

University at Buffalo*Department of Computer Science & Engineering / 338 Davis Hall – (716) 645-3180***Syllabus***Please read this sheet carefully, and save it for future reference.***Instructor**

Name	Email	Office Hours by appointment: use Calendly link to pick a time
Dr. Carl Alphonse	alphonse@buffalo.edu	T Th 10:30 AM – noon https://calendly.com/alphonse/appointment
Dr. Matthew Hertz	mhertz@buffalo.edu	MWF noon – 1:00 PM https://calendly.com/matthewhz/cse115-office-hours

Teaching Assistants

See course website.

Course Information

Credit hours: 4 credits

Website: <https://piazza.com/buffalo/fall2020/cse115/resources>**Course Description**

Provides the fundamentals of computer science with an emphasis on applying programming skills to solve problems and increase human efficiency. Topics include variables, data types, expressions, control flow, functions, input/output, data storage, networking, security, selection, sorting, iteration and the use of aggregate data structures such as lists and more general collections. No previous programming experience required.

The course website contains a detailed, day-by-day schedule of topics to be covered.

Learning Outcomes*Course Learning Outcomes*

Students who successfully complete this course will be able to:

1. Describe how course topics are used to solve real-world problems
2. Describe computational solutions to a problem they are given
3. Read and trace code
4. Translate an algorithm to a working computational solution in two or more programming languages
5. Relate a new problem to prior examples and adapt the extant solution
6. Describe the source of a bug or failure in code
7. Explain the security impacts of course topics

Program Outcomes and Competencies

This course is required in both the BS Computer Engineering program, accredited by the Engineering Accreditation Commission (EAC) of ABET, and the BS Computer Science program, accredited by the Computing Accreditation Commission (CAC) of ABET.

The course introduces students to the following EAC student outcomes, for which graduating students must demonstrate:

- (EAC-1) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- (EAC-4) an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts

This course introduces students to the following CAC student outcomes, for which graduating students must demonstrate:

(CAC-1) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

(CAC-2) Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

(CAC-4) Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

(CAC-6) Apply computer science theory and software development fundamentals to produce computing-based solutions.

Student Learning Outcomes mapping

Course Learning Outcome	EAC 1	EAC 4	CAC 1	CAC 2	CAC 4	CAC 6	Sample Assessment Method	Assessment types
Describe how course topics are used to solve real-world problems	X	X	X		X	X	Give students real-world problems that have a clear programming solution and ask them to describe a solution to the problem.	Programming Assignments Lab Activities Recitation Activities Exams
Describe computational solutions to a problem they are given	X			X		X	Assess the students' ability to provide functioning software that solves a given problem.	Programming Assignments Recitation Activities Lab Activities
Read and trace code	X		X	X		X	Provide the students with coding samples and ask them about the result after running the code.	Exams
Translate an algorithm to a working computational solution in two or more programming languages	X			X		X	Give the students an algorithm and test the functionality of the code they provide after implementing the algorithm in code.	Programming Assignments Recitation Activities Lab Activities
Relate a new problem to prior examples and adapt the extant solution	X		X	X		X	Provide students with problems that are very similar to ones covered previously in the course.	Lab Activities Recitation Activities Exams
Describe the source of a bug or failure in code		X	X		X	X	Provide students with code containing an error and ask them to identify the cause of the error.	Exams
Explain the security impacts of course topics		X	X		X	X	Provide examples of secure and insecure code. Ask the students to identify the causes of insecurity and explain the impact.	Lab Activities Exams

Prerequisites

Pre-calculus (MTH 115 or ULC 148) or appropriate math placement test scores or co-requisite of Calculus 1 (MTH 121 or MTH 131 or MTH 141). **If you are currently taking ULC147, ULC148 or MTH115 you have NOT satisfied this prerequisite!**

Textbook

There is no textbook for the course. All needed materials will be provided via the course's Piazza site.

Computing Resources

You will be using various free on-line tools for this course – links are posted on the course Piazza site.

Course-related communications must be via the Piazza forum, not via e-mail. Piazza posts can be either public to the class or private to instructors.

Communications which are not related to the course should be conducted via e-mail from your UB e-mail account. Always include your full and an informative subject line for your e-mail.

All communications with course staff (professors and teaching assistants) are expected to be professional.

Course Requirements

The course has lecture, lab, and recitation components. **If you do not participate fully in all you should not expect to do well in the course.** Outside of the scheduled course times, both office hours and your own study times are critical elements of the course.

