CS 221: Object-oriented Programming I

Term:	Spring 2020
Credits:	3
Lecture:	9:10 AM - 10:10 AM, Monday and Wednesday in Fox Cities Campus 2819C
Lab:	9:10 AM - 10:10 AM, Friday in Fox Cities Campus 2819C
Prerequisites:	Math 104 or Math 106 or Math 108 or Math 206 or Computer Science 142 with a grade of C or better, or Math Placement into Math 171.

Course description

A first course in problem solving, software design, and computer programming using the Java language. Problem solving/software design techniques will be drawn from: flow charts, pseudo code, structure charts, and class diagrams. Data structures and algorithms include: Arrays, character strings, searching, and sorting. Programming topics include: data types, assignment statements, standard input/output, selection, repetition, functions/methods, parameters, scope of identifiers, debugging.

Instructor

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Phone:	920-832-2615
Office:	Fox Cities Campus 2816
Office hours:	(subject to change):

	Mon	Tues	Wed	Thu	Fri
9:00 AM					
10:00					
11:00					
12:00 PM					
1:00					
2:00					
3:00					

Course Website

The course website is Canvas: <https://uwosh.instructure.com/>. You should check Canvas on a regular basis, perhaps two or three times per day.

Required Textbook

We will be using an online "zyBook" textbook. Follow these instructions:

1. Sign in or create an account at <https://learn.zybooks.com/>.

2. Enter zyBook code | **UWOSHCOMPSCI221SivasamySpring2020** | .

3. Subscribe

A subscription is $58. Students may begin subscribing on Feb 3, 2020 and the cutoff to subscribe i s May 15, 2020. Subscriptions will last until May 29, 2020.

Course Grade

Your final course grade will be based on the following components.

5% ZYBOOK ACTIVITIES
Throughout the semester, you will have to complete activities selected from the course textbook.

15% HOMEWORK ASSIGNMENTS
There will be five programming assignments. All programs will be equally-weighted.

0% QUIZZES
You will be given at least one quiz potentially every week. Quizzes will be given at the end of class to be completed before the next class. You should work each quiz in isolation, without the use of any kind of electronic aid. Quiz material will come from the lecture notes, textbook and homework assignments. The answers to each quiz will be discussed in the next class and will not be distributed online.

5% LABS
There will be weekly labs. Each lab is equally-weighted.

75% EXAMS
There will be three equally-weighted in-class exams. Exam material will come from the lecture notes, quizzes, textbook, programming assignments and labs. There will be more information about each exam as it approaches. The actual exam dates will be announced in class at least one week before the exam. All exams will be taken during the regular class period.

If you are unable to take a scheduled exam, it may be possible to take a make-up exam provided that you do both of the following, which are then subject to my approval:

1. Make arrangements prior to the scheduled exam (for last minute emergencies, telephone me at 920-832-2615 or leave a message at the Computer Science office, 920-424-2068. **No after-the-fact notifications will be accepted**.

2. Have a written medical excuse signed by the attending physician OR have a note of justification from the Dean of Students Office.

If allowed, only one make-up exam will be given. It will be a comprehensive exam given at an arranged time during the last week of the semester.

Grading Scale

Grading will be on a plus/minus system. Grading may be done on a curve depending on the overall performance of the class. If no curve is used, then your grade will be computed based on the following:

Percentage	Grade
> 92	A
> 90 and ≤ 92	A-
> 88 and ≤ 90	B+
> 82 and ≤ 90	B
> 80 and ≤ 82	B-
> 78 and ≤ 80	C+
> 72 and ≤ 78	C
> 70 and ≤ 72	C-
> 68 and ≤ 70	D+
> 62 and ≤ 68	D
> 60 and ≤ 62	D-
≤ 60	F

Re-grading

If you believe an assignment, quiz, or lab was graded incorrectly or unfairly and would like to have it re-graded, please let me know about it in writing within one week of receiving the assignment, quiz, or lab back. I will re-grade the entire assignment, quiz, or lab and you may gain or lose points.

Late Work

Late work will NOT be accepted. Late work is worth 0 points. Extensions may be granted at the discretion of the instructor and only in rare cases.

