CS 410-01: Introduction to Software Engineering
SPRING 2025 – version c 4/13/2025
Dr. J. Holly DeBlois
Office: McCormack, 3rd floor, room M-3-201-32
Office hours: Tues/Wed/Thurs 2:30-3:30pm

Lectures and Class Monday & Wednesday, 4:00 – 5:15pm, McCormack M02-0116
Instructor email jane.deblois@umb.edu
Instructor Website Lecture notes and assignments are posted to https://www.cs.umb.edu/~hdeblois
and grades are posted on canvas.
Portal: Register for CS410 to create your course directory at https://portal.cs.umb.edu

In CS410, we present **all aspects of the software development process from initial specification to final validation** using different approaches to the development process. The main reference in this course is *Essential Scrum, A Practical Guide to the Most Popular Agile Process*, **(Pearson, 2013) by Kenneth S. Rubin**. We contrast the older "waterfall" approach to the newer "agile" methods, especially "scrum". We cover the following general topics:

- **Writing code for a client as part of a team of software engineers –** how it is different from writing your own code
- **Requirements specification** – what does the client want and what is also a good idea
- **Websites on the CS server** – yours and for a team
- **Git, github and version control** – to be able to integrate code written by different people
- **Design and code in class –** after a short team meeting
- **Test-driven code –** why testing plays a bigger role in a team project
- **Adopt a code style for the team –** write so others can read it
- **Implementation methodology -** instead of waterfall we use agile methods and scrum
- **Oral presentations –** for the two small projects and the main project
- **Presenting the code for client validation -** the team goal

You need to bring a computer to class capable of accessing the CS Linux servers. We will write tests and code, and compile and run in class. If you do not have a suitable laptop, let me know and it can be provided.

Note: No courses required by the CS major, minor or certificate may be taken pass/fail. Prerequisites include: CS 310 Algorithms, CS 220/320L Discrete Math and any CS 400 level course or permission of the instructor

Evaluation:
Attending class, writing tests and code in class and short daily reports is required and counts 10% of your grade. Missing more than 3 classes entails points off, as does being late or leaving and returning. Sign the sign-in sheet at 3:55pm or after or in the first 5 minutes of class. Reports count 10% and your two lowest daily report grades will be dropped. Test-driven coding is essential for agile methods. There will be an individual project in week1 (10% of your grade). It will include writing a short resume identified by the last 4 digits of your id in your course directory and including it via symlink in a personal website on the server in your public_html directory.

There will be two small team projects (corporation and artifacts) (10% each). These will include presentations. For each of them, you will update your personal resume.

There will be three homework assignments on the textbook (10% each).

There will be a long project for a client with about 6-8 students per team. During the long project, after sprints 1 and 2, the graders and I will read and grade your requirements, team test plans, your code and test results (10% each). At the end of the semester, your two final slides and presentation about your part in the long project will be graded and counts 10%. The long project itself is not graded, just presented to the client for client validation. Your total score is converted to letter grades according to the table on the last page.

Academic integrity will be strongly enforced. Your requirements, tests, code, homework and reports must be your own product and may not be AI-generated. Some assignments may ask you to use AI to generate a figure, and you must record and submit your prompts used to engineer it. You may consult with your colleagues, but you must be the sole author of your submitted work. Your personal use of AI may need to be defined carefully., so please ask questions. See https://www.umb.edu/academics/provost/academic-integrity. Since UMB does not have any particular guidance for sourcing code yet, we will use the MIT guidance, which will be supplied and discussed in class, so we can be sure we know all the underlying versions of code that our code relies on.

Slides, projects, and homeworks will be posted on the instructor's webpage and grades will be posted in canvas. Work will be submitted on the CS server (in directories in your personal area /home and in class areas in /courses), sometimes using git and possibly github on the instructor's account. Uploading your work to the server as you go along is required. You will need to use linux files, directories, groups and permissions. An ungraded hw0 will be provided to review and check your skills. In addition, you will be required to draw diagrams explaining the user interfaces, hardware, operating systems and software versions used and built as well as team diagrams of sprint activities.

