 8
14	May 4	**Exam #3**	
15	May 11	Software Processes; Functional vs. Non-Functional Requirements Forum for Final Exam Questions	Chapter 2 & 4
	May 18	**7:45 - 9:45 PM; Final Exam Schedule;** https://www.csudh.edu/class-schedule/sp23/final-exam/	