**CS 121: Intro to Programming**

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**Fall Quarter 2024 - Hybrid section**

# **Course Details**

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| --- | --- |
| **Instructor** | Dr. Crystal Hess - [chess@shoreline.edu](mailto:chess@shoreline.edu)   * I prefer messages to be sent via Canvas * Typical response time is <24 hours,  this excludes weekends and holidays |
| **Office Hours** | Mondays 12:30 PM – 2:00 PM (campus, 6216)  Tuesdays 10:00 AM - 11:30 PM (online)  Thursdays 12:00 PM - 1:00 PM (campus, 6216)  Or by appointment |
| **Class Hours** | **Section # 6944:** Online Material +  M 10:30am - 12:00pm in computer lab 1308  **Section # 6946:** Online Material +  W 12:30pm - 2:00pm in computer lab 1308 |

**CS121 - Introduction to Programming (5 credits)**

This course provides an introduction to computer programming. Explore foundational programming constructs, such as variables, functions, decisions, loops, and lists. Explore foundational programming concepts, such as problem solving, testing, and debugging. This course is intended for students with little to no prior programming experience. *Prerequisite: Placement into ENGL& 101*

## **Course Outcomes**

1. Develop solutions to small-scale problems given an algorithm, such as computing the cost of an item dependent on a few variable choices or calculating and applying a curve to a classroom of grades.
2. Identify and use programming language constructs such as sequence, selection, iteration, and procedures.
3. Identify and explain syntax, semantics, and practical effects of programming statements and procedures.
4. Recognize and use test cases to verify that solutions meet specifications.
5. Examine and compare reasoning, design, and effectiveness of alternative solutions.

## **Topic Coverage**

|  |  |  |  |
| --- | --- | --- | --- |
| **WEEK** | **TOPIC** | **PRACTICE ASSIGNMENTS** \*may change | **ASSESSMENT ASSIGNMENTS** |
| 0 | Getting Started |  | 📝 Quiz 0 - About You  📝 Academic Integrity Quiz |
| 1 | Introduction to Computing | 💬 Pair 1 - Buying a Computer  💬computer chip icon Practice - micro:bits (with code blocks) | 📝 Program 1 - ASCII Art 📝 Quiz 1 - Hardware, Algorithms, Debugging |
| 2 | Variables and Statements | 💬 Practice - Types, Operators, and Expressions  💬 Practice - Variables, User Input  💬 Practice - Functions | 📝 Program 2 - Fake News  📝 Quiz 2 - Variables, User Input, Print |
| 3 | Functions and Conditionals | 💬 Pair 2 - Functions  💬 Practice - Conditionals  💬 Practice - Functions that Return | 📝 Program 3 - Nursery Rhymes  📝 Quiz 3 - Functions and Conditionals |
| 4 | Math, Random, and Midterm Prep | 💬 Practice - Math and Random  💬 Pair 3 - Grade Calculator (fix the broken code) | 📝 Program 4 - Donut Shop  📝 Quiz 4 - Midterm Prep |
| 5 | **Midterm Exam** and Microbits | 💬computer chip icon Practice - micro:bits (Rock, Paper, Scissors) | 📝 MIDTERM EXAM  📝computer chip icon Program 5 - micro:bits mini project |
| 6 | Repetition | 💬computer chip icon Pair 4 - micro:bits (repetition)  💬computer chip icon Return micro:bits  💬 Code-along Activity Tracker  💬 Code-along - Nursery Rhymes v2 | 📝 Quiz 6 – Repetition  📝 Program 6 - Voting Booth |
| 7 | String | 💬 Practice - Strings  💬 Code-along - Strings  💬 Practice - Coding Bat (strings) | 📝 Quiz 7 - Strings and TDD |
| 8 | Strings (cont.) | 💬 Pair 5 - Account Generator  💬 Practice - Lists | 📝 Program 7 - DNA Sequencing Checker |
| 9 | Lists | 💬 Code-along -Lists  💬 Practice - Coding Bat (lists) | 📝 Quiz 8 - Lists |
| 10 | Putting it all together | 💬 Pair 6 - Holiday Shopping | 📝 Program 8 - COVID Shot Records  📝 Quiz 9 - Final Prep |
| [Finals](https://www.shoreline.edu/apply-and-aid/registration/final-exams.aspx) | **Final Exam** |  | 📝 FINAL EXAM |

