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CSCI 426.01: Software Design and Development I

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CSCI 426: Software Design & Dev I (Senior Capstone)

Fall 2021 Syllabus

This class is your senior CS capstone experience. It provides the opportunity for you to coalesce the technical skills you have acquired during your time in our program to develop a software product, but also to develop experience in project management, leadership, professionalism, communication, and team building. You will work together in a group of students to design, develop, implement, and test real-world software. You will work with and report to an actual client throughout the semester in addition to the class instructor. At the end of the semester, you will make a formal presentation of your work.

Practical Details

Instructor: Yolanda Reimer | yolanda.reimer@umontana.edu | SS416

Office hours: Wednesday 2-3pm (SS 416) | Zoom by appt | during in-class work periods

Prerequisites: CSCI 205, 232, 323 and M 225, or consent of the instructor. Students must be of senior class standing. Prerequisites will be waived only for exceptional circumstances.

Textbook: None

Website: Moodle (<http://umonline.umn.edu>)

Learning Outcomes

Upon successful completion of this class, students should have:

- An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
- An ability to function effectively on teams to accomplish a common goal
- An understanding of professional, ethical, legal, security and social issues and responsibilities
- An ability to communicate effectively with a range of audiences
- Recognition of the need for and an ability to engage in continuing professional development
- An ability to use current techniques, skills, and tools necessary for computing practice

Evaluation & Grading

Your grade for the course will be determined by the following accomplishments. Note that some of these elements are individually-based while others are team-based. For team-based items, all members will receive the same grade unless I learn that some are not contributing equally. In those cases, I reserve the right to downgrade certain team members.

Progress reports and weekly client emails: (10%) [team grade]

Progress reports will happen frequently throughout the semester. You will meet with the class instructor to present a formal update on team progress. All group members must be present for these status updates. If you are absent, you will receive a zero for that update. In addition, every week by 5pm on Friday your team must send a status update email to your client. We will discuss the appropriate content of these update emails further as a class.

Attendance: (10%) [individual grade]

During our in-person class periods, we will discuss topical materials in a somewhat traditional format; the remainder of the period will be allocated to group work and client meetings. Students are expected to attend the entirety of all class periods. Attendance will be taken and it will count substantially towards your final grade. If you are late for class, attendance points will be deducted. Considering that you shouldn't be late for—or miss—a meeting with a client, don't be late for—or miss—a meeting with the class.

Engagement: (15%) [individual grade]

Your interest and engagement during class periods will be assessed by me, the instructor, over the course of the semester and will count substantially towards your final grade. Sleeping in class, yawning, looking at your phone, or engaging in activities other than what the group is doing during meeting time all constitute a low level of class engagement and will detract significantly from your final grade. On the other hand, following along, looking alert, asking questions, offering opinions, contributing to discussions, working towards group goals, etc., are all activities that indicate a high level of class engagement and thus will positively impact your final grade. In addition, you will be tracking work time via Gantt charts throughout the semester. The time you contribute to your project will also count towards your overall engagement grade. Lastly, you will evaluate and be evaluated by your teammates in a confidential manner multiple times throughout the semester. The combination of these engagement elements (in-class participation, time tracking via Gantt, and peer evals) will be used to determine this portion of your final grade.

Design Documentation: (35%) [team grade]

Throughout the semester, your team will be required to submit various project design documents. These deliverables will include client contracts, requirements specification, analysis documents, prototypes, etc. All design documents will be graded and included in your team portfolio by the end of the semester.

Client Evaluation: (10%) [team grade]

Two or three times throughout the semester, I will ask your client to evaluate your team.

Early Implementation (15%) [team grade]

While the majority of software implementation and testing will be completed during the spring semester for your project, we will conduct high-fidelity prototyping, software development research and set-up, and initial coding late in this (fall) semester. Accomplishment in early implementation tasks will ensure quick transition into software development tasks beginning in January and will contribute to this portion of your final grade.

Presentations: (5%) [team grade]

Once or twice per semester your team will be asked to present your work to the rest of the class and your client.

Graduate Increment

If you are a graduate student enrolled in this course, you must additionally satisfy the following requirements:

1. Accept the role of group project manager if requested by the course instructor. This responsibility involves acting as primary contact between team and client, taking a leading role in work allocation, ensuring completion deadlines are met, and facilitating disagreements that may arise among the team.
2. Give a teaching demonstration related to a topic germane to the field of Software Engineering and Product Development, and approved beforehand by the instructor. The teaching demonstration will require independent research into the topic and a 30-40 minute presentation to the class that will be scheduled at an appropriate point in the semester.

Late Work Policy

Late work will **NOT** be accepted.

Academic Dishonesty

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at <http://www.umd.edu/student-affairs/community-standards/default.php>

Additional class policies and information:

- Mask use is required within the classroom and other group meeting rooms.
- If you feel sick and/or are exhibiting COVID-19 symptoms, please don't come to class and contact the Curry Health Center at (406) 243-4330.
- If you are required to isolate or quarantine and have documentation indicating such, you will receive support in the class to ensure continued academic progress.
- UM recommends students get the COVID-19 vaccine. Please direct your questions or concerns about vaccines to Curry Health Center.
- Specific seating arrangements will be used to support contact tracing efforts.
- Drinking liquids and eating food is discouraged within the classroom.
- If you miss a class without documentation or prior approval from the instructor, you alone are responsible for the material covered. This includes handouts, schedule changes, and lecture notes.
- For important dates and deadlines related to classes, visit: <http://catalog.umd.edu/academics/policies-procedures>
- Also in the University catalog, review the policy on **incompletes**. In particular, note that incompletes can only be assigned when the student has "been in attendance and doing passing work up to three weeks before the end of the semester." Incompletes will not be issued simply to prevent a failing grade.
- Students with disabilities will receive reasonable modifications in this course. Your responsibilities are to request them from me with sufficient advance notice and to provide verification of disability and its impact from the [Office of Disability Equity](#) (ODE). Please speak with me after class or during my office hours to discuss the details.