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| Lewis Syllabus.png | **Lewis University**  Computer and Mathematical Sciences  College of Arts and Sciences |
| **CPSC-44000 Software Engineering** | **3 credit hours** |
| **Instructor:** Dr. Cindy Howard  **Office Hours**: Tuesday/Thursday 12:30-2:00 and 3:30-4:30  **Office Location**: Online  **Phone**: 815-836-5134 (office)  708-307-1550 (mobile)  **Email**: [howardcy@lewisu.edu](mailto:howardcy@lewisu.edu)  **Expected Response Time:** Within 24 hours | **Semester**: Spring 2017  **Meeting time**: Tues/Thurs 11:00-12:15  **Location**: AS-106-A |

### Course Description:

Methods, strategies, and tools for implementing software systems, particularly as part of a development team. Topics include the software development life cycle, Unified Modeling Language, software testing techniques, software security, open-source development, requirements gathering and documentation, maintenance, and basic software project management.

**Prerequisites:**

CPSC-24500 Object-Oriented Programming

**Course Rationale**

Working a software developer requires more than programming skills. In this course students will learn the processes and tools that are used in developing large software projects.

**Student Learning Outcomes:**

On the successful completion of this course the student will:

* compare and contrast various software process models
* be able to elicit and analyze requirements of a proposed application
* write clear and complete requirements documents
* identify the events to which the software must respond and document them as a set of use cases
* identify security issues in a software projects requirements and design
* use techniques to produce self-documenting code
* use coding strategy to produce secure code
* draw diagrams to model work flows
* develop and use diagrams to model classes and the interaction of classes
* understand and practice unit testing and functional testing
* understand the techniques used to test non-functional requirements such as performance and security
* develop a project schedule

**Relationship to Mission**

Lewis University is a Catholic University in the Lasallian Tradition. Our Mission is integrated into all aspects of University life, including this course. This course embraces the Mission of the University by fostering an environment in which each student is respected as an individual within a community of learners. In the spirit of the vision of Lewis University, the goals and objectives of this course seek to prepare students to be successful, life-long learners who are intellectually engaged, ethically grounded, socially responsible, and globally aware.

[Lewis University Mission Statement](http://www.lewisu.edu/welcome/mission.htm) [Sanctified Zone](http://www.lewisu.edu/sanctifiedzone/index.htm) [University Ministry](http://www.lewisu.edu/studentservices/ministry/index.htm)

**Required Instructional Materials**

* Textbook: Fox , Patterson and Joseph. *Engineering Software as a Service: An Agile Approach Using Cloud Computing*, 2nd Edition, 2013. ISBN: 978-0984881246.
* Use of a virtual machine using a free [cloud9](https://c9.io/) account.
* Access to Blackboard ([Blackboard Hardware Requirements](https://help.blackboard.com/en-us/Learn/9.1_SP_10_and_SP_11/Student/002_Browser_Support_SP_11))

**Course Outline and Schedule**

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|  | Topic | Related Chapter |
| Week 1 | Introduction to Saas and Agile Development | Chapter 1 |
| Week 2 | The Architecture of SaaS Applications  Getting started with Secure Shell | Chapter 2  A.5 |
| Week 3 | Getting Started with Git  Introduction to Ruby | A.6  Chapter 3 |
| Week 4 | Introduction to Ruby  Regular expressions | Chapter 3 |
| Week 5 | Introduction to Rails | Chapter 4 |
| Week 6 | Behavior Driven Development | Chapter 7 |
| Week 7 | Plan and Document Requirements | Chapter 7 |
| Week 8 | Exam 1  Test Driven Development | Chapter 8 |
| Week 9 | Traditional Testing | Chapter 8 |
| Week 10 | Maintenance | Chapter 9 |
| Week 11 | Project Management  Design Patterns | Chapter 10  Chapter 11 |
| Week 12 | Performance, Releases, Reliability and Security  Exam 2 | Chapter 12 |
| Week 13 | Final Project | Chapters 5 and 6 |
| Week 14 | Final Project |  |
| Week 15 | Final Project |  |

**Grading**

Your final grade in the course will be based on the following:

Homework and labs 40%

Class participation and quizzes 10%

Exam 1 15%

Exam 2 15%

Final Project 20%

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| A | B+ | B | B- | C+ | C | C- | D+ | D | D- | F |
| 90-100% | 87-89% | 84-86% | 80-83% | 77-79% | 74-76% | 70-73% | 67-69% | 64-66% | 60-63% | ≤ 59% |

***\*Note***: The instructor reserves the right to modify the syllabus and/or schedule; however, students will be notified via Lewis email prior to any change.

