

## CSCI 3030: Software Engineering I (WI)

<b>Instructor</b>	Dr. Mark Hills
<b>Class meeting</b>	Tuesday, Thursday: 3:30pm - 4:45pm, Brewster D-304
<b>Office</b>	Science & Technology Building, Room C-110
<b>Office hours</b>	Wednesday 1pm to 3pm Thursday 10am to 12pm Friday 1pm to 2pm  Feel free to make an appointment with me if you need to meet outside of these hours.
<b>Phone</b>	252-328-9692
<b>Email</b>	<a href="mailto:hillsma@ecu.edu">hillsma@ecu.edu</a> (response within 24 hours during the week, longer on weekends)
<b>Course web page</b>	Blackboard: <a href="https://blackboard.ecu.edu">https://blackboard.ecu.edu</a>
<b>Required textbooks</b>	<i>Software Engineering: Modern Approaches (2nd Edition)</i> , by Eric J. Braude and Michael E. Bernstein, Waveland Press, 2011, ISBN-10: 1-4786-3230-5

### Course Description and Objectives

This course provides practical and theoretical knowledge in relation to software development using software engineering principles. Students will learn the processes, methodologies and tools used during the complete life cycle of professional software development, allowing them to begin using state-of-the art software development techniques that will aid in the success of their software development projects. Students are required to complete a team project and a writing project over the course of the semester. This is an approved Writing Intensive (WI) course.

Upon completion of this course each student will be able to:

- Understand the nature, objectives, and methods of software engineering practice
- Evaluate and chose process models for the development of software systems
- Use appropriate project scheduling and management techniques to create project management plans and documents
- Establish and document software requirements
- Use appropriate requirements analysis and modeling techniques
- Design software systems using the object-oriented method and visual modeling tools
- Use appropriate software testing techniques to create test cases
- Perform tests and create test documentation

The following applications may be used in this course:

- NoMagic MagicDraw for UML diagrams
- Microsoft Visual Studio (C# and .NET), Eclipse (Java and J2EE), Android Studio (Java/Android), XCode (Swift/iOS), PHPStorm (PHP), or other language-specific IDEs
- GitHub for version control and (possibly) Travis-CI for continuous integration
- Atlassian Jira and Confluence for project management
- JUnit (Java), NUnit (.Net), PHPUnit (PHP), or other language-specific unit testing frameworks

## Topics

Topics covered in this course include:

- The nature of software and software engineering practice
- Software process models
- Software requirements management
- Software requirements documentation
- Traditional software design concept
- Object-oriented software design concepts
- Modeling with Unified Modeling language (UML)
- Software testing strategies
- Software testing documentation
- Project management concepts

## Covered Topics

The following is the tentative list of covered topics, including the chapters in the book that we will reference. This may change based on our progress through the material.

- Introduction to Software Engineering (Chapter 1)
- Introduction to Software Quality Concepts (Chapter 2)
- Software Processes, Agile Processes, Limits of Agile Techniques (Chapters 3 and 4)
- Introduction to Project Management (Chapter 7)
- Requirements Engineering (Chapters 10, 11, and 12)
- Software Design and Architecture (Chapters 15, 16, 17, 18, and 19)
- Implementation Basics (Chapter 22)
- Refactoring (Chapter 24)
- Introduction to Software Testing (Chapter 25)
- (Potential) Unit Testing (Chapter 26)
- (Potential) Formal Methods for Requirements Engineering (Chapter 14)

## Tentative Schedule

The following is the tentative schedule of dates related to the writing assignment, the group project, and exams.

Dates	Items of Note
August 25	Groups Assigned by Random Assignment
September 1	Group Deliverable: Project Abstract due Writing Assignment: Topic Selected
September 13	Group Deliverable: Project Planning, Risk Management
September 15	Writing Assignment: Annotated Bibliography Due
September 27	Group Deliverable: Requirements Specification
September 29	Writing Assignment: Draft 1 Due
October 4	<b>Midterm Exam</b>
October 6	Writing Assignment: Peer Review Meeting 1. <b>Feedback for each paper is due by the end of the day.</b>
October 11	<b>NO CLASS (Fall Break)</b>
October 27	Writing Assignment: Draft 2 Due, with Review Responses
November 3	Writing Assignment: Peer Review Meeting 2. <b>Feedback for each paper is due by the end of the day.</b>
November 10	Group Deliverable: Design Artifacts/Diagrams
November 17	Writing Assignment: Due, with review responses

November 22	Group Deliverable: Testing Approach
November 24	<b>NO CLASS (Thanksgiving)</b>
December 1	<b>Final Exam</b>
December 6	<b>NO CLASS (Reading Day)</b> Group Deliverable: Project Report
December 8	Final Exam Period: Project Presentations

## Grading

Students will be evaluated based on the combination of class activities. The final grade will be assessed with the following criteria:

Assessment		Grading		
Midterm exam (20%) and final exam (20%)	40%	A: $\geq 94$ ;	A-: $\geq 90$	
Individual Writing Assignment	25%	B+: $\geq 87$ ;	B: $\geq 83$ ;	B-: $\geq 80$
Group Project (Project and process management, Requirements, Design Implementation, Test, Documentation and Presentation)	35%	C+: $\geq 77$ ;	C: $\geq 73$ ;	C-: $\geq 70$
		D+: $\geq 67$ ;	D: $\geq 63$ ;	D-: $\geq 60$
Total	100%	F: $< 60$		

**Exams:** Exams are closed book and closed notes, with the exception of an individual note sheet, an 8 ½ x 11 (letter size) sheet of paper, that can include hand-written notes on both sides. This sheet cannot be shared and must be handed in with each exam. The midterm exam is scheduled during the class meeting time on October 4<sup>th</sup>, the Tuesday before Fall break. The final exam is scheduled during the class meeting time on December 1<sup>st</sup>. Both the midterm and final exams are 75 minute exams. The final project presentations will be held on December 8<sup>th</sup> during the final exam period, scheduled from 2:00pm to 4:30pm that day.

