Introduction to Programming

BIT 115 / Section 2 / 5 credits / Winter 2018

Course information

Day, time, place of class meetings: Tuesday / Thursday 11am – 1:05pm, CC1-211
Course website address: http://faculty.cascadia.edu/mhazen/BIT115/. This course will also use Canvas (http://www.cascadia.edu/programs/elearning/canvasinstructions.aspx).
Instructor name: Dr. Megan Hazen
Cascadia email: mhazen@cascadia.edu <- Good contact option
Office location/office hours: CC1-350, Office hours Thursday 1:10-1:45 or upon request

Course description and prerequisites

This introductory programming class emphasizes problem solving through exploration of computer programming, variable typing and assignment, basic control structures loops, branches, functions, subprograms, and arrays using a language such as JAVA. Students also explore how human culture affects the use of computer programs. Prerequisite(s): Completion of MATH 084 or MATH 085 or MFUND 062 with a grade of 2.0 or higher or placement by testing into MATH 095 or above.

Course learning outcomes

1. Conceptualize the logical steps needed to accomplish a task (Think) Figure out what you need to do, before you do it.
    a. Accurately describes the task accomplished by a given program Given a program, explain what it does, how it does it, and why the whole thing works.
    b. Reasonably explains the impact of a change in the steps on the output of a program Given a program, explain what it would do if you changed it slightly.
    c. Correctly articulates the conceptual steps needed to accomplish a task Clearly explain what must be done, and in what order, to do something correctly
2. Apply structured programming techniques to accomplish a task using sequential processing, variables/data types, conditional branching, expressions, iteration, functions and arrays Write programs using the techniques that this class teaches. (Think, Learn Actively)
    a. Selects a reasonable structure for a given task When you're programming, know which technique best solves the problem.
    b. Writes programming code that demonstrates the ability to appropriately use each programming concept In addition to knowing which technique best solves the problem, you should be able to actually use that technique. This is means know what to type in order to get the program to compile and run.
    c. Creates a program that correctly fulfills all of the specifications of a given task. Write programs that you will always work correctly.
    d. Accurately articulates the relationships among the different structures Compare and contrast the different techniques that you know. What is the difference between a while loop and an if statement? Why use one rather than the other?
3. Test and debug a program (Think, Learn Actively, Interact In Complex Environments)

a. Correctly characterize different types of errors (syntactical and logical)
b. Demonstrates the ability to effectively recognize and correct common errors As the quarter progresses, fixing errors should take less and less time, especially for those errors that people tend to make repeatedly..
c. Uses appropriate, systematic strategies to debug a program (strategies such as localizing errors, evaluating error messages, and the process of elimination.) If there's something wrong with the program, instead of randomly changing things in the hopes that the problem will simply go away, you should use an organized approach. Examine the error message that the compiler gives you, examine how the program behaves, try to figure out exactly why the program isn't working, make your best guess at what should fix the problem, then try your fix out.

4. Document program designs (e.g., by using IPO, Flowchart, pseudocode, and comments. (Think, Communicate, Interact)

a. Effectively represents the important aspects of the program (purpose, tasks, program flow) Given a program, explain how it works by explaining the most important parts of it.
b. Creates well organized, professional quality documentation Instead of just speaking your explanations, write them down; write them down in a way that's clear, concise, easy to read, and effectively helps people to understand.what's going on.
c. Communicates ideas in a manner suitable for peer review You should be able to organize your ideas specifically so that they are easy to understand by your classmates/co-workers.

Required text, supplies, and supplemental materials

Java: Learning to Program with Robots, Publisher: Course Technology; 1 edition (February 16, 2006), ISBN: 0619217243
Note: This book is now out of print, and the author has generously decided to put the entire book online, for free, at: http://www.learningwithrobots.com/textbook/PDFs.html
Students will also need access to a computer (either a school computer, or their personal laptop), and know how to use Canvas. Students will install software on a personal computer as part of the course. Email may be a useful tool for group projects.

Teacher's educational philosophy

The entire goal of this course is to have students understand, and be inspired by, computer programming. Ideally, course sessions allow for ample discussion and teamwork. Questions are highly encouraged. Many requests may be accommodated, if they do not detract from learning. Grading is not punitive, but should be viewed as a tool for learning, and students should review comments and feedback received with grades.

