COMP 290 Large-scale and Open Source Software Development Fall 2023

Contact Information

Name: William Goble **Office:** Tome 246 **E-mail:** goblew@dickinson.edu
Office Hours: M/W: 1:00pm-2:30pm, T/R: 10:00am-11:30am [1]

Meeting Times

Lecture: Friday 1:30PM – 2:45PM Tome 231

Course Description

An introduction to large-scale software development through participation in a Humanitarian Free and Open Source Software (HFOSS) project. Readings and discussions will focus on FOSS and HFOSS philosophy, licensing, communication tools, project and community organization, and software engineering topics related to large-scale software development. Case studies of social, legal and ethical issues raised by computing and computing for the greater good will complement participation in the HFOSS project.

Prerequisite Knowledge

This course assumes at least a semester of prior programming experience in a high-level language. The normal prerequisite is Dickinson COMP 130 – Introduction to Computing, or at least concurrent enrollment in Dickinson COMP 132 – Principles of Object-Oriented Design

Course Schedule

Assignment details including due dates and topics are indicated on the Course Moodle page.

Textbook

Reading materials for this course will be provided via links on the course Moodle.

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[1] If you have a conflict with my regularly scheduled office hours or would like to schedule a separate meeting, please message me on Teams.

Learning Goals

Students will

- acquire concepts and skills necessary for large-scale and Free and Open Source Software (FOSS) development including software processes, FOSS philosophy and licensing, community structures and communication mechanisms.
- deepen their understanding of social and ethical issues in computing and appreciation of computing for the greater good.
- develop their ability to write effectively in the context of a software development team, this is a Writing in the Discipline goal.

Community and Inclusivity

All members of this class are equally valued members of our course community. The instructor aims to create an *inclusive atmosphere* in which we can listen and speak in ways that are respectful of each other and our diversity of heritages, identities, experiences, knowledge and views. All questions will be accepted and treated with kindness. Some topics will push us to develop new ideas and opinions about things we may not have thought about before. The instructor aims to promote a *generous atmosphere*. One where we listen and speak to understand. One where all are given the benefit of the doubt as they try out new and partially formed thoughts and opinions. One where we respond to and critique statements and ideas, not individuals. If you feel at any time that these ideals are not being met or have ways that our course atmosphere can be improved, you are encouraged to reach out to the instructor. In cases were talking with the instructor is not comfortable please contact your advisor, the Department Chair or another trusted College official for guidance.

Communications

All communications outside of in person meetings will occur via Teams, Zulip, or GitHub. Communication in public channels is preferred. However, sensitive conversations should be initiated as a private chat or email.[2]

[2] During the week I will try to answer your emails/messages within 24 hours, and over the weekend I will answer messages within 48 hours.

Course Components

- **Readings & Discussions**

  A short reading on an open source, software engineering or contemporary social/legal/ethical issues in computing will be assigned prior to most class meetings. The class meeting will begin with a class discussion of that reading. You are expected to do the readings in advance and come to class prepared to contribute to the discussion. Note that while everyone is expected to prepare for every discussion, it is not required that everyone contribute to every discussion. However, you are expected to contribute regularly enough to demonstrate you are preparing and engaging with the materials. Students who are failing to demonstrate sufficient engagement or participation will be given updates and suggestions for improvement.

  Students may reference notes or digital copies of the readings on their laptops or other devices during discussions, **but if at any point the instructor believes that this is too big of a distraction during the discussion, they have the right to have laptops and other devices closed during the discussion period.**

  To prepare for class discussions you might:

  - Identify the main points made by the reading
  - Think about your position on any of the issues that are raised, especially those which are controversial or unsettled
  - Note things that you found interesting that you would like to hear the opinions on, either from your instructor or your fellow classmates.
  - Prepare questions to ask on things that were unclear to you.

- **Introductory Presentations**

  Each class will include a short introductory presentation to the day's topic by the instructor. This introduction is intended to provide a big picture view of the topic and how it fits into the larger context of the course, software development, and open source. They are *not* intended to provide all the information that you need to complete the activities.