Coding Standards

In this class, you will write several short to medium-length Java programs. One of your goals (during this class and beyond, in Java or any programming language) should be to write understandable, readable code. You should be making every effort to document anything that might be confusing to a reader unfamiliar with your program using correct spelling and grammar, to name variables intelligently, to use indentation that reflects the code's organization, and so on. All of this will be taken into account during grading: poorly organized or written code may have a negative impact on your grade, even if the resulting program works fine. Briefly, your code must be formatted in a consistent and easily-readable manner. At a minimum, I will require that you utilize the auto-format feature of whatever development environment we use (e.g., "Auto-layout" in BlueJ).

One of the goals of this class is to teach you to write functioning programs in Java. Thus, your code must compile and run correctly in order for you to receive full credit. Code that does not compile will receive substantially less than full credit. Keep this in mind when writing programs: write your code in small pieces, making sure each piece works before moving on to the next one. It is much better to turn in a project that is not finished but has many working pieces than to turn in one that doesn't work at all, even though most of the code is written.

All assignments and labs must be submitted electronically via CANVAS (each lab and assignment will contain specific instructions). It is your responsibility to ensure that your assignment or lab was submitted correctly. You must double check to ensure your assignment or lab was uploaded correctly.

University Policy on Academic Integrity

The University of Wisconsin Oshkosh is committed to a standard of academic integrity for all students. The system guidelines state:"Students are responsible for the honest completion and representation of their work, for the appropriate citation of source, and for respect of others academic endeavors" (UWS 14.01, Wisconsin Administrative Code).

Often, students are not aware of the ways to identify and avoid plagiarism. Therefore, it is important to educate yourself about how to give proper credit to sources that you use in your assignments. For writing assignments, you can consult the Purdue Owl website on how to identify and avoid plagiarism: `<https://owl.purdue.edu/owl/teacher_and_tutor_resources/preventing_plagiarism/avoiding_plagiarism/index.html>`. This website outlines the strategies for avoiding plagiarism in this course. However, other courses may demand knowing other ways to identify and avoid plagiarism. Therefore, I encourage you to consult with me if it is unclear to you how you give proper credit to your sources of information.

In sum, all material turned in for this course must be original. In this course, you may not re-use papers or projects from other sections of this course, from other courses you have completed, or other courses you are currently completing. This class is a specific event in your learning process. To learn, you must engage in the material and complete the work. Thus, work from other experiences is not acceptable. All work turned in that is plagiarized will receive a "0" in the course.

Course Objectives

At conclusion of the course, students will be able to:

1. Given a description of a problem, apply the problem-solving steps used in computer programming to create a solution design.

2. Working from a solution design, implement a solution to a problem using the Java programming language.

3. Use incremental development to construct a working Java program.

4. Identify and apply appropriate data types within a Java solution.

5. Describe and identify key object-oriented programming concepts.

6. Differentiate between the memory allocation approach for primitive and reference data types in Java.

7. Examine the code available in the Java standard class libraries, and incorporate relevant Java standard classes into object-oriented design and program construction.

8. Create and document program design solutions for simple Java programs.

9. Given a solution design, create programmer-defined classes and incorporate these classes into Java program solutions.

10. Distinguish among the options for input and output using Java, and select appropriate approaches for a given Java solution.

11. Describe scope and persistence of objects and variables in object-oriented programming.

12. Identify and correctly apply sequence, selection, and iteration/repetition patterns in object-oriented Java solutions and program designs.

13. Identify and apply advanced class and object features, including: overloading methods and constructors, argument passing, object return from methods, and organizing classes into packages.

14. Manipulate collections of data using arrays and objects to solve a given problem using Java.

15. Describe the different sorting options available and select the best basic sort for use in a Java solution.

16. Apply test-first development to the construction of an object-oriented computer program.

17. Read and interpret UML 2.0 diagrams that document a problem, and implement the proposed solution using Java.

18. Implement professional standards and guidelines for designing and coding Java computer programs.

19. Present and justify, to a group of peers, the design and implementation of a problem solution.

20. Plan for and schedule adequate time to complete labs and projects no later than the required due date.

21. Consult various online and independent resources to independently attempt to resolve problems BE-FORE requesting assistance from co-workers/co-learners or supervisor/instructor.