Major assignments

This course has a variety of assignments. Attendance is paramount, and so students receive credit for attending class. Additionally, each week, students will complete a mini-assignment designed to cement that week's material. There will be a total of three cooperative homework assignments, and 4 exams.

Assignment categories

Coursework	Weight or pts
Attendance 21@3 pts each	~7%
Mini-assignments 10@25 pts each	~27%
Homework Projects 3@100 pts each	~33%
Tests 3@50 pts each	~16%

Coursework	Weight or pts
Final, cumulative exam 1@150 pts	~16%

Note that the class will use an absolute grading scheme: If you get 100% of the points possible, you'll get a 4.0. If everyone gets 100% of the points possible, everyone will get a 4.0. The table below shows you how to convert the points you've earned in this class to your final GPA. Mini-assignments will be graded as quickly as possible, and students should review them in preparation for the coming week. While grades on mini-assignments are designed to reward effort, understanding of the material is essential for progress in the course.

Homework assignments will be done in groups. You are responsible for working with your group, and mastering the material yourself. All group members will receive the same grade for the homework assignment.

Once a homework project has been graded, I'll return comments via Canvas. You then have the opportunity to revise your work (in whole or in part), and re-submit your work for a re-grade. This approach to re-grades is sometimes referred to the "mastery approach". The higher grade of the two will be your final grade for that homework assignment. You have 1 week from the time the class gets the graded assignment returned to hand in your revision. You may only hand in one revision per assignment. If you don't have handed in the initial version of the homework assignment by the time that the instructor goes to grade it, then you can still hand it in on or before the deadline for the revision, and it will be graded without penalty but you will NOT BE ALLOWED TO REVISE that assignment If you haven't submitted a revision to a homework assignment by the time that the instructor goes to grade it then you will keep the initial grade for the homework (if you didn't submit the initial version either, this means that you will be get a zero for that assignment).

The final exam will be cumulative: any topic covered from the beginning of class till the time of the exam is fair game for questions. The three mid-term tests will focus on the most recent material, but may also refer to previous course material. The tests and exam will include and will emphasize problem solving, and utilization of what you've learned in class. All tests are written, in class, and show individual mastery.

Grading criteria/standards scales

All assignments must be submitted by the due date. Once an assignment has been graded initially, late assignments will receive 50% of the earned grade. (For example, a late assignment that earns 30 out of 50 points will receive a grade of 15.) If you know that you must submit an assignment late, please contact the instructor in advance; there will be no exceptions to the late policy without an agreement prior to the due date. Please note that this include a due-date for the resubmission of the homework assignments.

Each assignment (including quizzes) is worth a stated number of points, which is noted on Canvas. More challenging assignments are worth more points. Your final grade will convert the percentage of all available points earned based upon the following scale. There are a few extra credit assignments which add earned points to your total, but do not increase the number of available points (thereby increasing your percentage when completed).

Grading scale

Percent earned	Grade	Letter grade
98-100	4.0	A
96-97	3.9	A
94-95	3.8	A-
92-93	3.7	A-
91	3.6	A-
89-90	3.5	A-
87-88	3.4	B+
86	3.3	B+
85	3.2	B+
84	3.1	B
83	3.0	B

Percent earned	Grade	Letter grade
82	2.9	B
81	2.8	B-
80	2.7	B-
79	2.6	B-
78	2.5	B-
77	2.4	C+
76	2.3	C+
75	2.2	C+
74	2.1	C
73	2.0	C
72	1.9	C

Percent earned	Grade	Letter grade
71	1.8	C-
70	1.7	C-
69	1.6	C-
68	1.5	C-
67	1.4	D+
66	1.3	D+
65-64	1.2	D+
62-63	1.1	D
60-61	1.0	D
<60	0.0	Failing

Major assignment details and scheduling

Complete details and materials for assignments are available on the course website (http://faculty.cascadia.edu/mhazen/BIT115/). In addition, a lecture by lecture schedule is available on the website. Students are responsible for referring to this website, and completing the assigned reading for each lecture.

In all cases submission of assignments is via Canvas. Some assignments take the form of a Canvas quiz, completable through the Canvas interface. Otherwise, students may be asked to submit text, or files, for each traditional assignment. Desired file types will be specified on the Canvas assignment description.

This course is technologically heavy. Students have access to computing resources and internet connections at the Cascadia campus. If students wish to use personal laptops and home connections that is also ok. (A personal laptop is very useful for this sort of class!) However, it is never acceptable to claim internet connectivity issues as an excuse for a late assignment; you must plan in advance to ensure that this is not a limiting factor.