- **Homework Activities**

  Following each introduction, you will complete a collection of activities that guide you through the development of the main ideas, techniques for solving problems, and provide practice with the material. These activities will start from the introductory material but will also contain additional

videos/readings and guide you through the learning of additional new material that builds on the introductory material.

You should expect that the Activities will require 3-4 hours outside of class. This is consistent with Dickinson's standard that "at least three hours of study accompany each class period." If you find the activities are taking significantly longer than the expected time, please reach out to your instructor to discuss strategies for reducing the time required.

Homework activities are due before the next class meeting.

- **Project Work**

  Team project work will consist of the following elements:

  - Weekly Team Meetings: Each class period during the project work period will include time for each team to have a 10-15 minute meeting with the instructor to demonstrate what they have accomplished during the week and to present any challenges they are facing for feedback and discussion.
  - Repository Code Commits: Individuals and teams are expected to make regular commits of their work, push them to their fork of the project, and to make pull requests to the upstream repository as appropriate.
  - WiD: The Writing in the Discipline assignment will occur during the project work in the course, and will require students to post a technical question to a project communication channel.
  - Final Presentation: Each team will give a 20 minute presentation during the final exam period describing and demonstrating the team's accomplishments, challenges, and reflecting on lessons learned.

Grading

The COMP 290 course is graded as a Credit/No Credit course, see Dickinson's Academic Policies and Procedures for more information about this. The points below explain how each component of the course is scored and what is required to receive credit for the course as a whole.

- **Participation / Attendance / Engagement (PAE)**

  You will receive a PAE score for each class meeting using the following rubric

Score	Criteria
3	Present; Demonstrating careful and through preparation; Highly engaged in class and discussion; Contributing; Asking questions; Participation and improved the class for all.
2	Present; Demonstrates some preparation; Engaged in class and discussion; Actively listening; Possibly making contributions or asking questions
1	Present; Possibly demonstrates a lack of preparation; Possibly not fully or consistently engaged.
0	Absent; Actively disengaged (phone, laptop, etc.); Possibly distracting to others

  If you know you will be unable to attend a class due to a College recognized religious holiday or other extenuating circumstances please contact your instructor in advance. If your request is in line with College Policy, reasonable, and timely we will make accommodations and provide an alternative means of earning PAW score for the missed class.

  In the case of illness, please contact me as soon as possible (still preferably before class) and again, if reasonable and timely, we will make accommodations and provide an alternative means of earning a PAE score for the missed class.

  If you contact the instructor regarding an absence and the instructor judges that the reason for the absence is valid, you may earn a PAE score of 2 for the missed day by submitting – either by Teams or e-mail – 250 – 400-word summary of your thoughts on the reading(s) that were assigned for the class discussion that was missed. This summary must be submitted within one week of the missed class period, unless otherwise arranged with the instructor.

- **Homework Activities**

  You will receive a score on each Homework Activity using the following rubric:

Score	Criteria
3	On time; Complete; Demonstrates a strong understanding and thoughtful engagement; Uses complete sentences; Neat and organized

2	On time or max for a late/resubmission; Complete or nearly-complete; Demonstrates a sufficient understanding of the material; Some answers may not fully address the question, be unclear, be insufficiently explained, use incomplete sentences, and/or be messy/disorganized
1	Insufficiently complete; Fails to demonstrate acceptable level of understanding.
0	Not submitted or largely incomplete

A Homework Activity receiving a score one or zero may be (re)submitted **once within one week** of being returned to the class. An activity (re)submitted within one week will be (re)scored and the new score will replace the original. Late or resubmitted activities will receive a maximum score of two. (Re)submissions more than one week after an assignment is returned to the class will not be accepted and the original score will remain. Extensions beyond one week will only be considered in extenuating circumstances with appropriate documentation. Please see the "Life Happens" section at the bottom of this document.

