

## CNMT 110 – Object-Oriented Programming (4 credits)

### Section 1

Semester I 2020-2021

**Course description:** Introduction to object-oriented programming paradigm; definition and use of classes; fundamentals of object-oriented design; development of object-oriented programming language principles; coding in a current object-oriented programming language.

### Course information

<b>Class meetings</b>	Mondays and Wednesdays, 10:00 AM – 10:50 AM, Zoom virtual classroom
<b>Final exam time</b>	12/14/2020, 12:30 PM – 2:30 PM
<b>Instructor</b>	Tomi Heimonen, PhD
<b>Office location</b>	B235, Science Building
<b>Email</b>	theimone@uwsp.edu
<b>Telephone</b>	(715) 346-2356
<b>Communication</b>	You are encouraged to contact me if you have any questions. When communicating via email, please add “CNMT 110” on the subject line.
<b>Office hours</b>	Monday through Thursday, 9:00-10:00 AM on Zoom. See Canvas for instructions on how to schedule a meeting with the instructor.
<b>Class website</b>	Canvas will be used to distribute course materials, assignments, and grades. Check it regularly to stay informed of changes to class schedules and other important announcements.
<b>Prerequisites</b>	CNMT 100 – Principles of Computing
<b>Textbooks</b>	The required textbook is available through Text Rental: Tony Gaddis, <i>Starting out with Java – Early Objects</i> , 5 <sup>th</sup> Edition, Pearson, ISBN: 978-0133776744

**Important:** This syllabus, along with course assignments and due dates, are subject to change. It is the student's responsibility to check Canvas for corrections or updates to the syllabus. Any changes will be clearly noted in class, in a course announcement and/or through email.

### Course learning outcomes

This course is designed to introduce the process for designing and implementing small software applications. The course focuses on object-oriented programming as a paradigm for modeling and solving real-world programming problems, including best programming practices, and troubleshooting techniques.

Upon completing this course, you will be able to:

- Use programming constructs such as variable declarations, assignments, operators, data types, type casting, wrapper classes, and user input/output.
- Apply decision structures, loops, methods, basic data structures, file operations and exception handling.
- Describe and use essential concepts in object-oriented programming such as classes, objects, inheritance, abstraction, polymorphism, and encapsulation.
- Utilize an integrated development environment (IDE) for implementing software programs and debugging program code to troubleshoot issues.
- Use Java API documentation to find appropriate uses for specific language features and constructs when solving real life programming problems.

## Course requirements

Completing coursework awards a maximum total of 100 points.

**Assignments:** Assignments award a total of 45 points.

- Each course assignment awards 5 points towards the grade as described in its assessment rubric.
- Assignments are designed to allow you to practice the methods and techniques introduced in course materials and receive constructive feedback.

**Course project:** The course project awards a total of 15 points.

- The course project supports you in demonstrating your competence in applying the knowledge and skills gained during class.
- You will implement a small Java program with a command line interface that satisfies specific functional requirements.

**Exams and quizzes:** Exams and quizzes award a total of 40 points.

- Exams and quizzes will assess your ability to describe, explain and apply the key topics and concepts discussed in course materials.
- Exams and quizzes will cover the assigned readings and content introduced in class.

Specific requirements for each graded course activity will be announced separately in Canvas.

### Viewing grades in Canvas

Points you receive for graded activities will be posted to Canvas. Online grades are updated once a grading session has been completed – typically within 2-3 business days following the completion of an activity.

### Submitting coursework

All coursework must be submitted **electronically through Canvas**, unless otherwise instructed.

### Software and hardware requirements

There are no specific software requirements on this course. The software used during this course will be either freely available online, available in the UWSP Software Center or installed in computer labs.

Storage media (e.g., flash drive or external hard drive) or cloud-based storage will be useful to store and transport the files created during this course. Note that the classroom does not have individual computer workstations, so plan accordingly.

## Grading scale

The final grades will be determined as a percentage of points earned out of 100 points according to the following scale:

Grades	Percentage	Grades	Percentage	Grades	Percentage
A	93.00% or better	B-	82.99% – 80.00%	D+	69.99% – 65.00%
A-	92.99% – 90.00%	C+	79.99% – 77.00%	D	64.99% – 60.00%
B+	89.99% – 87.00%	C	76.99% – 73.00%	F	under 60.00%
B	86.99% – 83.00%	C-	72.99% – 70.00%		

The instructor reserves the right to revise the grade cutoffs to be more generous if necessary, based on class performance.

### Late policy

Coursework must be submitted by the given deadline or an extension must be requested from the instructor **before the due date**. If you know ahead of time that you will have a legitimate reason for missing a due date, contact the instructor to discuss an extension.

Coursework that is turned in late will receive a 20% reduction in points awarded. **Submissions that are more than 3 days late will receive 0 points.**

The instructor reserves the right to adjust this policy to account for extraordinary situations, such as documented illness or medical emergencies. You are required to inform the instructor as soon as possible of such situations.

