Introduction to Computer Science I Spring 2019

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.

Instructors

Section	Name	Office	Email	Office Hours
A	Dr. Matthew Hertz	352 Davis	mhertz@buffalo.edu	Thursdays 9 am - 11am
B	Dr. Jennifer Winikus	351 Davis	jwinikus@buffalo.edu	Tuesdays 11 am - 1 pm

Teaching Assistants

See course website.

Course Information

Credit hours:
CSE 115 Introduction to Computer Science I – 4 credits
CSE 503 Computer Science for Non-Majors I – 3 credits

https://cse.buffalo.edu/~mhertz/courses/cse115/

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* *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* *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* *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* *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 on the course website. All sections will use the TopHat student response system during lecture.

Computing Resources

You will be provided with a CSE undergraduate computing account. You may use the undergraduate lab facilities in Baldy 21. These facilities are available for use as listed on the course website. They are on card-access - use your UB card to open the door. For your own safety, and to protect the equipment in the lab, do not open or hold the door open in order to allow other people to gain entry to the lab. All students authorized to use the lab have card access.

Information about the CSE computing environment can be found at,

`https://wiki.cse.buffalo.edu/services/`

You are expected to use your UB e-mail account for all communications with course staff. Always include your full and an informative subject line for your e-mail. Any communications with course staff (professors and teaching assistants) are expected to be professional.

Course Requirements

The course has both a lecture component and a recitation (lab) component. **If you do not participate fully in both 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 components of the course.

Lectures

The conceptual and theoretical course content will be delivered primarily in the lectures, complemented by readings from the textbook(s). You must review readings prior to attending a lecture, and you are expected to review the readings again, along with any notes you took, after lecture. You must attend only your *assigned* section unless previous arrangements have been made with the instructor.

Attendance in all lectures is critical to your success in this course. If you are unable to attend a lecture because of sickness or similar reasons, get notes from a classmate. If you are out of class for an extended period of time because of sickness, notify your instructor as soon as possible, and see your instructor immediately upon your return in order to determine how to catch up. If you have missed a significant portion of the semester it is recommended that you resign from the course.

Labs

The labs are an integral part of the course. *Attendance in all labs is critical to your success in the course.* In each lab section, the TAs will cover material pertinent to the current assignment. Your in-lab work is assessed, and contributes to your overall course grade. You must attend only your *assigned* section unless previous arrangements have been made with the instructor.

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. Both the instructors and the teaching assistants have scheduled office hours. Office hours are held on a first-come firstserved drop-in basis. No appointment is necessary to attend office hours. Office hours become increasingly busy the closer it is to a deadline or exam. Plan your use of office hours accordingly.

Individual appointments may be arranged, if needed, as schedules allow.

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 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) – 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. We reserve the right to make adjustments if we deem them to be necessary. Any changes will be communicated to the class in writing via e-mail to each student's UB e-mail account.

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

Requirement	Quantity	Total points	Details	Date(s)
Lab activities	6 *You will complete 7, but your lowest scoring activity is dropped.*	120	Lab activities allow students to put into practice knowledge and skills presented in lecture.	Weeks 3, 5, 6, 7, 9, 10, and 12.
Lab exams	4	320	Lab exams are used to assess student mastery of hands-on software development knowledge and skills.	Weeks 4, 8, 11, and 14
Student response questions	Varies per lecture	80	A student response system will be used to ask questions of students during lectures to provide immediate feedback on their understanding of lecture content. Only the best 80% of responses will count towards a student's grade, to allow for missed lectures.	Typically each lecture
Programming project	2	160	The two-part project gives students an opportunity to work on a substantial piece of code.	Weeks 9 and 15
Midterm exam	1	Up to 160 (see below)	A 60-minute written exam.	Thursday, April 4 8:30 – 9:30 pm Room TBD
Final exam	1	Up to 320 (see below)	A 180-minute written exam.	The final exam is during the official final exam period. Check HUB for final exam date and time.

Lab Exam requirement

Students need to stay up-to-date with the material. To encourage this behavior, there will be a 10% grade penalty applied to the make-up exam score of any student who had not submitted a solution on the initially scheduled lab exam.

In order to pass the course your lab exam grade must be >= 160 points out of a possible 320 points. This score will be calculated using your highest scoring attempt on each lab exam and (when applicable) after the 10% penalty for not attempting the initial lab exam.

If you miss a lab examination because of sickness or similar reasons, written notice and acceptable written documentation must be provided, as specified in the University Catalog. 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 us as early as possible in writing (e-mail is acceptable) if you miss an exam, before the exam takes place unless medically impossible.