- **Project Work**

You will receive a score on each week during the project work using the following rubric:

Score	Team Meeting	Commits
3	Present and engaged; Participated equally in the meeting; Communicated Individual and team accomplishments and challenges thoughtfully, accurately and clearly; Demo showed convincing evidence of appropriate effort and progress	Individual has authored or coauthored one or more commits; Commits reflect cohesive units of work; Commit messages are descriptive; Commits merged into team's feature branch; PR for team's feature is clear and well written.
2	Present; Individual participated in meeting; Communicated Individual and team accomplishments and challenges; Demo shows evidence of effort and possibly progress.	Individual has authored or coauthored at least one commit; Commits and commit messages are acceptable; Commits merged into team's feature branch; PR has been made for team's feature branch.
1	Present but possibly disengaged; Individual did not participate or participated minimally in the meeting; Individual and/or team accomplishments were minimal or unclear; Demo shows little evidence of effort and no progress	Individual may have authored or coauthored ay least one commit; Commit is not cohesive; Commit message is perfunctory; Commit has not been merged into team's feature branch; OR PR has not been made for team's feature branch

0	Absent; Individual did not participate in the meeting; Individual and/or team accomplishments were absent; Demo shows no evidence of effort or progress	There is no evidence that the Individual has authored or coauthored a commit.

- **Writing in the Discipline (WiD)**

  You will receive a score for the Writing in the Discipline (WiD) assignment using the following rubric:

Score	Criteria
3	Exceptionally clear, well written question following guidelines in the assigned reading; Highly responsive to follow-up requests and/or comments on the question.
2	Well written question showing an awareness of the guidelines in the assigned reading; Responsive to follow-up requests and/or comments on the question.
1	A question was posted but shows little effort or awareness of the guidelines in the assigned reading; Unresponsive to follow-up requests and/or comments on the question.
0	No question was posted or was entirely inadequate.

- **Final Project Presentation**

  You will receive a score for the final project presentation using the following rubric:

Score	Criteria
3	Clearly demonstrates accomplishments; Presentation was easy for target audience to follow; Shows code and clearly connects code to live demonstration; Shows thoughtful reflection on experience and learning; Individual contributed effectively.
2	Clearly demonstrates effort; Majority of presentation could be followed by target audience; Shows code and gives live demonstration; Includes comments on experience and learning; Individual was involved.
1	Suggests insufficient effort; Significant parts of presentation were difficult for target audience to follow; Code presentation and/or demonstration are unclear; Experience and learning insufficiently addressed; Individual had minimal participation.
0	Individual did not participate sufficiently in project work to meaningfully contribute to presentation.

Receiving Credit for the Course

Based on section above, in order to receive credit for the course, you must meet the following criteria.

Element	Criteria
PAE	Minimum of 30 points, with at most one zero.
Activities	Minimum of 15 points with no zeros.
Project Work	Minimum of 10 points, with at most one zero.
WiD	Minimum score of 1
Final Presentation	Minimum score of 1

The instructor reserves the right, with notification to the class, to reduce (but not increase) the point totals required for credit. (e.g. in the event of a canceled class, a day with no reading, a faulty quiz, etc.)

Academic Integrity

Please take the time to read the Academic Misconduct section of Dickinson's Community Standards. Violations of this policy are considered serious transgressions, so you should be especially certain that you understand your rights and responsibilities under it. Students suspected of academic dishonesty will be subject to the process outlined in the Student Conduct pages.

The specific policies for COMP 190 are detailed below. If you are uncertain about whether or not certain kinds of collaboration or sources are permissible on an assignment, or in this course, ask your instructor.

- **Collaboration**

  Homework Activities and Quizzes in COMP290 are individual assignments. All work submitted *must be your own work.* The sharing or receiving of answers to assignments is not permitted.

  However, you are encouraged to interact and to help each other learn. For example
  - You may ask and answer clarifying questions about assignments from your peers
  - You may ask for suggestions of other resources to use or how to proceed with an assignment.