Lectures

The conceptual and theoretical course content will be delivered primarily in the recorded lectures. You are expected to watch all recordings in a timely manner and take your own notes to prepare for later assessments.

If you are out of class for an extended period of time because of sickness, notify your instructor as soon as possible. If you miss a significant portion of the semester it is recommended that you resign from the course.

Recitations

Recitations will be conducted synchronously via Zoom. You will be assigned a specific time slot for a small group meeting during your recitation. **You must attend only your assigned section** (the one which appears on your schedule in HUB).

The recitation provides an opportunity for you to ask questions in a small group setting; the recitation leader will also ask questions to gauge how well the class is grasping course content. Attendance in all recitations is critical to your success in the course and is therefore mandatory: *your recitation participation contributes to your overall course grade.*

Labs

Labs will be conducted synchronously via Zoom. **You must attend only your assigned section** (the one which appears on your schedule in HUB).

The labs are an integral part of the course. In each lab section, the TAs may cover material pertinent to the current assignment. Each week you will have either a lab activity or a lab exam to complete. These assessments contribute to your overall course grade and you cannot use any outside resources unless they have been explicitly authorized for that assignment. Attendance in all labs is critical to your success and is therefore mandatory: *your lab participation contributes to your overall course grade.*

Time outside of class

Office hours offer you the opportunity to ask more individual questions about the course material than can typically be addressed in lecture. To make the most of office hours, please plan ahead. Office hours will be very busy around course deadlines and exams.

In this course, as in any course, you are expected to put in additional study time beyond the scheduled class times. Professors generally expect that for each credit hour a class carries a typical student will put in 2 – 3 hours of time **each week** outside of class. **Since this is a 4-credit course that translates into 8 – 12 hours of time outside of lecture, lab, and recitation times, each week.** As a rough guide, you should expect to spend *at least* the following time working on this course, **each week**: lectures (3 hours) – lab (2 hours) – recitation (1 hour) – programming assignments, programming practice, and individual study (8 hours).

Course Requirements and Grading Policy

The following indicates the grade breakdown which will be used in assigning grades in the course. If adjustments are needed during the term, changes will be communicated via e-mail to each student's UB e-mail account in accordance with policy.

The course is graded out of 1000 possible points, distributed as follows:

Requirement	Quantity	Total points	Details	Date(s)
Lab activities	6 <i>You will complete 7, but your lowest scoring activity is dropped.</i>	90	Lab activities allow students to put into practice knowledge and skills presented in lecture.	Weeks 3, 4, 6, 7, 8, 10, and 12.
Lab exams	4 <i>There is a make-up opportunity for each lab exam provided you attempt the initial lab exam.</i>	320	Lab exams are used to assess student mastery of hands-on software development knowledge and skills.	Weeks 5, 9, 11, and 14
Recitation attendance	9 <i>You will complete 10, but your lowest scoring activity is dropped.</i>	90	Recitation meetings are used to provide practice with the material in a team-based environment with plenty of TA support. Most topics will be covered in recitations before students will use them in labs.	Weeks 3, 4 5, 6, 7, 8, 9, 10, 11, and 12
Lab attendance	6 <i>There are 7 of these meetings, so each student can miss 1 meeting without penalty.</i>	90	Students will meet with a UTA during their scheduled lab time every week there is a lab activity. This 1-on-1 meeting ensures students have a chance to have their questions answered before submissions are due.	Weeks 3, 4, 6, 7, 8, 10, and 12.
Lecture responses	30 <i>There are 38 lectures for which attendance is counted, so each student can miss 8 attendance opportunities without penalty.</i>	30	At the end of one of each lecture day's videos, there will be a prompt in which students must answer a True/False question. To receive credit, students must answer that question correctly on the day of the lecture.	Every lecture starting on Sept. 9 except Nov. 23
Programming project	1	60	The project gives students an opportunity to work on a substantial piece of code.	Assigned at the end of week 10.
Final exam	1	320	A 180-minute written exam	Check HUB for the final exam date & time

Making up missed work

Missed work is handled in different ways.

Recitations

Course grades will only use attendance from 9 of the 10 recitation events. This means students can miss one recitation without penalty. No make-up will be offered for that first absence: the missing grade is simply dropped from course grade calculations. For students with no recitation absences their lowest recitation grade will be dropped from calculations.

Any additional absence must be properly documented. For documented absences meeting the university's excused absence standards (see <https://catalog.buffalo.edu/policies/attendance.html>), arrangements will be made to make up the missed work.