**Policies and Procedures**

**Academic Honesty**: Scholastic integrity lies at the heart of Lewis University. Plagiarism, collusion and other forms of cheating or scholastic dishonesty are incompatible with the principles of the University. Students engaging in such activities are subject to loss of credit and expulsion from the University.

**Attendance**: Students are expected to attend all classes as part of the normal learning process. In addition, students must be especially consistent in attendance during the first two weeks of the semester to confirm registration and to be listed on the official course roster. Students who fail to follow this procedure and who have not received prior approval from the instructor for absences will be withdrawn from the courses in question by certification of the instructor on the official class lists. The Illinois Student Assistance Commission also requires attendance as a “demonstration of academic progress toward a degree” as one criterion for retaining financial aid awards.

**Classroom Decorum**: In order to maintain an environment conducive to learning and student development, it is expected that classroom discourse is respectful and non-disruptive. The primary responsibility for managing the classroom environment rests with the faculty. Students who engage in any prohibited or unlawful acts that result in disruption of a class may be directed by the faculty member to leave class for the remainder of the class period. Students considered to be a disruption or who present a threat of potential harm to self or others may be referred for action to the Dean of Student Services. (2015-2016 Student Handbook, p. 14, Lewis University website <https://www.lewisu.edu/sdl/pdf/studenthandbook.pdf>)

**Sanctified Zone**: This learning space is an extension of Lewis University’s Sanctified Zone, a place where people are committed to working to end racism, bias and prejudice by valuing diversity in a safe and nurturing environment. This active promotion of diversity and the opposition to all forms of prejudice and bias are a powerful and healing expression of our desire to be Signum Fidei, “Signs of Faith,” in accordance with the Lewis Mission Statement. To learn more about the Sanctified Zone, please visit: <http://www.lewisu.edu/sanctifiedzone>.

**Computer Use:** This course meets in a computer lab and, at times, we will make use of the computers during class time. If we are not using the computers for a lab activity, please refrain from using them. Surfing the web during class is about as useful as just not showing up at all. Do not surf the web during class. I will not help you if you come to me with questions that were covered during class if I strongly suspect that you spent the time surfing.

**Email Policies:** You can expect a response within 24 hours, Monday through Friday. I will occasionally answer email on the weekend, but it is not to be expected. Email should be written using common email etiquette. If you are unsure of what this means, please refer to [this article](https://medium.com/@lportwoodstacer/how-to-email-your-professor-without-being-annoying-af-cf64ae0e4087#.rw6y2akmv).

**Late Assignment Policy**: It is expected that all assignments will be submitted on time unless prior arrangements (before the due date) are made. An extension is not automatically granted. Assignments turned in late will have a 5% per day reduction in grade. Assignments submitted later than one week after the deadline will receive no credit.

**Drop and Withdrawal Deadlines**: course may be dropped with a full refund in the first week and a partial refund in the second week. You may withdraw from this course through the end of the 10th week. For specific details and more information, see: [Office of the Bursar](http://www.lewisu.edu/welcome/offices/business/bursar/refund.htm)

**Assistance**

**Students Requiring Special Accommodations**

If you have a disability that may require consideration by your instructor and you have not previously submitted documentation to the staff in the Leckrone Academic Resource Center (LARC), please make an appointment with Denise Rich, Director of Academic Support Services in LARC (x5593).

It is recommended that you address this prior to the start of class or within the first week of class. If you need accommodations for successful participation in class activities prior to your appointment in LARC, you should provide information in writing to your instructor that includes suggestions for assistance in participating in and completing class assignments. It is not

. necessary to disclose the nature of your disability to your instructor. For more information about academic support services, visit the LARC website at: [www.lewisu.edu/larc](http://www.lewisu.edu/larc).

**Other Assistance**:

[Blackboard](https://lewisuniversity.blackboard.com/webapps/portal/frameset.jsp)

[Career Services](http://www.lewisu.edu/resources/careerservices/index.htm)

[Help Desk](http://www.lewisu.edu/welcome/offices/infoservices/index.htm)