# **Required Materials**

|  |
| --- |
| **Software**  * [colab.research.google.com](https://colab.research.google.com) *(Available online for free*) * [repl.it](http://repl.it/) *(Available online for free*)  **Text**  * Instructor created [“textbook”](https://colab.research.google.com/drive/19FcADCandc_dOJNW6Y4qNf6saM-CDUB7?usp=sharing) * [How to Think like a Computer Scientist](http://interactivepython.org/runestone/static/thinkcspy/index.html) *(Available online for free*) |

## **Computer & Technical**

* It is expected that when students enroll for this course, they will be able to use a computer, be able to upload and download files, and successfully navigate browsers and websites.
* Students will receive homework throughout the course that must be completed on a computer with Internet access. The school library computers can be used for these purposes, if necessary.
* **Need help?** Canvas support can be found [here](https://www.shoreline.edu/elearning-services/) or in Room 4228 (in Library). Technology support can be found [here](https://www.shoreline.edu/tss/) or in Room 4122 (Library, Lower Level).

# **Academic Integrity**

## **ShorelineCC’s Policy**

Academic integrity is a commitment, even in the face of adversity, to actively engage in the learning process by using appropriate resources, asking for help, and doing your best to learn and grow your skillset toward the course outcomes. This means that you should showcase your own learning throughout the course. Any student found guilty of cheating and/or plagiarism will receive a zero for the assignment. If it happens a second time, you may fail the course. See: [Shoreline Dishonesty in Academics Policy (#5033)](http://intranet.shoreline.edu/faculty-senate/Agendas/POLICY/draft5033%20clean%206.2FINAL.pdf)

## **Course Academic Integrity**

In this course, maintaining academic integrity is crucial for your success and the integrity of the learning environment. The following guidelines outline expectations for collaboration and resource use:

1. **Collaboration:**
   * **Learning Practice, Pair Assignments, and Studying:** Collaboration with peers and tutors on "Learning Practice" assignments and "Pair Assignments" is allowed and encouraged. You are encouraged to discuss and study course materials collaboratively to enhance your understanding of the material.
   * **Long Programs, Quizzes, and Exams:** These assessment activities must be completed independently. You should not collaborate with others or seek external assistance when working on "Long Programs," "Quizzes," and "Exams."
2. **Use of Resources:**
   * **Course and Online Resources:** You may use course Canvas materials and online resources for all assignments *except for "Exams."* These resources include our online textbook, canvas assignments and materials, as well as supplemental resources you find online. While utilizing resources and tools can aid your learning, be mindful that over-reliance on external sources may impact your overall understanding and development of programming skills.
3. **Artificial Intelligence (AI):**
   * **Learning Activities:** AI tools may be used for learning purposes, but usage should be disclosed to the teacher and peers. AI can be a tool for gaining a deeper understanding of unfamiliar material; however, it is our responsibility to recognize when AI usage is hurting, rather than helping, our ability to learn.
   * **Assessment Activities:** The use of AI for assessment-related activities, including "Quizzes," "Exams," and "Long Programs," is generally discouraged. These assessments are designed to evaluate your individual understanding and skills, and reliance on AI can compromise the integrity of these evaluations. Instead, 🤔 Try utilizing the strategies shared below for “Getting Unstuck”.
4. **Code Sharing and Access:**
   * **Code Sharing with Others:** You are prohibited from sharing your code or viewing others' code for "Weekly Long Programs," "Quizzes," and "Exams." Integrity in these assessments is vital to ensure that you receive an accurate assessment of what you know and what you still need to learn.
   * **Using Code You Didn’t Write:** Learning to utilize online resources, Gen-AI and otherwise, is a skill to develop, especially in coding. There are great resources, such as StackOverflow discussion boards, but sometimes these resources help you solve a problem or correct an error without truly understanding why. You are *never permitted* to utilize large amounts of code that you did not write. You *may utilize* 1-2 lines of code you have found in a larger program, if you both a) cite the source as a comment and b) can explain how the code works.

