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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**: By Appointment  **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  **Session**: 1  **Start date**: 01/16/2017  **End date**: 03/18/2017 |

### 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))

**Policies and Procedures**

**Academic Success**

We expect all students to use a computer on a regular basis to access course materials. Students are responsible for all information, including linked information, in the course syllabus and the Blackboard course site. *Note*: Not all learning materials will be available via smartphones or tablets. For more information, read: [Being a Successful Online Student](https://docs.google.com/document/d/1rFkPECHaEIxEYV4ImmZmbox8VF8UiJhvDo_jbFH4jzo/edit).

**Lewis Email**: The Lewis email will be used to communicate with students. Students are required to regularly check their email for information regarding updates to class requirements, feedback from instructors, etc.

**Blackboard Confidentiality**: The materials listed in this course shell are only for the use of students enrolled in this course for the purposes associated with this class and may not be retained for further dissemination.

**Discussion Confidentiality**: Sometimes during class discussions, students will offer information from their place of employment. This may include policies, practices, strategies, and future initiatives. With respect for the other members in the class, we will treat all discussions as CONFIDENTIAL CLASS DISCUSSIONS – that is, information that will not leave the classroom.

**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. Instructors may publish specific, additional standards of attendance for their classes in the course syllabus. Students may receive failing grades if they do not observe attendance requirements set for their classes. 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.

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

**Assistance**

**Americans Disabilities Act (ADA)**: 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). For specific details and more information, see [ADA Accommodations](https://www.lewisu.edu/welcome/adaAccommodations.htm).

**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)

**Course Outline and Schedule**

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|  | Topic | Related Chapter |
| Week 1 | Introduction to Saas and Agile Development  The Architecture of SaaS Applications  Getting started with Secure Shell | Chapter 1  Chapter 2  A.5 |
| Week 2 | Getting Started with Git  Introduction to Ruby | A.6  Chapter 3 |
| Week 3 | Introduction to Rails | Chapter 4 |
| Week 4 | Requirements | Chapter 7 |
| Week 5 | Testing | Chapter 8 |
| Week 6 | Maintenance | Chapter 9 |
| Week 7 | Project Management  Design Patterns | Chapter 10  Chapter 11 |
| Week 8 | Performance, Releases, Reliability and Security | Chapter 12 |

**Grading**

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

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| Discussion posts | 20% |
| Quizzes | 30% |
| Written assignments and programming assignments | 40% |
| Progress reflections | 10% |

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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.