CS 120 Software Design I — Fall 2018

Syllabus

University of Wisconsin - La Crosse — *September 4*

— SUBJECT TO CHANGE —

Time: Monday, Tuesday, Wednesday and Friday 9:55 AM – 10:50 AM

Classroom: Centennial 2302 / Wing 16

Professor: Dr. David Mathias

email: `dmathias@uwlax.edu`

website: `http://hdmathias.github.io`

Office: Wing Technology 212

Office Hours: Monday 11:00 – 12:00, Tuesday 3:30 – 4:30, Wednesday 11:00 – 12:00 and Friday 11:00 – 12:00.

Text Book: Online text from ZyBooks. To access the book:

1. Sign in or create an account at `learn.zybooks.com`
2. Enter zyBook code: `UWLAXCS120MathiasFall2018`
3. Subscribe

Your subscription will run from the date you subscribe until January 2, 2019.

Learning Management System: We will use Canvas in this course.

Catalog Description: Four hours. Prerequisites: MTH 151 or MTH 175, or placement test scores at, or above, MTH 151. An introduction to the fundamentals of software development; including software classes, objects, inheritance, polymorphism, logic, selection control, repetition control, subprograms, parameter passage, and rudimentary software engineering techniques. Students completer numerous programming projects using a modern programming language.

Student Learning Outcomes: By the end of the course, students should be able to:

- Write Java programs using primitive data types and their operations.

- Use complex control structures such as conditional execution and iteration.
- Define variables and use them effectively.
- Use existing classes and create new ones with attention to information hiding, inheritance and overloading.
- Use basic linear data structures for the storage and manipulation of potentially large amounts of complex information.
- Create programs that are interactive with attention to design and usability.

Programming Assignments: One of he largest components of your grade in this course is outside-of-class programming assignments. The only way to learn how to program is by programming. You will not be successful in this class unless you write your own code. I encourage you to study with others and to discuss concepts and ideas with classmates. However, you must write and submit your own work.

Rules for program submission:

- Programs are due at 11:59 PM on the due date. There is a long and proud tradition of programs being due at that time. You are, of course, welcome to submit well before the deadline.
- Late submission are accepted up to 72 hours after they are due. Up to 24 hours late, there is a 20% penalty. Up to 48 hours late, there is a 30% penalty. Up to 72 hours late, there is a 40% penalty.
- Include, at the top of your program file, a block comment with the following information (in this order): your name, the assignment number, the due date, and a brief description of the assignment.
- Comment your code (we'll discuss in class what this means). You will be tempted to skip this. Resist that temptation. Good commenting is critical.
- Adhere to the coding conventions we discuss in class. I don't care that your uncle's wife's cousin told you to do things a different way. There are many ways to format code and I don't claim that my way is the right way but it will be much easier for us to talk about code if we all use a common format.

Evaluation and Assessment:

- 30% – Programming assignments
- 10% – In-class programming
- 10% – Online exercises
- 30% – Midterms (2)
- 20% – Final exam
- There will be no makeup exams except with advance notice (at least one week) of an approved UWL activity or with a doctor's note confirming serious illness. In all cases, it is the student's responsibility to provide written documentation. Late assignments will not be accepted except as outlined in this syllabus. There will be no extra-credit work.

Grading Scale: Letter grades will be assigned according to the table below. Let x be your numeric score for the course:

- A: $x \geq 93$
- AB: $89 \leq x < 93$
- B: $83 \leq x < 89$
- BC: $79 \leq x < 83$
- C: $70 \leq x < 79$
- D: $60 \leq x < 70$
- F: $x < 60$

Attendance: You are expected to attend, and will benefit from engaging with, the class. This includes asking questions, answering questions, completing in-class exercises, etc.

In-class programming: One day each week, we will meet in the CS department lab, 16 Wing Technology Center. During these sessions, you will be given a manageable programming assignment to complete. You are encouraged to work in pairs. While completion of the assignment is the goal, credit will be given based on making a good faith effort to solve the problem.

Academic Integrity: Academic misconduct is a violation of the UWL Student Honor Code (`http://catalog.uwlax.edu/undergraduate/academicpolicies/studentconduct`) and is unacceptable. I expect you to submit your own original work and participate in the course with integrity and high standards of academic honesty. When appropriate, cite original sources, following the style rules of our discipline.

PLEASE NOTE that whenever a grade penalty is imposed due to academic misconduct, the instructor is required to write a letter documenting the misconduct. Copies are sent to the student, to the Office of Student Life (where the letter remains on file in the student's record), and to the Dean of the student's College. Refer to `https://www.uwlax.edu/student-life/student-resources/student-handbook` for a detailed definition of academic misconduct, and for possible sanctions and consequences. The Office of Student Life can also assist.

Plagiarism or cheating in any form may result in failure of the assignment or the entire course, and may include harsher sanctions. Refer to the Student Handbook #14.02 for a detailed definition of academic misconduct.