22. Determine when it is appropriate to seek assistance, from co-workers/co-learners or supervisor/instructor to resolve problems that could not be resolved independently.

Students' Rights and Responsibilities: Course Policies

WELCOME STUDENTS!

As a University of Wisconsin–Oshkosh student, you have rights and responsibilities regarding your relationship with both the classroom and university community. The policies in the course specifically as well as at UW–Oshkosh generally are in place to foster an equitable and safe classroom and campus climate. The primary goal of all policies is to create a classroom and campus community in which all students can access learning, achieve success and reach their goals. Your rights and responsibilities are important to know both so that you can enhance your learning experience and contribute positively to the campus climate. Spe-cific policies and procedures can be accessed through the Student Affairs Policies and Procedures web page <https://uwosh.edu/handbook/policies>.

INCLUSION STATEMENT

Building relationships and community is one of the most important goals of the course. The only way to build community in this course is to honor each person in terms of their identity. Each student in the course will conceive of their identity in different ways; aspects of identity important to students in the course may include race, ethnicity, ability, sex, sexuality, gender, gender expression, gender identity, religious beliefs, political affiliations, and/or class. Thus, each of us, myself included, must honor each student's identity in all its complexity. We need to work on taking up perspectives unlike our own, challenging our assumptions and finding a route toward understanding the similarities and differences between ourselves and others.

STUDENTS WITH DISABILITIES

Most importantly, students with disabilities are welcome in this course! If you need alternative/additional instructional structure for this class due to specific individual learning needs, please talk to me and we can work together. I am committed to creating an environment conducive to learning for all students.

UNIVERSITY POLICY ON TYPES OF EXCUSED ABSENCES

There are several forms of absences that are excused under University policy: "Students are excused from class for participation in all-University events [GEN 4.B.10 (1)(b)] and for circumstances beyond the students' control including, but not limited to medical or family emergencies (medical care for pregnancy, illness, child care issues, death or serious health problem of family member), court appearance, required military service not to exceed two (2) weeks unless special permission is granted by the instructor or chair, jury duty, etc." Student responsibility: "Students are responsible for notifying the instructor. . . as far in advance as possible and may not be penalized for such absences as long as appropriate documentation is provided in a timely fashion to the instructor to verify the reason for the absence." Instructor responsibility: "Instructors are responsible for providing reasonable accommodation or opportunities to make up course obligations that have an impact on the course grade."

RELIGIOUS ACCOMMODATION FOR STUDENTS

Both University policy and state policy requires that instructors honor students sincerely held religious and faith traditions by making accommodations for religious holidays or other days of special religious significance. If there is a scheduling conflict for you between attending a course session and/or completing coursework on a day of religious observance, then, it is necessary to "notify the instructor within the first three weeks of the beginning of classes of the specific days or dates on which you will request relief from an examination or academic requirement."

CREATING A SPACE FREE FROM SEXUAL HARASSMENT

The University policy on sexual harassment is very clear: it will not be tolerated anywhere on campus, including the classroom. Sexual harassment is defined by the University of Wisconsin Oshkosh as follows: "Sexual harassment is a form of sex discrimination. It [is] . . . the inappropriate introduction of sexual activities or comments into the work, learning, or living situation. Such behavior is not acceptable at the UW–Oshkosh and will result in disciplinary action."

ATTENDANCE

I am dedicated to your success and know that attendance is crucial to achieving improvement in your skills and abilities and, thus, your success in the course. Therefore, I may keep track of attendance weekly. Missing two weeks or more of the course may result in a failing final course grade. In turn, if I receive no communication from you for two weeks, I reserve the right to withdraw you from the course.

If you experience difficulties such as illness or death in the family or other significant disruptions in your life as discussed in the section on excused absences above, then, please communicate with me about your situation and we will forge a plan on how to best catch you up in the course.

DROPBOX

Odd things happen in cyberspace-emails get lost, servers disconnect temporarily, and logins fail. Due to this challenge, you should anticipate possible mishaps and complete your work with enough time to meet the deadline. In turn, timely communication aids success: reply to emails received and check for replies to your sent emails. With these strategies, you will be able to meet my expectations of getting work in on time.

Policy on Electronic Cigarettes

The use of electronic cigarettes (e-cigarettes) of any kind within the classroom is strictly prohibited.