CSE 335: Object-Oriented Software Development

Fall Term 2016

1 Course Information

This course will introduce students to the development of object-oriented software with emphasis on design concerns that dominate the development of such software. These concerns include reliability, reusability, maintainability, and ease of extension and contraction. Students will learn how to use object-oriented design techniques to address these concerns. The course emphasizes explicit modeling and critical analysis of designs prior to implementation. Students will learn heuristic methods to design for integration and changes in requirements.

This course focuses on implementation techniques, analysis and design heuristics, and best practices that have proved useful in making the software-development process rigorous, systematic, repeatable, and manageable. Students will be introduced to current methods, which they will apply to programming and design projects.

Finally, this course is primarily about design, which is very difficult to learn by reading a book or cramming for a test. Design problems involve choices and tradeoffs, and often there is no single "right" answer. The instructor's role in such a course is to set up an environment that will help students to confront and appreciate difficult design issues and to provide critical and continual feedback to students on their choices. It is the student's responsibility to actively participate in this environment and to reflect and respond to the issues that are discussed.

Objectives:

- Students will learn methods for structuring computer programs using object-oriented methodologies.
- Students will gain experience using object-oriented methods include inheritance, polymorphism.
- Students will learn how to apply design patterns to the solution of programming problems.
- Students learn about professional programming methodologies and ethics, and effective communication.

Instructor: Charles B. Owen
Office: 1138 Engineering Building
Phone: 353-6488
Office Hours: See the course website.
cbowen@cse.msu.edu

TAs: Faraz Ahmed, farazah@msu.edu (lead)
Ali Salman, salmanali_99@yahoo.com
Timothy Taviano, tavianot@msu.edu

Schedule: This course will be an online course. A TA will be available during specified lab times and via Skype for student help.


WWW: Information about the class will be posted at: http://www.cse.msu.edu/~cse335.
Computing: This course will utilize specific software tools. Details can be found on the course web site.

Privacy: Electronic conversation via email, bulletin boards, or any of the Interact! features, is different from verbal communication because it retains the identity of the participant. In this course, all participants will have access to a list of names and e-mail addresses of other course participants. Participants in the course will be able to send bulk e-mail to all other participants.

Exams: There will be two exams, a midterm and a final exam.

Step Assignments: Many weeks there will be a smaller tutorial/programming assignment that must be completed during that week. All step assignments are due when indicated on the class home page.

Design Assignments: Most weeks will include a design assignment that must be completed during that week.

Step and Design Assignments Completion Rule: If you fail to turn in any step or design assignment, that assignment will be assigned a grade of negative 100%. If you only turn in one half of a two part step assignment, the assignment will be assigned a grade of zero.

Programming Assignments: 2 programming assignments will be assigned during the course of the term. The grades for these assignments may also be reflected in lab assignment grades. Project 1 will be a group project. Some step assignments will include group components.

Grading: On the course web site, click the link Grades in Site Tools and Resources to see the elements of the course grade.

Final grades will be based on this scale:

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<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>4.0</td>
<td>90%+</td>
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<tr>
<td>3.5</td>
<td>85%</td>
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<tr>
<td>3.0</td>
<td>80%</td>
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<tr>
<td>2.5</td>
<td>75%</td>
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<tr>
<td>2.0</td>
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<tr>
<td>1.0</td>
<td>60%</td>
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If a student wishes to question any grade, he or she must contact the TA first to discuss the issue. If the problem cannot be resolved after consultation with the TAs, the TAs will forward a summary of the problem to the instructor (with an e-mail copy to the student).

Academic Honesty: Article 2.3.3 of the Academic Freedom Report states that "The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards." In addition, the College of Engineering adheres to the policies on academic honesty as specified in General Student Regulations 1.0, Protection of Scholarship and Grades; the all-University Policy on Integrity of Scholarship and Grades; and Ordinance 17.00, Examinations. (See Spartan Life: Student Handbook and Resource Guide and/or the MSU Web site: www.msu.edu.) Therefore, unless authorized by your instructor, you are expected to complete all course assignments, including homework, lab work, quizzes, tests and exams, without assistance from any source. You are expected to develop original work for this course; therefore, you may not submit course work you completed for another course to satisfy the requirements for this course. Also, you are not authorized to use the http://www.allmsu.com web site to complete any course work in
CSE 335. Students who violate MSU rules may receive a penalty grade, including--but not limited to--a failing grade on the assignment or in the course. Contact your instructor if you are unsure about the appropriateness of your course work. (See also http://www.msu.edu/unit/ombud/honestylinks.html )

That’s the university policy. My specific policies are as follows: You may discuss individual assignments with other students, but the assignment must be entirely your own work. Plagiarism just makes me mad! All work turned in must be your own. If you borrow or adapt software from a textbook or from source code that is obviously public, you must treat this as a quotation or paraphrase, acknowledging the source in the heading or the program module.

You may discuss assignments in general terms with your classmates, the course staff, or the instructor, but you are not permitted to receive solutions from others or to read or copy part or all of another person’s solution to a problem.

Disabilities: Students with disabilities should contact the Resource Center for Persons with Disabilities to establish reasonable accommodations. For an appointment with a disability specialist, call 353-9642 (voice), 355-1293 (TTY), or visit MyProfile.rcpd.msu.edu.

Commercialization: Commercialization of lecture notes and university-provided course materials is not permitted in this course.

Religious Holidays: You may make up course work missed to observe a major religious holiday only if you make arrangements in advance with the instructor.

Required Activities: To make up course work missed to participate in a required activity for another course or a university-sanctioned event, you must provide the instructor with adequate advanced notice and a written authorization from the faculty member of the other course or from a university administrator.

Disruptive Behavior: Article 2.3.5 of the Academic Freedom Report (AFR) for students at Michigan State University states that "The student's behavior in the classroom shall be conducive to the teaching and learning process for all concerned." Article 2.3.10 of the AFR states that "The student has a right to scholarly relationships with faculty based on mutual trust and civility." General Student Regulation 5.02 states that "no student shall . . . interfere with the functions and services of the University (for example, but not limited to, classes . . .) such that the function or service is obstructed or disrupted. Students whose conduct adversely affects the learning environment in this classroom may be subject to disciplinary action through the Student Faculty Judiciary process.

Important Dates: See the online calendar on the class web site for all important dates. The course schedule is subject to change with appropriate notice.