By adhering to these principles, you contribute to a culture of honesty and academic excellence within our course. If you have any questions or concerns about Academic Integrity, please do not hesitate to seek clarification from your instructor.

## **Getting Unstuck**

Getting stuck is part of the programming process. However, one of the most useful skills you may learn from this course is "how to get unstuck."

* **Make systematic changes.** Look carefully at the work you have just done. Try changing one thing and see what effect it has.
* **Talk to a rubber duck.** No really, this is actually [a thing](https://en.wikipedia.org/wiki/Rubber_duck_debugging). Sometimes if you take a moment to tell someone (even someone non-techie) what you're trying to do, you'll end up having an Ah-Ha moment of clarity!
* **Ask a classmate.** Try to share ideas about how to figure out the problem rather than telling your classmate the answer. You'll learn as much by helping others find their mistakes as you will by finding your own.
* **Take a break.** Sometimes you just need to take a break! Looking at code with a fresh set of eyes solves problems quicker than beating your head against the computer :)
* **Ask the Instructor.** I'm here to help you. It's literally my job.

# **Grading and Assessment**

In this course, you will be assessed through **Learning Practice** (smaller daily assignments), **Python Programs** (longer pair assignments and individual long programs), **Quizzes**, two **Exams** (approximately week 5 and finals week).

I strive to grade daily and weekly assignments within 5 days of the due date. The larger assignments take longer to grade and are generally graded within 7-10 days.

|  |  |
| --- | --- |
| **Activity** | **Points Possible** |
| Learning Practice | ~20 pts |
| Pair Assignments (6) | ~12 pts |
| Individual Long Programs (8) | ~24 pts |
| Quizzes (10) | ~20 pts |
| Exams (2) | ~30 pts |
| **TOTAL POSSIBLE** | **~105 pts** |

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## **Purpose of Activities**

* **Learning Practice** gives you the opportunity to practice reading and writing small segments of code. These assignments are graded for completion. (Course Objectives 3 and 5)
* **Pair Programming** creates a space for you to use vocabulary, negotiate use of different programming constructs, and test/debug with another person. These assignments must be completed with a partner. (Course Objectives 1, 2, 3, 4, and 5)
* **Individual Long Programs** build in difficulty throughout the course, providing an opportunity to build software solutions to tackle varying problems. (Course Objective 1, 2, and 4)
* **Quizzes** provide a smaller-scale assessment of your understanding of the previous week’s learning, including: using computing vocabulary, fixing broken code, and explaining how code works. (Course Objectives 2, 3, and 5)
* **Exams** assess your understanding of programming vocabulary and ability to read and write code quickly. (Course Objectives 2 and 3)

## **GPA Calculation**

**Your grade will be calculated as the cumulative points that you earn over the quarter.** Expect that at the start of the quarter your grade will appear low as you build up points. This also means that your grade (total points and final GPA) will *never* go down.

**Final GPA decimal grading** will be used in accordance with the following table. Alternatively, you have an option for pass/fail grading in this course.

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## **Late Policy**

* Students are expected to turn in all assignments by the due date and time.
* Assignments not submitted on-time may receive zero points.
* Alternate arrangements *may* be approved for flexible due dates in special circumstances when the instructor is contacted **prior** to the due date. *No day-of extensions will be given. No assignments will be accepted beyond one week past an assignment’s due date.*

More information available here: [Shoreline's full Grades Policy (#6260)](https://www.shoreline.edu/about-shoreline/policies-procedures/documents/6260GradesPolicy.pdf)

# **Classroom Contract**

You are expected to uphold the classroom contract as follows:

* **Be Prepared**: You are expected to complete pre-work and homework before class starts so that you are ready to be engaged in conversations and activities. We learn to code by coding—so put your finger muscles to work!
* **Participate**: You are expected to be actively engaged in your learning in class and online. This means both asking questions and helping others.
* **Create space for learning:** You are expected to create and cultivate a space where learning is conducive for all learners. This means that you participate in the class without dominating the learning space.

