

# Programming and Problem Solving

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**COMP 2243 | Spring 2026**

## Course Information

**Instructor:** Brendan Shea, Ph.D.

**Email:** Brendan.Shea@rctc.edu

**Phone:** 507-722-1146

**Office:** M2403Q

**Office Hours:** Mon Wed 10:00 AM - 12:00 PM (and by appointment - please email me to let me know you are coming; also see Zoom link below)

### Class Locations:

- Section 1: SH 206 (Face-to-face)
- Section 72: Online

**Class Time:** Mon Wed 12:00 PM - 1:50 PM (Section 1)

**Class Zoom Link:** <https://minnstate.zoom.us/j/99874991922> (Passcode: 312566)

### Prerequisites:

- COMP 1150
- MATH 1115
- College-level reading

## Course Description

This course introduces the major concepts of problem solving, algorithm design, and programming. Emphasis is on algorithm development, analysis, refinement, top-down and object-oriented program development concepts. Simple and composite data types, classes, and control structures are covered. Programming languages such as Java, Python, or C++ will be used. Students may take COMP 1150 and COMP 2243 concurrently. (4 credits)

## Course Content and Learning Outcomes

### Major Content Areas

1. Problem solving approaches
2. Program development process
3. Input and output
4. Arithmetic expressions
5. Logical and relational expressions
6. Selection control structures
7. Repetition control structures
8. Methods

9. Simple data types
10. Object-oriented programming concepts including class, encapsulation, and information hiding

## Learning Outcomes (General)

The student will be able to:

1. Design algorithms using stepwise refinement.
2. Document algorithms using flowcharts of pseudo code.
3. Write and document programs using simple data types and arrays.
4. Use standard input and output devices, and file input and output in programs.
5. Use selection and repetition control structures, and user-defined methods in programs.
6. Implement algorithms utilizing recursive structures.
7. Design, write, and document programs using object-oriented programming concepts including class, encapsulation, and information hiding.
8. Compile, link and run programs.
9. Test and debug programs.

## Learning Outcomes (MNTC)

None

## RCTC Core Outcomes

This course contributes to meeting the following RCTC Core Outcome(s):

**Critical Thinking:** Students will think systematically and explore information thoroughly before accepting or formulating a position or conclusion.

## Required and Recommended Course Materials

- All course materials will be made available free online through D2L.
- This course will require that you have reliable, regular internet access. Most assignments will require you use a PC, Mac, or Linux desktop or laptop (Android, iOS, or Chrome OS may have problems with lockdown browser or Colab).

## Grading and Course Policies

### Grading Scale

- **A:** 90.0 and above
- **B:** 80.0-89.9
- **C:** 70.0-79.9
- **D:** 60.0-69.9
- **F:** Below 60.0

### Grade Breakdown

Your final grade is a weighted average of the following:

## Web-Proctored Quizzes (Online) OR In-Class Activities (F2F) - 20%

Online students will have weekly, webcam-proctored quizzes (of multiple-choice and coding questions). Face-to-face students will have activities and quizzes.

## Annotated Readings on Perusall - 20%

This will provide you with the opportunity to reflect on key ideas, events, and issues in computer science. They will be delivered in *Perusall* (see below).

## Final Project - 20%

At the end of the class, you will develop and implement a project in Java.

## Two Exams - 40% total (20% each)

Exams are delivered using Respondus Monitor, and will require a webcam to take.

## Attendance

Students in face-to-face classes should attend class regularly, while online students are expected to participate in class discussions and activities. **If you miss more than one week consecutively or 1/4 of the total class sessions, you may receive a failing grade of FW.** This may endanger your ability to receive financial aid. With this in mind, you are responsible for withdrawing from the class if you decide not to continue. I am willing to make exceptions if circumstances require, but you must let me know about these promptly.