Lab activities and attendance

Course grades will only use students' 6 highest lab activities. This means students can miss one lab activity without penalty. No make-up will be offered for that first absence: the missing grade is simply dropped from course grade calculations. For students with no lab activity absences their lowest recitation grade will be dropped from calculations.

Any additional absence must be properly documented. For documented absences meeting the university's excused absence standards (see <https://catalog.buffalo.edu/policies/attendance.html>), arrangements will be made to make up the missed work.

Lab exams

Each lab exam is paired with a make-up later in the semester. If a student submits the lab exam they may also take the make-up exam. No documentation is required.

Documentation is needed if a student misses a lab exam or make-up exam. If a lab exam absence meets the university's excused absence standards (see <https://catalog.buffalo.edu/policies/attendance.html>), the student will be allowed to take the make-up exam without penalty. If a make-up exam absence meets the university's excused absence standards (see <https://catalog.buffalo.edu/policies/attendance.html>), arrangements will be made to make up the missed make-up exam.

Attendance

No make-ups for attendance points are provided; instead students will be forgiven up to 8 missed lecture attendance opportunities when calculating course grades. This covers approximately 80% of the class. A student missing more than 8 of these opportunities needs to speak to their instructor and should also speak with an academic advisor.

Final exam

A missed exam can be made up only if the absence is legitimate and documented (see <https://catalog.buffalo.edu/policies/attendance.html>). In the case of illness, you **MUST** visit a physician and obtain a note detailing the period during which you were medically incapable of taking the exam. Notify your instructor as early as possible in writing (email is acceptable) if you miss an exam, before the exam takes place unless medically impossible.

If you miss an examination without a valid excuse, you will receive a zero grade for that examination. No make-up examinations will be available without a valid excuse.

Lab Activity, Lab Exam, and Project grading

Some project pieces and all lab activities and lab exams are submitted for automated grading. When grading is automated, **only your LAST submission counts towards your grade**, NOT your highest-scoring submission. Submissions that do not comply with course policies will be scored as 0 retroactively.

Lab Exam requirement

Your lab exam grade must be ≥ 160 points (out of a possible 320 points) to pass this course. The lab exam score for each course module is the greater of your total lab exam score and your total lab exam make-up score from that module.

Written Exam requirement

Your written exam grade must be ≥ 160 points (out of a possible 320 points) to pass this course.

The written exam component consists of **one final examination**. This **comprehensive final examination** will be given during the final exam period. The university schedules final examinations. It is YOUR RESPONSIBILITY to check the HUB for the date, time and place of the final exam.

See <http://blogs.advising.buffalo.edu/beadvised/posts/have-you-checked-your-final-exam-schedule-4>

Since the exam schedule can change, do not make plans to travel during the examination period.

The course content is divided into four modules. The final exam will assess your mastery of all four modules. The written exam component of your course grade will be calculated as follows:

COURSE MODULE	FINAL
1	120 points
2	120 points
3	40 points
4	40 points

Overall course grade

If you *fail either* the lab exam *or* the written exam component of the course, you automatically receive a letter grade of F for this course.

If you *pass both* the written exam *and* the lab exam components of the course, then your course grade will be determined by the total number of points you earned in the course (see table below).

The table below shows the mapping from course points to letter grade mapping. We reserve the right to adjust the cut-offs lower (e.g., the cut-off for an A may be moved from 900 to 899, but will never adjust the cut-offs higher).

Points earned	Letter grade	Points earned	Letter grade
900-1000	A	700-739	C+
860-899	A-	660-699	C
820-859	B+	620-659	C-
780-819	B	600-619	D
740-779	B-	0-599	F

Regrading

If you have a question about the grading of any piece of work, first consult with the teaching assistant who graded your work. If you cannot resolve your questions with the teaching assistant, ask the course instructor. Any questions about the grading of a piece of work ***must be raised within one week of the date that the work was***. Active learning responses cannot be regarded.

Incomplete (I) grades

A grade of incomplete (“I”) indicates that additional course work is required to fulfill the requirements of a given course. Students may only be given an “I” grade if they have a passing average in coursework that has been completed and have well-defined parameters to complete the course requirements that could result in a grade better than the default grade. An “I” grade may not be assigned to a student who did not attend the course or chose not to complete a portion of the work.

Prior to the end of the semester, students must initiate the request for an “I” grade and receive the instructor’s approval. Assignment of an “I” grade is at the discretion of the instructor.