## **Diversity, Equity, Inclusion, and Accessibility (DEIA)**

It is my hope that our classroom is filled with a **diversity** of experience, backgrounds, and perspectives which we honor and celebrate. Having different lived experiences and different ways of thinking can make our interactions richer, our thinking more comprehensive, and—as a result—our products better.

Because every person has different needs and different ways of engaging, each student may need different resources and support on their learning journey. Acknowledging and honoring these differences means that we strive to provide an **equitable** learning experience (not necessarily an equal, standardized, experience) where each individual student gets the resources and support which they need.

Together, we must intentionally **include** our peers in our learning process by seeking their opinions, valuing divergent thinking, and finding ways to help each other feel a sense of belonging and success along the way. Sometimes this means stepping up to lead and sometimes this means stepping back to listen.

To make learning **accessible**, I strive to provide multiple ways of student engagement, a variety of representation in the material, and multiple ways of expressing learning. I also strive to honor accommodation needs (documented or undocumented) due to visible/invisible differences as well as temporary/ relapsing/remitting conditions, or long-term life situations.

We all play a role in the ongoing effort to create a diverse, equitable, inclusive, and accessible learning environment. I hope you will join me in making our learning space a place where all learners find joy and success in learning Computer Science.

## **Campus Life Resources**

|  |  |
| --- | --- |
| * **Gender**   + [How do I update the college with my preferred name?](http://www.shoreline.edu/apply-and-aid/name-change.aspx)   + [Where are the all gender restrooms on campus?](https://www.shoreline.edu/map/all-gender-bathrooms.aspx) * **Financial**   + [Where can I find information on scholarships or financial aid?](https://www.shoreline.edu/apply-and-aid/financial-aid/sources-on-campus.aspx)   + [Where can I get an emergency short-term personal loan?](https://www.shoreline.edu/multicultural/short-term-emergency-loan.aspx)   + [Where is the Food Pantry / Benefits Hub?](https://www.shoreline.edu/apply-and-aid/funding-and-aid/financial-aid/benefits-hub/default.aspx) | * **Mental Health**   + [Where can I talk to someone about mental health or counseling?](https://www.shoreline.edu/counseling-center/) * **Tell me about the...**   + [Multicultural Center](https://www.shoreline.edu/multicultural/)   + [Gender Equity Center](https://www.shoreline.edu/gender-equity-center/default.aspx)   + [Veteran and Military Services](https://www.shoreline.edu/oss/veterans/)   + [Parent/Child Center](https://www.shoreline.edu/parentchildcenter/)   + [Living on campus in Student Housing](https://www.shoreline.edu/housing/)   + [Career Center](https://www.shoreline.edu/job-career-services/career-center/default.aspx) |

# **Letter of Rec Requests**

Letters of recommendation are often needed for applications to transfer universities, jobs, and internships. Instructors take pride in the letters that they write for students and can only craft strong letters for students whom they know well. Part of your job as a college student is to become the kind of student that a professor can speak highly of—hardworking, capable, and intellectually inquisitive.

**Before requesting a letter of recommendation, ask yourself:**

* Have I discussed my academic or career goals with this instructor?
* Have I demonstrated an excellent work ethic or produced quality work in this course?
* Have I demonstrated responsibility for my learning and active participation in class (good attendance, thoughtful communication with the instructor and my peers)?
* Have I shown or communicated a passion for the subject or concepts that were taught?
* Will this instructor be able to incorporate personal and specific details about my academic growth or trajectory?

It is not necessary that the person writing your recommendation be able to speak to every bullet point above, but they should be able to address at least one.

Sometimes you are asked if you would like to **waive your rights** to read the letter. One advantage to waiving your rights is that the people reading the letter will know it was written candidly, which could make the letter more influential.  The disadvantage is that you won’t get to see what was written. Thus, it is important to ask your potential recommender if they can provide a *positive* letter.  If they can’t say “yes” or suggest you ask another person, then ask someone else.

**Requests may be declined for a variety of reasons**, including, but not limited to: insufficient time to write the letter, not knowing the student well enough to provide specific character observations, or too much time has elapsed since working with the student.