## Plagiarism and Academic Integrity

Your work should be your own---please don't use your classmates, friends, parents, internet sites, etc., to help you write your papers or answer test questions. And when you do use outside sources, make sure to give appropriate citation and acknowledgment for any words, ideas, or arguments. If the preponderance of the evidence suggests cheating has occurred (that is, if the evidence indicates that this is *more likely than not*), you will receive a failing grade on the assignment. A second violation will lead to a failing grade for the course. Please also see the RCTC statement on academic integrity later in the syllabus.

## Policy on Generative AI

I encourage you to use generative AI (ChatGPT, Gemini, CoPilot, Claude, etc.) to help you understand class content when needed (and mastering these tools will be important to almost any career path), and to work on your own projects (I've used it in my own projects, including for this course!). However, the use of generative AI is **ABSOLUTELY FORBIDDEN** when it comes to answering questions on quizzes or exams.

## Using Perusall

Perusall is a digital platform for collaborative learning that allows you to annotate readings and engage with your classmates. We're using it because it encourages active reading, critical thinking, and class participation.

You'll access Perusall through links provided in our D2L-Brightspace course. Once you click on these links, you'll be directed to the readings assigned for our class.

For each reading, you'll need to post annotations. These can be questions, comments, replies to comments of others, or reflections. Make sure your annotations are thoughtful and constructive.

Your work on Perusall will be graded based mainly on:

- **Quality of Annotations:** Insightful, relevant comments and questions
- **Active Time:** The time you spend reading and annotating
- **Interaction:** How you engage with your classmates' annotations

Remember, Perusall is a space for constructive and respectful academic discussion. Your engagement here is a vital part of your learning.

## Policy on Late Work

**Please read the following *before* emailing me to request an extension on an assignment.**

If you miss a quiz or activity due to a brief sickness, work conflict, class trip, computer malfunction, wedding, auto problem, court date, funeral, sporting event, etc., you do NOT need to email me (though it's okay if you want to give me a heads up). Here are my policies for making up missed or late work:

1. Quizzes can be submitted up to two days late, with no loss of credit.
2. Perusall reading assignments can be submitted up to two days late for reduced credit. Credit declines "linearly" (basically, if you submit it one minute late, you get 99.9% of the credit; if you submit it 1.5 days late, you'll get almost no credit).

**I will make exceptions to these policies if you can demonstrate a genuine need.** Please talk to me if anything comes up that is preventing you from succeeding in class.

## RCTC Common Policies

This course will be taught in accordance with the following policies, which apply to ALL RCTC courses. If you have any questions about these, please let me know!

### Academic Integrity Statement

The primary academic mission of Rochester Community and Technical College (RCTC) is to provide quality learning opportunities for students. Acts of academic dishonesty undermine the educational process and the learning experience for the student and our college community. It is the responsibility of the student to complete their academic requirements with integrity and not engage in acts of cheating, plagiarism, or collusion. The College expects that students are submitting work and materials that reflects their individual learning and efforts within their course, program, and college academic requirements.

It is expected that RCTC students will understand and adhere to the concept of academic integrity and to the standards of conduct outlined within this [policy](#). Students who are found to have engaged in an act of academic dishonesty may face academic sanctions through the Academic Integrity Procedure and non-academic misconduct sanctions through the Code of Student Conduct.

### Americans with Disabilities Act

Rochester Community and Technical College is committed to ensuring its programs, services and activities are accessible to individuals with disabilities, through its compliance with state and federal laws, and [System Policy](#). Appropriate accommodations are provided to those qualified students with disabilities. If you believe you qualify for an academic accommodation, please contact the Director of Disability Support Services, Travis Kromminga at 507-280-2968 or through the Minnesota relay TTY 1-800-627-3529. The office can also be reached via e-mail at [travis.kromminga@rctc.edu](mailto:travis.kromminga@rctc.edu).

## Military Friendly Statement

Rochester Community and Technical College (RCTC) is a military friendly campus, pledging to do all we can to help military veterans transition into college to complete their educational goals. RCTC is proud to serve and honor our veterans and military service members and their families. Through the Veterans Resource Center, RCTC offers student veterans an on-campus point of contact with other veterans, and program information to assist them in making a successful transition into college. For assistance, students are encouraged to contact the Veterans Assistant Coordinator, Mark Larsen, at 507-779-9375 or e-mail at [mark.larsen@state.mn.us](mailto:mark.larsen@state.mn.us), or Othelmo da Silva, RCTC's VA certifying official at 507-285-7566 or email at [VeteranServices@rctc.edu](mailto:VeteranServices@rctc.edu).

