EASTERN MENNONITE UNIVERSITY

SOFTWARE ENGINEERING

CS 370 A
Fall 2017
Office Hours:

Bob May
Room:
540-820-0884

COURSE DESCRIPTION:
This course is an introduction to software engineering and all of the elements that go into developing a quality software product. This course does not satisfy any EMU Core requirements.

COURSE OBJECTIVES:
This course is aimed at providing you with some of the tools necessary to develop a quality software project. This includes a variety of areas including planning, design, programming, communications, teamwork, testing, verification, business practice, ethics, etc. I want you to have a better understanding of what it requires to develop software in a professional environment.

- My main goal as a facilitator for this course is to help you achieve your academic and learning goals.

- I will try to employ a variety of techniques to help us learn. This might include

    - Group projects
    - Python Programming exercises
    - Case Studies
    - Videos
    - Guest Speakers
    - Lectures
    - Puzzles/Brainteasers
    - Plus more!

- I will respect that you are an undergraduate student with a difficult academic load and a full and perhaps stressful life. If you feel like this course is introducing excessive stress, please talk to me about it. I want this course to be helpful – not painful.

- You are a "value-added" to this course. You are not merely an information receiver. You are also an information transmitter. You will share what you have learned, and we (myself included) will learn from each other.

- In this course (and in all of my computer science courses) I will encourage:

- Self-Directed Learning (Huge – especially for a computer scientist)
- Careful Attention – to colleagues, clients and classmates
- Communication
- Code Reuse
- Quality
- Reflection
- Problem-Solving
- Ethical and Professional Behavior

- You can be as good a computer scientist as you want. Learning material is readily available. You just need practice – practice – practice.

- This is an introduction, and we will not cover these topics in depth. However, if you continue to graduate school, you may have complete courses in some of these topics. My focus on and approach to these topics is more applied than theoretical.

REQUIREMENTS AND EVALUATION:

Grading:
Each Tuesday we will have a quiz on the previous week's topic. This quiz is basically to ensure that you come to class and think about the material. We will also have several short Python programming projects, and a final group project that the class will complete together. I am also happy to provide extra credit. There are no exams in this course.

10 Weekly Quizzes – Five questions, each worth one point.

(= 50 points total)

Programming Project 1: Basketball Simulation
Part A: (5 points)
Part B: (5 points)
Part C: (5 points)

(points 15)

Programming Project 2: Robot Loader/Unloader
Part A: (5 points)
Part B: (5 points)
Part C: (5 points)

(points 15)

Final Group Project: Web Crawler

(points 20)

TOTAL	100.

ATTENDANCE POLICY:

Attending class is a good idea. If you feel like you aren't getting anything from attending class, let's have lunch and talk about it. Every Tuesday we will have a brief quiz on the material from the previous week.

BOOKS AND MATERIALS:

There are no required texts for this course. I will provide reference material for all topics that we will cover. If you are interested in good general Software Engineering texts, I can provide a nice list!

ACADEMIC HONESTY:

Academic Integrity Policy (AIP): EMU faculty and staff care about the integrity of their own work and the work of their students. They create assignments that promote interpretative thinking and work intentionally with students during the learning process. Honesty, trust, fairness, respect, and responsibility are characteristics of a community that is active in loving mercy, doing justice, and walking humbly before God. EMU defines **plagiarism** as occurring when a person presents as one's own someone else's language, ideas, or other original (not common-knowledge) material without acknowledging its source. (Adapted from the Council of Writing Program Administrators). [Taken from "Academic Integrity," 2017-18 Undergraduate Catalog.] This course will apply EMU's Academic Integrity Policy (see catalog, pp. 20-24) to any occurrences of academic dishonesty.

DISABILITY STATEMENT:

If you have a physical, psychological, medical, or learning disability that may impact your work in this course, it is your responsibility to contact the Office of Academic Access (http://www.emu.edu/academics/access/) on the third floor of the Hartzler library. This office will work with you to establish eligibility and to coordinate reasonable accommodations. All information and documentation is treated confidentially.

ACADEMIC SUCCESS CENTER TUTORS:

Please take advantage of the free individual tutoring from AcademicSuccess Center tutors. ASC tutors are undergraduate students trained tosupport students in particular courses anddepartments. Tutors also offeroccasional study group options. To make an appointment, access ASCTutoring through quick links on myEMU.

TITLE IX:

It is important for you to know that all faculty members are required to report known or alleged incidents of sexual violence (including sexual assault, domestic/relationship violence, stalking). That means that I cannot keep information about sexual violence confidential if you share that information with me. For example, if you inform me of an issue of sexual harassment, sexual assault, or discrimination I will keep the information as private as I can, but I am required to bring it to the attention of the institution's Title IX Coordinator. Incidents that have occurred on campus, at a campus event, and/or while a student at EMU require follow up by the Title IX Coordinator. If you would like to talk to the Title IX Coordinator directly, Irene Kniss can be reached at 540-432-4302 or irene.kniss@emu.edu. Additionally, you can also report incidents or complaints through our online portal at http://emu.edu/safecampus/. You may report, confidentially, incidents of sexual violence if you speak to Counseling Services counselors, Campus Ministries pastors, and Health Services personnel providing clinical care. These individuals, as well as the Title IX Coordinator, can provide you with information on both internal and external support resources.

Please refer to the Student Handbook which can be found at http://www.emu.edu/studentlife/student-handbook/ for additional policies, information, and resources available to you.

CLASS ASSIGNMENT SCHEDULE:

We will generally cover one topic each week, although there will be a lot of overlap.

Topic 1: Computing Essentials

CS foundations that support software design, construction, tools, products.

Topic 2: Engineering Fundamentals

Engineering analysis and construction procedures.

Topic 3: Professional Practice

Knowledge, skills, and attitudes that software engineers must possess to practice software engineering professionally, responsibly, and ethically.

Topic 4: Software Modeling and Analysis

Essentials to documenting and evaluating design decisions and alternatives.

Topic 5: Requirements Analysis and Specification

The real-world needs of stakeholders affected by a system.

Topic 6: Software Design

Issues, techniques, and strategies used to implement a component or a system.

Topic 7: Software Verification and Validation

Techniques to ensure that a software system satisfies its requirements and meets stakeholder expectations.

Topic 8: Software Process

Models for planning, executing, tracking, and managing.

Topic 9: Software Quality

Ensuring quality in all aspects of software engineering practice and process.

Topic 10: Security

Protection of information and systems

Week 11 - 13: Group Project – Web Crawler

Requirements Analysis, Design, Coding, Analysis, Verification

The Final Project (which is a group project) will be due on the date and time of the final exam period for this course.