**Requests for recommendations should come well in advance of the deadline for submission** (i.e., at least 14 days in advance of the deadline)

# **Student Services**

## **Closures / Cancelled Class**

There are two types of suspended operations possible: campus is closed or classes are cancelled.  In the event of campus closure or cancelled class, students will be notified via Canvas of their expectations in relation to school work.

You can read Shoreline’s [Suspended Operations Procedures](https://www.shoreline.edu/about-shoreline/policies-procedures/documents/6030SuspendedOperationsProcedure.pdf).

## **Access and Accommodations**

Shoreline Community College is committed to providing educational programs without regard to disabling conditions as defined by Section 504 of the Rehabilitation Act of 1973. Reasonable accommodations will be made and no otherwise qualified individual with disabling conditions shall, on the basis of disability, be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program, activity or service administered by the college.

For more information: <http://www.shoreline.edu/oss/students-with-disabilities/>

## **Tutoring Services**

Tutoring Services provides students with free one-on-one tutoring support for any Shoreline Community College classes. Students can receive 2 hours of free tutoring a week per class they are registered for in a quarter.

For more information and to apply for tutoring assistance or to apply to become a tutor, please visit the office in 4228 (Library), email [pttutors@shoreline.edu](mailto:pttutors@shoreline.edu), call 206-546-4776, or check out the webpage: [www.shoreline.edu/tutoring](http://www.shoreline.edu/tutoring)

## **Counseling Center**

The Counseling Center provides free, confidential and professional counseling services, resources, and referral to support the academic and personal success, health, and well-being of our students and campus community.

Students often visit the Counseling Center to discuss a wide variety of topics: depression, anxiety, relationship concerns, and stress management; indecision about major or career path; and academic concerns such as failing grades, struggling with a subject, or managing a learning disability. The Center also supports students who may be feeling suicidal or in crisis.

* FOSS – 5245, 206-546-4594, [www.shoreline.edu/counseling-center](http://www.shoreline.edu/counseling-center)

Need support when they are not available? For 24/7 emergency counseling, referral, or assistance please contact:

* King County: 24-Hour Crisis Line | 866-427-4747
* Snohomish County: 24-Hour Crisis Line | 800-584-3578
* Live Chat: [crisischat.org](http://crisischat.org/)
* Crisis Text Line: Text 741741
* 911 (for immediate health-related emergency)

## **Additional Campus Resources**

Check out the [Current Students page](https://www.shoreline.edu/currentstudents/) for more information about Academic Support, Student Services, Campus Life, and much more.

# **Privacy Policies**

To learn about the practices regarding personal information that may be collected from users in this course, check the privacy policies below:

* [Repl.it Privacy Policy](https://repl.it/site/privacy)
* [Google Colab Usage Terms](https://research.google.com/colaboratory/tos_v5.html)
* [Coding Bat Privacy Policy](http://codingbat.com/privacy.html)
* [Canvas](https://www.canvaslms.com/policies/privacy)
* [Panopto](https://www.panopto.com/privacy/)
* [Shoreline Privacy Policies](https://www.shoreline.edu/currentstudents/privacyandnondiscrimination.aspx)
* [Student Policies](https://www.shoreline.edu/currentstudents/student-policies.aspx)
* [Microsoft 365](http://www.microsoft.com/online/legal/v2/?docid=22&langid=en-us)
* [Google Privacy Policy](https://www.google.com/intl/en/policies/privacy/)

# **Accessibility Policies**

Below are links to accessibility policies for sites used within this course:

* [Canvas](https://www.canvaslms.com/accessibility)
* [Panopto Accessibility Features](https://support.panopto.com/articles/Documentation/accessibility-features)
* [Shoreline Community College](http://intranet.shoreline.edu/policies/documents/5000/5114.pdf) [(Audio Version)](http://intranet.shoreline.edu/policies/documents/5000/5114.pdf)
* [Microsoft Office 365](https://support.office.com/en-US/article/Accessibility-in-Office-365-ACA7ACCF-58A0-4467-BE5C-24A7E7933A9D?ui=en-US&rs=en-US&ad=US)
* [Google (covers YouTube)](https://www.google.com/accessibility/products-features.html)