For helpful information on how to avoid plagiarism, go to "Avoiding Plagiarism" on the Murphy Library website (`http://libguides.uwlax.edu/plagiarism2`). You may also visit the Office of Student Life (https://www.uwlax.edu/student-life/) if you have questions about plagiarism or cheating incidents. Failure to understand what constitutes plagiarism or cheating is not a valid excuse for engaging in academic misconduct.

Eagle Alert System: This class is participating in the Eagle Alert System: `https://www.uwlax.edu/academic-advising-center/eagle-alert/student-resources` through WINGS. The system is designed to promote student success. If I notice that you are experiencing difficulties early in the semester (e.g., low assignment scores or limited participation), I may note this information and you will receive an email indicating that I have entered feedback. I may also enter positive feedback encouraging you to consider additional learning opportunities. The link in the email will take you to WINGS where you can login to see the feedback. I encourage you to meet with me and/or refer to the helpful campus resources listed below under Academic Services and Resources and on UWL's Student Success page `https://www.uwlax.edu/info/student-success`.

Inclusive Excellence: UWL's core values include "Diversity, equity, and the inclusion and engagement of all people in a safe campus climate that embraces and respects the innumerable different perspectives found within an increasingly integrated and culturally diverse global community" (`https://www.uwlax.edu/chancellor/mission`). If you are not experiencing my class in this manner, please come talk to me about your experiences so I can try to adjust the course if possible.

Student Evaluation of Instruction: UWL conducts student evaluations electronically. Approximately 2 weeks prior to the conclusion of a course, you will receive an email at your UWL email address directing you to complete an evaluation for each of your courses. In-class time will be provided for students to complete the evaluation in class. Electronic reminders will be sent if you do not complete the evaluation. The evaluation

will include numerical ratings and, depending on the department, may provide options for comments. The university takes student feedback very seriously and the information gathered from student evaluations is more valuable when a larger percentage of students complete the evaluation. Please be especially mindful to complete the surveys.

Useful Resources: The following links are provided for your convenience. This is not an exhaustive list of services available on campus.

ACCESS Center: `http://www.uwlax.edu/access-center`

Student Support Services: `http://www.uwlax.edu/student-support-services`

For statements regarding Sexual Misconduct, Religious Accommodations, Students with Disabilities, and Veterans and Active Military Personnel, please see:
`https://www.uwlax.edu/info/syllabus`

Approximate schedule:

Week:		Topics:	Text:
1	September 4	Course intro; Hardware, software & programs	
	September 5	Objects and methods	
	September 7	Lab day (16 Wing Technology)	
2	September 10	More about objects and methods	Ch, 1-2
	September 11	Objects, memory & program traces	
	September 12	Java primitives	
	September 14	Lab day (16 Wing Technology)	
3	September 17	Discussion/Questions	Ch. 3.1-3.9
	September 18	Primitives and assignment	
	September 19	Characters and strings	
	September 21	Lab day (16 Wing Technology)	
4	September 24	Discussion/Questions	Ch. 3.10-3.13
	September 25	Displaying and processing text	
	September 26	Text cont; Intro to selection	
	September 28	Lab day (16 Wing Technology)	
5	October 1	Selection statements	Ch. 4
	October 2	Selection and boolean conditions	
	October 3	Randomness, selection & control	
	October 5	Lab day (16 Wing Technology)	
6	October 8	Midterm 1	
	October 9	Selection, logic & control	
	October 10	More logic & control	
	October 12	Lab day (16 Wing Technology)	
7	October 15	Discussion/Questions	Ch. 5
	October 16	Repetition with loops	
	October 17	More loops	
	October 19	Lab day (16 Wing Technology)	

Week:		Topics:	Text:
8	October 22	Nesting loops	Ch. 6
	October 23	Nesting cont.; Writing methods	
	October 24	More on writing methods	
	October 26	Lab day (16 Wing Technology)	
9	October 29	Static methods & variables	
	October 30	Methods & variables; Non-void methods	
	October 31	Writing non-void methods	
	November 2	Lab day (16 Wing Technology)	
10	November 5	Arrays	Ch. 7
	November 6	Loops & arrays	
	November 7	Methods and reference types	
	November 9	Lab day (16 Wing Technology)	
11	November 12	Midterm 2	
	November 13	Supplier classes	Ch. 8.1-8.6
	November 14	More on supplier classes	
	November 16	Lab day (16 Wing Technology)	
12	November 19	Interfaces and events	Ch. 8.7-8.13
	November 20	More interfaces and events	
	November 21	Lab day (16 Wing Technology)	
13	November 26	Still more interfaces and events	
	November 27	Inheritance	Ch. 9
	November 28	More inheritance	
	November 30	Lab day (16 Wing Technology)	
14	December 3	Using inheritance	
	December 4	Multidimensional arrays	
	December 5	Looping on multi-D arrays	
	December 7	Lab day (16 Wing Technology)	
15	December 10	Finishing up	
	December 11	Discussion/Questions	
	Final	Friday December 14 at 2:30 PM	