**Group Project:** Each group will be approximately 5 students, please see the assignment description on Blackboard. The project tasks, including points out of the 35 “points” for the project, include:

1. Select and follow a software process model to develop the project. (3 points)
2. Develop a project schedule and project management plan, monitor project progress. (3 points)
3. Document potential risks and develop a risk management plan. (3 points)
4. Define system requirements including functional requirements and non-functional requirements. (5 points)
5. Define system design models using UML. (5 points)
6. Implement the system. (8 points)
7. Develop test suites for unit test and system test, and document test results. (5 points)
8. Document and present the project. (3 points)

**Writing Assignment:** This is an individual writing assignment about a selected topic in software engineering. More details about this assignment, including the individual writing tasks and how the assignment is graded, are provided in the handout titled “The Individual Writing Project”, available on Blackboard. This class is a Writing Intensive (WI) course; the writing project is designed to address the 5 university writing outcomes, as given on the following site: [http://www.ecu.edu/cs-acad/writing/wac/university\\_writing\\_outcomes.cfm](http://www.ecu.edu/cs-acad/writing/wac/university_writing_outcomes.cfm).

## Attendance Policy

You are expected to attend class. You are responsible for announcements and assignments given in class. If you miss a class, it is up to you to obtain notes and any other information that was provided in the class. Excuses that you did not know about something because you did not come to class and did not obtain the information will not be accepted. If you are having trouble understanding the lectures, come to office hours or ask for help. Get help as early as possible. If you wait until the end of class to seek help, there is most likely very little that you can do to improve your score.

## Starfish

This course uses the Starfish system to provide you with information on your performance within the course. For more information, please see <http://www.ecu.edu/cs-acad/advising/upload/Starfish-Student-Getting-Started.pdf>.

## Student Conduct

Smoking is not permitted in classrooms. Please turn off mobile phones in class. Laptops and tablets can be used for taking notes, but should not be used for other work (or recreational browsing, playing games, etc).

Students are expected to abide by the university's Student Honor Code. The homework that you do is a critical part of your education. Each student is expected to do his or her own work. That does not mean you are not allowed to discuss your ideas with other students. Working in groups can be beneficial, and I encourage you to talk through ideas with other students. But outright copying is plagiarism, and is unacceptable. Students who copy other students' work, or who allow their work to be copied, or who copy their work from other sources, such as the Internet, will receive no credit.

Other potential academic integrity violations are cheating, falsification, multiple submissions of the same work in different classes, and attempts at any of these violations. Please see [http://www.ecu.edu/cs-studentlife/policyhub/academic\\_integrity.cfm](http://www.ecu.edu/cs-studentlife/policyhub/academic_integrity.cfm) for more details.

Academic integrity violations can result in a grade penalty up to and including an F for the course.

## Incompletes

No incompletes will be issued in this course except for extraordinary circumstances, and even then only if you are nearly done already, and have done work of acceptable quality, so that it is realistic that you can pass the course.

## Retention Requirements

Academic requirements for retention have changed. Please be aware of the following new GPA requirements. Please discuss the retention requirements, entrance to major requirements, and your goals with your academic advisor.

GPA Hours at ECU (identified in Transcript in Banner Self Service) <b>plus</b> transferred credit hours	"Old" Retention Requirement All courses taken at ECU	New Retention Requirements Effective with Fall 2011 grades All courses taken at ECU
1-29 semester hours	1.6 GPA	1.8
30-59 semester hours	1.8 GPA	1.9
60-74 semester hours	1.9 GPA	2.0
75 or more semester hours	2.0 GPA	2.0

## Weather Emergencies

In the event of a weather emergency, information about ECU can be obtained through the following sources:

ECU emergency notices <http://www.ecu.edu/alert>  
ECU emergency information hotline 252-328-0062

## Students with Disabilities

East Carolina University seeks to comply fully with the Americans with Disabilities Act (ADA). Students requesting accommodations based on a disability must be registered with the Department for Disability Support Services located in Slay 138 ((252) 737-1016 (Voice/TTY)).

For more information, please see <http://www.ecu.edu/cs-studentlife/dss/>.

## **Writing Intensive (WI)**

CSCI 4200 is a writing intensive course in the Writing Across the Curriculum Program at East Carolina University. This course will focus on the development of writing skills. Upon completion of the course students will:

1. Use writing to investigate complex, relevant topics and address significant questions through engagement with and effective use of credible sources.
2. Produce writing that reflects an awareness of context, purpose, and audience, particularly within the written genres (Including genres that integrate writing with visuals, audio or other multimodal components) of their major disciplines and/or career fields.
3. Demonstrate that they understand writing as a process that can be made more effective through drafting and revision.
4. Proofread and edit their own writing, avoiding grammatical and mechanical errors.
5. Assess and explain the major choices that they make in their writing.

This course contributes to the twelve-hour WI requirement for students at ECU. Additional information is available at the following site: <http://www.ecu.edu/writing/wac/>.