Tips for Success

This course is similar to a laboratory course in that there are many exercises which may be done during the course sessions. Most new material will be presented early in each course period, and the remaining time may be spent working on exercises. Students are highly encouraged to make use of this time to try exercises and receive the benefit of both peers and the expert instructor on hand. Delaying completion of the exercises is almost never beneficial and removes the opportunity for personal feedback from the instructor.

Additionally, this course uses a text book, and chapter sections are assigned for each lecture. This text book is quite good, and easy to read; students will benefit from reading through to gain more familiarity with the materials. The text book is also a good source for answers if students hit a troublesome problem.

There are on-going assignments for this course. Many are short and designed to cement the week's material. A few are longer projects. Students are encouraged to get ahead in assignments,

as there is no penalty for early submission. Assignments may be resubmitted up to the due date, as desired.

Students are encouraged to ask questions early and often. Asking questions during a lecture is an ideal way to ensure that you understand the material. Students should not feel shy about asking questions; it is expected that students will participate in discussion in this way. Questions may also be asked on the Canvas discussion, or via email. Email is the most efficient way to contact your instructor.

Cascadia College Syllabus Learning Agreement

(updated Winter 2018)

Pluralism and Diversity

Cascadia believes in pluralism, an intentional culture where everyone's history contributes to the collective success of our community. Cascadia is committed to creating a supportive environment for a diverse student, faculty, and staff population. Individual differences are celebrated in a pluralistic community of learners. Cascadia does not discriminate on the basis of race, color, religion, gender and/or sex, sexual orientation, national origin, citizenship status, age, marital or veteran status, or the presence of any sensory, mental or physical disability, or genetic information, and is prohibited from discrimination in such a manner by college policy and state and federal law. The following office has been designated to handle inquiries regarding non-discrimination policies and can direct inquiries to the appropriate office for ADA-related requests: Director of Human Resources, Office CC2-280, 425-352-8880.

Title IX

Title IX of the Education Amendments of 1972 prohibits discrimination on the basis of sex in education programs or activities that receive Federal financial assistance. In compliance with Title IX, Cascadia is committed to providing an educational environment free from sexual harassment, including acts of sexual violence or sexual assault. The College is equally committed to ensuring that those who raise complaints or participate in the investigation and resolution of complaints are free from retaliation. To raise a complaint or voice a concern with Cascadia's compliance with Title IX, contact Martin Logan, Executive Director of Human Resources, at mlogan@cascadia.edu or 425-352-8262.

Academic Honesty

The College regards acts of academic dishonesty, including such activities as plagiarism, cheating and/or/violations of integrity in information technology, as very serious offenses. In the event that cheating, plagiarism or other forms of academic dishonesty are discovered, each incident will be handled as deemed appropriate. Care will be taken that students' rights are not violated and that disciplinary procedures are instituted only in cases where documentation or other evidence of the offense(s) exists. A description of all such incidents shall be forwarded to the Student Conduct Officer, where a file of such occurrences is maintained. The Student Conduct Officer may institute action against a student according to the college's disciplinary policies and procedures. Click here to see the policies and procedures in the *Student Handbook*.

In this course students may work together. However, it is expected that students will complete their own code. When asking or answering questions students should make an effort to use pseudo-code, but not cut-and-paste their own code. Students may describe how to solve a problem to other students, but should refrain from passing code around. Copying code directly is plagiarism. If obvious code-copying occurs students will be asked to rewrite the code (first offense) and receive a zero on the assignment (second offense). It should also be noted that students who rely on copying others' code during exercises tend to do very poorly on the written exams, so it is discouraged with the goal of better learning as well.

Student Rights and Responsibilities

Cascadia is a student-centered college, operated to provide knowledge and skills for the achievement of learners' academic, professional and personal goals. Inherent in the college's mission are certain rights and freedoms needed for learning and personal development. Admission to Cascadia provides these rights to students, and also assumes that students accept the responsibility to conduct themselves in ways that do not interfere with the purposes of the college in providing education for all of its learners. For the complete policy, see the Student Code of Conduct in the Student Handbook.

Course Websites

Nearly every course at Cascadia has one or more dedicated websites. The most common course website is the college Learning Management System, CANVAS; nearly all mathematics courses use WAMAP. Access to course websites is through Internet browsers, and students will use personal user IDs and passwords to log in.