## Attendance

Attending class will likely be the single most important factor in determining your performance and grade in the course, so plan to attend every class. The relationship between attendance and achievement in education has been extensively documented in peer-reviewed research. **I am not able to re-teach the material to you if you are absent, but you can ask a classmate to share notes.**

- *Excused absences:* If you need to miss a class, notify the instructor via email no later than by the morning of the class meeting in question.
  - The following are examples of legitimate reasons to be absent from class: religious observance, military service obligations, pregnancy, illness, and medical appointments.
  - Documentation is **not required** for absences for the above reasons unless you will end up missing more than two consecutive class meetings.
- Making up missed **in-class work**, such as exams and assignments, is **allowed only for excused absences**. Coursework needs to be completed within 7 days of the original due date, unless otherwise agreed upon in writing with the instructor.
- In case of extenuating circumstances, such as personal or medical emergencies, you should contact the instructor as soon as possible discuss arrangements for making up missed coursework.
- If you have any questions or concerns regarding the attendance policy, your first point of contact should be the instructor. If you are unable to reach the instructor, or if you are experiencing a personal or medical crisis/emergency, you should contact the Office of the Dean of Students at [dos@uwsp.edu](mailto:dos@uwsp.edu) or (715) 346-2611.

## Absences due to military service

You will not be penalized for class absence due to unavoidable or legitimate required military obligations, or medical appointments at a VA facility, not to exceed two (2) weeks unless special permission is granted by the instructor. You are responsible for notifying faculty members of such circumstances as far in advance as possible and for providing documentation to the Office of the Dean of Students to verify the reason for the absence. The faculty member is responsible to provide reasonable accommodations or opportunities to make up exams or other course assignments that have an impact on the course grade. For absences due to being deployed for active duty, please refer to the [Military Call-Up Instructions for Students](#).

## Other policies

### Face coverings

At all UW-Stevens Point campus locations, the wearing of face coverings is mandatory in all buildings, including classrooms, laboratories, studios, and other instructional spaces. Any student with a condition that impacts their use of a face covering should contact the Disability and Assistive Technology Center to discuss accommodations in classes. Please note that unless everyone is wearing a face covering, in-person classes cannot take place. This is university policy and not up to the discretion of individual instructors. Failure to adhere to this requirement could result in formal withdrawal from the course.

### COVID-19 precautions

- Please monitor your own health each day using [this screening tool](#). If you are not feeling well or believe you have been exposed to COVID-19, do not come to class; email your instructor and contact Student Health Service (715-346-4646).
  - As with any type of absence, students are expected to communicate their need to be absent and complete the course requirements as outlined in the syllabus.
- Maintain a minimum of 6 feet of physical distance from others whenever possible.

- Do not congregate in groups before or after class; stagger your arrival and departure from the classroom, lab, or meeting room.
- Wash your hands or use appropriate hand sanitizer regularly and avoid touching your face.
- Please maintain these same healthy practices outside the classroom.

### **Dropping/withdrawing from the course**

It is the student's responsibility to understand when they need to consider un-enrolling from a course. Refer to the [UWSP Academic Calendar](#) for dates and deadlines for registration. After this period, a serious and compelling reason is required to drop from the course. Serious and compelling reasons include, but are not limited to, the following: documented and severe physical/mental illness/injury to the student or student's family. Please consult the instructor at the earliest opportunity to discuss the need to drop the course after the mandated deadline.

### **Incomplete policy**

Under emergency/special circumstances, students may petition for an incomplete grade. An incomplete will only be assigned if inability to complete the coursework was due to a documented illness/injury or other circumstance beyond the student's control. All incomplete course assignments must be completed by the end of Semester II 2020-2021.

### **Nondiscrimination**

You may be asked to review and provide feedback on the work created by your peers. When doing so, please remember that the objective is to critique the work, not the person.

It is the policy of the University of Wisconsin-Stevens Point to:

Foster an environment of respect for the dignity and worth of all students, employees, and guests of the university; Provide an environment which is conducive to the free and open exchange of ideas; and Strive to eliminate bias, prejudice, discrimination, and harassment in all forms and manifestations.

Discrimination based on an individual's age, race, color, religion, sex, gender identity or expression, national origin, ancestry, marital status, pregnancy, parental status, sexual orientation, disability, political affiliation, arrest or conviction record, membership in the National Guard, state defense force or any other reserve component of the military forces of the United States or this state, or other protected class status is demeaning to all students, employees, and guests; impairs the process of education; and violates individual rights.

### **Accommodations**

UWSP is committed to providing reasonable and appropriate accommodations to students with disabilities and temporary impairments. If you have a disability or acquire a condition during the semester where you need assistance, please contact the Disability and Assistive Technology Center on the 6th floor of Albertson Hall as soon as possible. DATC can be reached at (715) 346-3365 or [DATC@uwsp.edu](mailto:DATC@uwsp.edu)

### **Academic honesty and integrity**

As a student in this course and at this university, you are expected to maintain a high degree of professionalism, commitment to active learning and participation, and integrity in your behavior in and out of the classroom.