## Title IX Statement

Title IX of the Education Amendments of 1972 states: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance." Today, Title IX ensures that sex-based discrimination, including that related to pregnancy/parenting, sexual orientation, and gender identity, is responded to promptly and effectively with a fair, transparent, and reliable process.

Anyone who believes there has been an act of discrimination, harassment, or violence on the basis of sex against any person or group in a college-sponsored program or activity may file a complaint through the [reporting form](#) to the Title IX Coordinator, Dr. Teresa Brown. The coordinator may also be reached via email at [titleix@rctc.edu](mailto:titleix@rctc.edu) or phone at 507-285-7217.

Pregnant and parenting students may reach out to the Title IX Coordinator to learn of their rights and available support. They may use the contact information above or submit a request via [this form](#).

## Getting in Touch with Me

The best way to get ahold of me is by email, which I will aim to respond to within ONE working day (for simple questions) or TWO working days (for more complex ones). I don't generally check email on the weekends or holidays. If you don't hear from me by then, please try emailing me again. To help me provide you with quick, effective feedback, here's a general template for what I expect in an email.

### Email Template

*Dear Brendan (or Professor Shea):*

*My name is [full name], and I'm a student in [this section] of [this class]. I had a question regarding [identify quiz, textbook chapter, etc. Be specific, and include a copy of anything I might need to answer your question, including the full problem text, if applicable]. Here's everything I've tried so far to figure out the answer for myself [looked at the syllabus, notes, textbook, etc.], and here's my best guess as to the answer. Could you help me by doing the*

*following? [Be specific in what you are asking me to do.] [Feel free to include anything else you'd like here. I'm always happy when students send along ideas/links/whatever vaguely relating to ethics and philosophy!]*

As I rule, I will not respond to requests that you be exempted from class policies without very good reason (e.g., for late-work extensions outside the conditions outlined above), or to emails that lack basic identifying information (your full name, class, etc.). For long or complex questions, I highly encourage you to schedule an appointment so that we can talk (either in person or by phone). Oh, and please don't call me Mr. Shea (That's my dad!).

## Resources for Student Success

Some helpful resources at RCTC (all of which are included with your course tuition) include the following:

**Student Support Services/TRIO (SS 159)** provides academic support for first-generation and low-income college students, as well as those with documented disabilities.

**Drop-in Math/CS Tutoring (GL 235)** is available free of charge to *all* RCTC students. Please take advantage of it!

**Online Tutoring** is available at [www.tutor.com](http://www.tutor.com), accessible via D2L (so, don't go directly to the website--- instead, log on to the main RCTC D2L page, and look for the link). This online tutoring option also includes a form where you can submit a paper for review (there is something like a 12-hour turnaround).

## Course Calendar

The following calendar indicates the due dates for each assignment. In general, quizzes are due on **MONDAYS** (covering the previous week's material), while Perusall assignments are due on **THURSDAYS**.

All specific due dates can be found on the **D2L Course Calendar**.

- Week 1: Syllabus
- Week 2: Lecture 1 - Java Basics
- Week 3: Lecture 2 - Control Structures
- Week 4: Lecture 3 - Algorithms
- Week 5: Lecture 4 - Functions
- Week 6: Lecture 5 - Casting, Null, and Imports
- Week 7: Lecture 6 - Collections
- Week 8: Exam 1
- Week 9: Lecture 7 - Intro to OOP
- Week 10: Lecture 8 - Inheritance
- Week 11: Lecture 9 - Interfaces and Exceptions
- Week 12: Lecture 10 - Streams and Lambdas
- Week 13: Lecture 11 - GUIs
- Week 14: Lecture 12 - Swing
- Week 15: Exam 2
- Week 16 - Final Project Week