The instructor must specify a default letter grade at the time the “I” grade is submitted. A default grade is the letter grade the student will receive if no additional coursework is completed and/or a grade change form is not filed by the instructor. “I” grades must be completed within 12 months. Individual instructors may set shorter time limits for removing an incomplete than the 12 month time limit. Upon assigning an “I” grade, the instructor shall provide the student specification, in writing or by electronic mail, of the requirements to be fulfilled, and shall file a copy with the appropriate departmental office.

Students must not re-register for courses for which they have received an “I” grade.

The last day to resign the course is **Friday, November 13, 2020**.

Course Schedule

Lectures: Links to each lecture (videos) will be posted in Piazza no later than 12:01 AM of each Monday, Wednesday, and Friday on which lectures are scheduled. Within one of the videos posted for each of these dates, the Panopto system will include a True/False question for students to answer. To earn the attendance credit for that day, students must answer that question correctly before the next day's lecture videos are available.

Labs: All labs are held synchronously via Zoom; please check your HUB schedule for your lab times.

Recitations: All recitations are held synchronously via Zoom; please check your HUB schedule for your recitation times.

Diversity

The UB School of Engineering and Applied Sciences considers the diversity of its students, faculty, and staff to be a strength, critical to our success. We are committed to providing a safe space and a culture of mutual respect and inclusiveness for all. We believe a community of faculty, students, and staff who bring diverse life experiences and perspectives leads to a superior working environment, and we welcome differences in race, ethnicity, gender, age, religion, language, intellectual and physical ability, sexual orientation, gender identity, socioeconomic status, and veteran status.

Classroom Decorum

To prevent and respond to distracting behavior faculty should clarify standards for the conduct of class, either in the syllabus, or by referencing the expectations cited in the Student Conduct Regulations. Classroom "etiquette" expectations should include:

- Not coming to lab or recitation meetings late or leaving early. Do not leave a meeting unless it is an absolute necessity.
- Not talking with other classmates during lab and recitation meetings while the TA or another student is speaking.
- Showing respect and concern for others by not monopolizing class discussion. Allow others time to give their input and ask questions. Do not stray from the topic of class discussion.

Accessibility Resources

If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Office of Accessibility Resources in 60 Capen Hall, 716-645-2608 and also the instructor of this course during the first week of class. The office will provide you with information and review appropriate arrangements for reasonable accommodations, which can be found on the web at: <http://www.buffalo.edu/studentlife/who-we-are/departments/accessibility.html>.

Critical Campus Resources

Sexual Violence

UB is committed to providing a safe learning environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic and dating violence and stalking. If you have experienced gender-based violence (intimate partner violence, attempted or completed sexual assault, harassment, coercion, stalking, etc.), UB has resources to help. This includes academic accommodations, health and counseling services, housing accommodations, helping with legal protective orders, and assistance with reporting the incident to police or other UB officials if you so choose. Please contact UB's Title IX Coordinator at 716-645-2266 for more information. For confidential assistance, you may also contact a Crisis Services Campus Advocate at 716-796-4399.

Mental Health

As a student you may experience a range of issues that can cause barriers to learning or reduce your ability to participate in daily activities. These might include strained relationships, anxiety, high levels of stress, alcohol/drug problems, feeling down, health concerns, or unwanted sexual experiences. Counseling, Health Services, and Health Promotion are here to help with these or other issues you may experience. You can learn more about these programs and services by contacting:

Counseling Services:

- 120 Richmond Quad (North Campus), 716-645-2720
- 202 Michael Hall (South Campus), 716-829-5800

Health Services:

- Michael Hall (South Campus), 716-829-3316

Health Promotion:

- 114 Student Union (North Campus), 716-645-2837

Academic Integrity

Academic integrity is a fundamental university value. Through the honest completion of academic work, students sustain the integrity of the university while facilitating the university's imperative for the transmission of knowledge and culture based upon the generation of new and innovative ideas. Please refer to the university Undergraduate Academic Integrity Policy (https://catalog.buffalo.edu/policies/academic_integrity_2019-20.html) for additional information.

As an engineer or computer scientist, you have special ethical obligations. As per the NSPE Code of Ethics, “engineers shall avoid deceptive acts” and “shall conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession (<https://www.nspe.org/resources/ethics/code-ethics>). Similar sentiments of honesty, integrity, fairness, and responsibility are fundamental to the ACM Code of Ethics (<https://www.acm.org/code-of-ethics>).

A violation in this class generally results in an F for the entire course. The Computer Science and Engineering department's policy on academic integrity can be found here:

<https://engineering.buffalo.edu/computer-science-engineering/information-for-students/policies/academic-integrity.html>

The syllabus is subject to change based on the needs of the course and will be communicated with you as appropriate.