**USC UPSTATE SCHOOL OF COMPUTER SCIENCE**

*Syllabus*

CSCI U540 Software Engineering (3 credits)

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| School Semester: | Fall 2018 |
| Instructor: | Amanda Schwartz |
| Office: | Hodge 216 |
| Office Hours: | TTh 8:00 – 9:00  1:00 – 2:00  M 1:00 – 3:00  - Or By Appointment - |
| Office Phone: | (864) 503-5292 |
| Email | aschwar2@uscupstate.edu |
| Class Time: | Section 01: TTh 10:50 – 12:05  Section 02: TTh 9:25 – 10:40 |
| Classroom: | Section 01: Hodge 268  Section 02: LIBR8 228 |

**THE COURSE:**

**CSCI** **U540. Software Engineering (3)** Methods and tools of software engineering, software life cycle, iterative development processes including the Agile Method and Unified Process, object oriented analysis and design of software, software testing, cost and effort estimation, project management, risk analysis, and documentation. A relatively large software system is developed in a team environment.

**PREREQUISITES:**C or better in CSCI U321 or consent of instructor.

**REQUIRED TEXTBOOK AND EQUIPMENT**

**Software Engineering, 9th Edition**

Authors: Ian Sommerville

ISBN: 978-0-13-703515-1

**Students are required to have access to a laptop for this course**. **Relying on the lab computers to complete the course work will not suffice**.

**DISABILITY SERVICES**

USC Upstate supports the ongoing development of an accessible university that embraces diversity through educational programming, services, resources, and facilities that are usable by all members of the campus community. In keeping with University policy, any student with a disability who requests academic accommodations should contact Disability Services at 503-5199 to arrange an appointment with a Disability Services staff member. Students are encouraged to seek an appointment as early in the semester as possible, as accommodations are not provided retroactively.

**TESTING ACCOMODATIONS**

If you have a documented disability and require your tests be taken in the testing center, requests must be made a **minimum of 48 hours before the scheduled test date**. It is the **student’s** responsibility to remember to schedule the exam. The instructor is not responsible for reminding the student. If requests are not made at least 48 hours before the scheduled test date, you will be expected to take the test during the normal class meeting time in the assigned classroom.

**Attendance and make-up policy:**

Attendance for class is expected. Students should arrive **on time** for class. Students entering the classroom late are a distraction, and the instructor reserves the right to prevent late entry into the classroom.

If you are unable to make a class, **you** are responsible for collecting and making up any work you missed. If an in-class activity was completed that day you will NOT be able to make it up unless you have made prior arrangements with the instructor. **Missed exams will not be able to be made up unless prior notice is given or doctor’s note is obtained**. If you are going to miss an exam you must contact your instructor **before** the exam date and make arrangements to take the exam. If you miss an exam because of illness you must provide a doctor’s note in order to make up the exam.

Assignments must be completed on or before the due date. We will be using Blackboard to hand in all assignments, which means you must have internet access in order to turn in assignments. Going out of town and not having access to internet is not a valid excuse for an assignment not being turned in on time. You must plan accordingly and hand the assignment in before you leave**. If the assignment is not handed in to Blackboard on or before the due date, it is considered late**. **No late assignments will be accepted.**

**COURSE EXPECTATIONS:**

Along with being expected to attend class, each student is expected to ***participate*** in course discussions and lectures.

In addition, a large part of the class is developing a relatively large software system with a group of your classmates. Students are expected to attend all group meetings and ***contribute*** to the progress of the group. There will be an individual grade for each member of the group, so one student who is ***not*** participating in the group will receive a considerably worse grade than the members of the group who ***are*** participating.

**Communication and Feedback:**

## Preferred Contact Method:

My preferred method of communication is in person either in class or during office hours. Please make the attempt to talk to me in person first. If you absolutely cannot make contact with me, then you can send an email. If you email me, **you must use my school email (aschwar2@uscupstate.edu) .**

## Email Response Time:

I cannot guarantee an immediate response to emails, but you should expect a response from me within 48 hours with the exception of weekends and holidays.

## Feedback on Assignments:

You can expect feedback on tests, quizzes, and assignments within two weeks of the assignment due date.

**COURSE TOPICS:**

**Introduction to Software Engineering.** The purpose of this topic is to describe what software engineering is and why it is important.

**Software Process Models.** Software processes are a set of activities used for software production. Software process models serve as a guide of the necessary processes required for software production.

**Agile Software Development.** Introduces a type of development method that has become popular in many projects today.

**Requirements Engineering.** Discusses the processes involved in discovering and documenting requirements for a software system.

**System Modeling.** Describes how graphical models can be used to represent software systems.

**Architectural Design.** Describes what an architectural design is and why it is important.

**Design & Implementation.** Describes processes for developing software systems and the key issues that should be considered when implementing a software system.

**Software Testing.** Introduce software testing processes, including understanding the different stages of testing process.

**Software Evolution.** Helps to shed light on the inevitable changes in a software system and the impact these changes have on costs and schedule.

**TEAM PROJECT:**

A primary requirement of this course is the delivery of a software solution developed as a group project. This project will reinforce Software Engineering concepts introduced in class in a “real-life” setting. The deliverable will include a Requirement Specification and a working software solution.

Students will be required to form their own teams of **four to five** **students (if class size requires a couple groups of five, I will allow that).** Each team will come up with a project idea which must be approved by the instructor. Each team will then develop a detailed Requirements documentation, and implement the software. A formal presentation will be made during the last two weeks of the course. The presentation will include a demo of the software.

**COURSE GOALS:**

You will leave the course:

* Understanding the role of software in systems
  + Understanding why SE practices are important
  + Reading and analyzing historical SE failures
  + Being exposed to situations that require good SE practices
  + Using SE practices enough to see value in them
  + Reflecting on influence of SE practices in course project
* Knowing good basic SE practices
  + Software process and project management techniques
  + Requirements elicitation
  + Design and Architecture techniques
  + Coding best practices
  + Testing and analysis of code
* Able to make simple engineering tradeoffs
  + Exposure to multiple techniques with benefits/drawbacks
  + Making decisions in practice and reflecting on consequences
  + Evaluation of tradeoffs in historical SE projects and in peer class projects
* Possessing basic skills using SE tools and practices (I.E. version control, backing up databases, etc)

**EVALUATION:**

The evaluation for this course will be a combination of individual assignments, tests, and a large group project. The breakdown of each of these components are as follows:

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| --- | --- |
| Individual Assignments | 20% |
| Exams | 35% |
| Group Project | 45% |

**PROJECT EVALUATION:**

Group projects will be evaluated by the end deliverables (Requirements specification and final software solution) **along with individual participation in the group project**.

Throughout the course of the semester, some class days will be dedicated as Group Work Days. These will be **structured** group work days. Each group work day must treated like work meetings. Progress on the project must be made on each work day. This is **NOT** a time to work on other homework or discuss the latest episode of your favorite TV show.

Along with evaluation at group work days, a peer evaluation will be filled out towards the end of the semester for each member of your group. Both of these evaluations will be used extensively in the final grade given for each member of the group. In addition, it is always a good idea to keep a log each week of the work you’ve completed.

**GRADING SCALE**

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| --- | --- | --- | --- |
| A | >= 90% | D+ | 66 … 69 |
| B+ | 86 … 89% | D | 60 … 65% |
| B | 80 … 85% | F | <= 59% |
| C+ | 76 … 79% |  |  |
| C | 70 … 75% |  |  |