- You can help each other complete individual questions in the activities, as long as you each do the work individually.
- You can visit evening TA hours in Tome 118.

All of these types of questions can be asked of the instructor or of your classmates, either in person or on the course Teams channel. You are encouraged to ask and respond on the Teams channel. If you ask in person, please try to post what you learn to the channel. This will ensure that others with the same questions will have access to the same helpful information that you receive.

What you cannot do is copy answers from someone else. You must complete all questions or exercises yourself on your own machine. It is the process of trying and working through these exercises that builds your experience. That experience is what you will need to succeed in future classes, internships, and jobs.

- **Outside Sources**

  There exist websites where answers can be looked up or where one can ask for solutions. There are undoubtedly assignments from past offerings of this course that are available to some of you. There are also tools which can generate answers to some of the questions you will be asked. Regardless of the availability of these materials, **the bottom line is that you are responsible for ensuring your own mastery of the material.** Failure to do so will limit your success in this class, in future classes, internships, and jobs that rely on this material.

  That said, for some problems you will be expected to use web searches and outside sources. In those cases this will be explicitly indicated in the problem. Otherwise, the expectation is that you should be able to answer the question based on what you already know combined with careful and creative thought and diligent effort. If you struggle with such a question, ask for suggestions (see Collaboration above.)

Intellectual Property Rights

Audio or video recording of class meetings, lectures, or discussions is prohibited without explicit permission of the instructor. Photographic records or whiteboards, projected slides, or other visual media is also prohibited without explicit permission of the instructor. In any case where permission is given for audio/video/photographic records to be made they are for personal use only. They may not be shared or redistributed and must

be destroyed at the end of their usefulness or within one week following the termination of this course, whichever comes first. Similarly, any redistribution of sample code, homework solution sets, or provided lab code is prohibited.

Please note that all outside material used in the course (readings, tutorials, assignments, projects, etc.) are also to be governed by their own licensing and copyright agreements.

Accommodations Students with Disabilities

Dickinson values diverse types of learners and is committed to ensuring that each student is afforded equitable access to participate in all learning experiences. If you have (or think you may have) a learning difference or a disability – including a mental health, medical, or physical impairment – that would hinder your access to learning or demonstrating knowledge in this class, please contact Access and Disability Services (ADS). They will confidentially explain the accommodation request process and the type of documentation that Dean and Director Marni Jones will need to determine your eligibility for reasonable accommodations. To learn more about available supports, go to www.dickinson.edu/ADS, email access@dickinson.edu, call (717)245-1734, or go to the ADS office in Room 005 of Old West, Lower Level (aka "the OWLL").

If you've already been granted accommodations at Dickinson, please follow the guidance at www.dickinson.edu/AccessPlan for disclosing the accommodations for which you are eligible and scheduling a meeting with me as soon as possible so that we can discuss your accommodations and finalize your Access Plan. If you will be using any test-taking accommodations in this class, be sure to enter all test dates into your Access Plan in advance of our meeting.

Physical Access to My Office: My office is located on the 2nd floor of Tome Hall which has an elevator, located to the left of the main entrance. If you require the use of an elevator to access the 2nd floor, please let me know. If there is ever a malfunction with the elevator, we will be notified by email, and we can identify a different location in which to meet.

Life Happens

Sometimes stuff just happens. Sometimes it is an unexpected sudden event such as an illness or family emergency. Other times in may be an ongoing issue or concern or an accumulation of smaller issues. Any of these things may affect your ability to focus or perform up to your potential through no shortcomings or fault of your own. Dickinson College is a kind and caring community, and we want to see you achieve at your full

potential. So, if you are experiencing life events that are affecting your performance please do not hesitate to talk to your professor, your advisor, or your class dean. They will all be willing to talk with you, help to formulate a plan and/or connect you with others that may be able to assist.

Syllabus Changes

Except for changes that substantially affect implementation of the grading statement, this syllabus is a guide for the course and is subject to change with advance notice.