Additional references:
Manifesto for Agile Software Development (2001**) - http://agilemanifesto.org/**
Clean Code: a Handbook of Agile Software Craftsmanship (Pearson, 2009) by Robert C. Martin
Cracking the Coding Interview, Gayle Laakmann McDowell (Career Cup, 2015)
How Will You Measure Your Life? Clayton M. Christensen, James Allworth and Karen Dillon (2012)
Various coding reference sites such as www.w3schools.com for html

Accommodation:
Section 504 of the Rehabilitation Act of 1973 offers guidelines and support for curriculum modifications and adaptations for students with documented disabilities. If applicable, students may obtain adaptation recommendations from the Ross Center for Disability Services, Campus Center, Upper Level, Room 0211, 617-287-7430. The student must present these recommendations and discuss them with each professor within a reasonable period, preferably by the end of Drop/Add period.

Student Conduct:
It is the expressed policy of the University that every aspect of academic life – not only formal coursework situations, but also all relationships and interactions connected to the educational process – shall be conducted in an absolutely and uncompromisingly honest manner. See Code of Conduct https://www.umb.edu/campus-life/dean-of-students/student-conduct-process/.

Reserve Clause: The instructor reserves the right to make changes in the syllabus when necessary to meet the learning objectives, to compensate for missed classes, schedule changes or hardware, software and network failures, or for similar legitimate reasons.

Tentative Schedule

week	date	chapter & pages to read	lecture topic & class work	assignments due
1	Mon 1/27	Servant Leader	Intro: syll, test/code, hw0, waterfall vs agile	r1, handwr1, hw0, classproj1
	Wed 1/29	AgileManifesto	agile, tests, doneness	r2, handwr2
2	Mon 2/3 add/drop ends	ES2-4,Fig1.3	corporations 1-12 by id	r3, classproj1 due classproj2
	Wed 2/5	ES5-6 Reqmts	corp websites, role prefs	r4, handwr3,
3	Mon 2/10	ES 9-13	scrum vs waterfall plan scrum	r5, classproj2 due classproj3
	Wed 2/12	ES 14-15	do picture pieces integrate levels to full	r6, hwk1
4	Presidents' Day			
	Wed 2/19	ES19-23,Fg2.3	present, ask questions	r7, hw1 due
5	Mon 2/24		critique, client projects	r8
	Wed 2/26 NA grades due		2 client projects presented	r9, classproj3 due
6	Mon 3/3	chapter review	3 client projects presented	r10, hw2 posted
	Wed 3/5	sprint planning	meet as teams	r11
7	Mon 3/10	Figs 2.10, 2-11	sprint1 planning	r12, hw2 due
	Wed 3/12 Spring Break			r13
8	Mon 3/24	prod backlog		r14, reqmts
	Wed 3/26		sprint1 presentation	r15, approach set
9	Mon 3/31			r16, sprint1 tasks
	Wed 4/2		sprint2	r17, tasks
10	Mon 4/7			r18, critique
	Wed 4/9			r19, sprint 2 tasks
11	Mon 4/14			r20, hw3 posted
	Wed 4/16		sprint2 presentations	r21
12	Patriots' Day			
	Wed 4/23		more sprints	r22, hw3 due
	4/24 withdraw day			
13	Mon 4/28		your contribution, resume	
	Wed 4/30			final slides due
14	Mon 5/5		you can keep working	
	Wed 5/7		19 students present 2 slides	
15	Mon 5/12		18 students present 2 slides	
	Wed 5/14	Last class	team demos, course eval	

Table of Grades from Scores:

Score Range	Grade
$90 \le S$	A
$87 \le S < 90$	A-
$84 \le S < 87$	B+
$81 \le S < 84$	B
$78 \le S < 81$	B-
$75 \le S < 78$	C+
$72 \le S < 75$	C
$69 \le S < 72$	C-
$66 \le S < 69$	D+
$63 \le S < 66$	D
$60 \le S < 63$	D-
$S < 60$	F