- Students may not share their user IDs and passwords with anyone else or allow anyone else to participate in course sites on their behalf.
- Students need reliable access to the Internet. Some devices, such as smartphones, cannot access all aspects of CANVAS and most other course websites. Cascadia does not recommend that students attempt to complete a course using only a smartphone. Computers are available in many locations on campus.
- Students who enroll in courses that make use of a course website are expected to check that site frequently with their own devices and campus computers. Technical support for accessing learning management systems is available at the Cascadia Learning Center.
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John and Margaret Bock Learning Center Services

To support student success, Cascadia offers a variety of support services through its John and Margaret Bock Learning Center (The Bock Center). The Bock Center, located in CC2-060 and CC2-080, provides tutoring in a range of subjects, space for students to work individually or in small groups, computer and printing resources, technology support, and graphing calculators available for checkout. Click here for hours and contact information for the Bock Center.

Online Tutoring and Writing Assistance

Cascadia provides online access to live tutors in a variety of subjects through the Western e-Tutoring Consortium. This service includes live, interactive sessions and asynchronous feedback through an Essay Center. Many subjects have convenient tutoring hours late into the evening and seven days a week, depending on tutor availability; schedules are available online. To learn more or get started, visit the Learning Center's etutoring webpage.

Disability Support Services

Cascadia provides services to help students with disabilities successfully adapt to college life. Students who meet specific criteria may qualify for reasonable academic accommodations. If you have or suspect you have a disability and need an accommodation please contact the DSS Office at 425-352-8128 to make an appointment, or email us at disabilities@cascadia.edu. Services and Accommodations through DSS are not retroactive. It is the student's responsibility to approach the faculty member with the accommodation letter as soon as it is issued from DSS.

Counseling Services

If you have a personal problem or stress that is affecting you and would like to talk with someone, please contact UWB's Mental Health Counseling Center. Counseling at Cascadia (provided through UWB) is confidential, professional and free (six sessions). Visit the Counseling Center front desk Monday through Friday, 8:30 a.m. to 5 p.m. or call 425-352-3183 for an appointment. The number for a 24-hour Crisis Line is 206-461-3222.

Advising

Students should schedule an appointment to meet with an advisor to consult about classes and degrees, and to create a tentative education plan. They can call 425-352-8860 or come to the Kodiak Corner to make an

appointment. Appointments are not made via email. At the time of the appointment, they need to indicate which degree they are pursuing. See the Cascadia website for information about Drop-In Advising hours.

Online Advising

Email advising is available at advising@cascadia.edu. Our distance advisor can answer most questions via email, but we don't schedule advising appointments via email.

Campus Closures and Inclement Weather

Find information about and sign up for alerts and notifications at Emergency Notifications Cascadia FlashAlert. The site includes instructions for subscribing to alerts. In the event of a campus closure, instruction for this class will continue in the following way:

In the event of campus closure students should refer to Canvas for current instructions and exercises. It is likely that new material will be supplied on-line, and previously assigned exercises will continue. If a student is prevents from reaching campus due to inclement weather, but campus is not closed, that student should contact the instructor ASAP to arrange a solution.

In the event of inclement weather affecting morning classes, there will be notification on the local media by 5:30 a.m. You may also call the main campus number: 425-352-8000 to hear a message that will be updated with the latest Cascadia closure information. Should the weather deteriorate during the day, you may check online, listen to the main campus message, check email or the media to hear news about closures or class schedule changes.

Emergency Procedures

Emergency procedures are posted in each classroom. To reach campus security personnel, dial 425-352-5222. City of Bothell fire and police may be reached by dialing either 9-9-1-1 or 9-1-1 from any campus phone. Campus emergency phones are located on campus walkways and parking lots.

Acceptable Use Policy on Information Technology

In general, the same ethical conduct that applies to the use of all college resources and facilities applies to the use of Cascadia's systems and technology. These systems may only be used for authorized purposes, using only legal versions of copyrighted software, and with consideration and respect for the conservations of resources and the rights of other users. For additional information, see the online version of the Student Handbook or go to the Open Learning Center for assistance with any questions.

Family Education Rights and Privacy Act (FERPA)

Cascadia College complies with the Family Education Rights and Privacy Act (FERPA) of 1974 concerning the information that becomes a part of a student's permanent educational record and governing the condition of its disclosure. Under FERPA, students are protected against improper disclosure of their records. See the student handbook for details.