Written Exam requirement

In order to pass the course your written exam grade must be >= 160 points out of a possible 320 points.

The written exam component consists of **one midterm examination**, given during the semester, and **one final examination**, given during the final exam period. You must bring a valid form of picture ID with you to each examination (a UB Card is preferred).

The **midterm exam** will be held on Thursday, April 4th 8:30-9:30 PM. Room assignments will be announced in the week prior to each exam.

The **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.

If you miss a written examination because of sickness or similar reasons, written notice and acceptable written documentation must be provided, as specified in the University Catalog. 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 me 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.

The course content is divided into four units. The midterm exam will assess your mastery of units 1 and 2. The final exam will assess your mastery of all four units.

COURSE UNIT	MIDTERM	FINAL	USED FOR COURSE GRADE
1	80 points	80 points	Max of midterm and final exam unit score
2	80 points	80 points	Max of midterm and final exam unit score
3	n/a	80 points	Final exam unit score
4	n/a	80 points	Final exam unit score

Overall course grade

Your overall course grade is determined as follows:

If you *fail (<160/320) either* the lab exam *or* the written exam component of the course, you will fail the course as a whole.

If you *pass (>=160/320) both* the written exam *and* the lab exam components of the course, then your course grade is determined by the total number of points you earned in the course (see table below).

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

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 12month 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, April 19, 2019**.

Course Schedule

You are required to attend *your* assigned sections unless advanced arrangements have been made with the instructors

Section A		Section B	
LEC	MWF 12 - 12:50 pm Knox 104	LEC	MWF 5 - 5:50 pm Cooke 121
Labs: All are held in Baldy 21			
A1	T 8 - 9:50 am	B1	F 6 - 7:50 pm
A3	T 4 - 5:50 pm	B2	W 8 - 9:50 am
A5	M 8 - 9:50 am	B3	R 10 - 11:50 am
A7	W 4 - 5:50 pm	B4	T 2 - 3:50 pm
A8	R 8 - 9:50 am	B5	W 2 - 3:50 pm
A10	T 10 - 11:50 am	B6	T 8 - 9:50 pm
A11	T 12 - 1:50 pm	B7	W 12 - 1:50 pm
A12	T 6 - 7:50 pm	B8	W 8 - 9:50 pm

A14	F 4 - 5:50 pm	B9	F 8 - 9:50 pm

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.

Accessibility Resources

60 Capen Hall https://www.buffalo.edu/studentlife/who-we-are/departments/accessibility.html
Phone:(716)645-2608 Fax:(716)645-3116

Accessibility Resources is UB's Center for coordinating services and reasonable accommodations for individuals with disabilities to ensure their equitable access to all programs, services, and benefits of the University through individualized review, planning and collaborative implementation across campus. Providing a safe, welcoming, and comfortable approach that values disability as a vital contribution to diversity, we put meaningful participation opportunity into practice.

Counseling Center

120 Richmond Quad https://www.buffalo.edu/studentlife/who-we-are/departments/counseling.html
Phone:(716)645-2720 Fax:(716)645-2175

Counseling Services helps UB students manage college — and life. Here, students always have someone to talk to about any emotional issues, including dealing with stress, handling a crisis, or coping with the transition to the university. As the university's mental health agency for students, Counseling Services provides individual counseling, group counseling and workshops for students with a wide range of concerns, from developmental issues to severe psychopathology.

Distractions in the Classroom - Behavioral Expectations

OBSTRUCTION OR DISRUPTION IN THE CLASSROOM – POLICIES UNIVERSITY AT BUFFALO

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:

- Attending classes and paying attention. Do not ask an instructor in class to go over material you missed by skipping a class or not concentrating.
- Not coming to class late or leaving early. If you must enter a class late, do so quietly and do not disrupt the class by walking between the class and the instructor. Do not leave class unless it is an absolute necessity.
- Not talking with other classmates while the instructor or another student is speaking.
- If you have a question or a comment, please raise your hand, rather than starting a conversation about it with your neighbor.
- 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.
- Not eating and drinking during class time. ○ Turning off the electronics: cell phones, pagers, and beeper watches. ○ Avoiding audible and visible signs of restlessness. These are both rude and disruptive to the rest of the class.
- Focusing on class material during class time. Sleeping, talking to others, doing work for another class, reading the newspaper, checking email, and exploring the internet are unacceptable and can be disruptive.
- Not packing bookbags or backpacks to leave until the instructor has dismissed class.

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

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