#### **UWSP 14.01 Statement of principles**

The board of regents, administrators, faculty, academic staff and students of the university of Wisconsin system believe that academic honesty and integrity are fundamental to the mission of higher education and of the university of Wisconsin system. The university has a responsibility to promote academic honesty and integrity and to develop procedures to deal effectively with instances of academic dishonesty. Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors. Students who violate these standards must be confronted and must accept the consequences of their actions.

**UWSP 14.03 Academic misconduct subject to disciplinary action**

- (1) Academic misconduct is an act in which a student:
  - a. Seeks to claim credit for the work or efforts of another without authorization or citation;
  - b. Uses unauthorized materials or fabricated data in any academic exercise;
  - c. Forges or falsifies academic documents or records;
  - d. Intentionally impedes or damages the academic work of others;
  - e. Engages in conduct aimed at making false representation of a student's academic performance; or
  - f. Assists other students in any of these acts.
- (2) Examples of academic misconduct include, but are not limited to:
  - a. cheating on an examination;
  - b. collaborating with others in work to be presented, contrary to the stated rules of the course;
  - c. submitting a paper or assignment as one's own work when a part or all of the paper or assignment is the work of another;
  - d. submitting a paper or assignment that contains ideas or research of others without appropriately identifying the sources of those ideas;
  - e. stealing examinations or course materials;
  - f. submitting, if contrary to the rules of a course, work previously presented in another course;
  - g. tampering with the laboratory experiment or computer program of another student;
  - h. knowingly and intentionally assisting another student in any of the above, including assistance in an arrangement whereby any work, classroom performance, examination or other activity is submitted or performed by a person other than the student under whose name the work is submitted or performed.

**Use of third-party content and work previously presented in another course**

Specific allowances for using content created by others are explained in the coursework instructions. Standard citation and acknowledgment practices apply when using third party content, such as text, images, video, and program code. If in doubt, consult the instructor in advance.

Submitting work previously presented in another course is not allowed, unless approved by the instructor in writing.

## Tentative course schedule

Schedule is subject to change.

<b>Week</b>	<b>Topics</b>	<b>Coursework due</b>
01	<ul style="list-style-type: none"> <li>Syllabus review</li> <li>Introduction to the programming process and object-oriented programming</li> </ul>	Assignment 1: Install and configure an IDE (5 points)
02	<ul style="list-style-type: none"> <li>Java fundamentals: program structure, variables, constants, assignments, operators, type conversion, String class</li> </ul>	Assignment 2: Write a simple Java Program (5 points)
03	<ul style="list-style-type: none"> <li>Java fundamentals: scope, programming style, code comments, reading keyboard input, printing output to console, understanding and using the Java API</li> </ul>	Quiz 1 (5 points)
04	<ul style="list-style-type: none"> <li>Classes: class constructor, attributes and methods, packages and imports, object-oriented design</li> </ul>	Assignment 3: Define and use classes (5 points)
05	<ul style="list-style-type: none"> <li>Decision structures: if and switch statements, logical operators, comparisons</li> </ul>	Quiz 2 (5 points)
06	<ul style="list-style-type: none"> <li>Loops: for, while, and do-while loops; nesting loops</li> <li>File input and output</li> </ul>	Assignment 4: Use decision structures and loops (5 points)
07	<ul style="list-style-type: none"> <li>Classes: static class members, method and constructor overloading, copying and passing objects as parameters</li> </ul>	Assignment 5: Working with methods and objects (5 points)
08	<ul style="list-style-type: none"> <li>Classes: class aggregation, <i>this</i> reference variable, inner classes, enumerated types</li> </ul>	Midterm exam (10 points)
09	<ul style="list-style-type: none"> <li>Data structures: arrays and fundamental array algorithms</li> <li>Abstract data types and the Collections API: using collections classes, ArrayList class</li> </ul>	Assignment 6: Working with arrays (5 points)
10	<ul style="list-style-type: none"> <li>Wrapper classes: wrapping primitive data types</li> <li>Creating and parsing strings: StringBuilder class, string tokenization</li> </ul>	Assignment 7: Working with strings (5 points)
11	<ul style="list-style-type: none"> <li>Inheritance: super class, subclassing, the Object class, polymorphism</li> </ul>	Quiz 3 (5 points)
12	<ul style="list-style-type: none"> <li>Inheritance: abstract classes and abstract methods, interfaces</li> </ul>	Assignment 8: Implementing inheritance (5 points)
13	<ul style="list-style-type: none"> <li>Exceptions: error handling, throwing exceptions</li> </ul>	Quiz 4 (5 points)
14	<ul style="list-style-type: none"> <li>Introduction to software testing concepts</li> <li>Using the JUnit framework</li> </ul>	Assignment 9: Handling exceptions (5 points)
15	<ul style="list-style-type: none"> <li>Creating GUI applications: introduction to JavaFX</li> </ul>	Course project: Implement a text-based game (15 points)
16	<b>Final exam period</b>	Final exam (10 points)

**Important Note:** Refer to Canvas for specific due dates for coursework. If you have any questions, please contact the instructor.