

## Instructors

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See Moodle for schedule of office hours.

## Course Description and Goals

Welcome to CSCI 203! This course gives you a broad introduction to the exciting field of Computer Science and is dedicated to writing elegant code in Python programming language, applying different problem solving approaches, learning how computers performs their tasks and what computers cannot do.

The course has two central aims. Upon completion of this course, successful students will be able to:

**Aim 1:** Solve computational problems through the process of design, implementation, documentation and testing, in particular:

1. Break a computational problem into manageable subproblems.
2. Write an algorithm to solve the specific problem, and then translate that algorithm into a program in a specific programming language (Python).
3. Write clear, concise documentation for their code.
4. Develop test cases to verify proper program operation.

**Aim 2:** Explore the breadth of Computer Science as a discipline and how it exists in the world, in particular:

1. Identify applications of Computer Science in society.
2. Describe the BIG questions in Computer Science.
3. Describe the relationship between a number of major sub-disciplines within Computer Science including software development, computer organization, and computability.
4. Practice solving problems in functional, object-oriented, and imperative programming paradigms.

## Learning outcomes addressed in this course

1. Ability to design, implement, test, and evaluate programs that solve introductory computational problems. (ABET a, b, e)
2. Ability to explain and apply computational thinking to problems in CS and other disciplines. (ABET h, j)

## Course Materials

**Textbook** We will be using a draft of a new textbook that is available for FREE as an e-book on the CSCI 203 course website.

**Course Website** Most of the course materials will be available through the course web page. Visit: <http://www.eg.bucknell.edu/~csci203/>

**Moodle** Use this link to access Moodle, where you will find selected lecture notes, participate in forum discussions, submit your work for labs and homework assignments and access grade information. <http://moodle.bucknell.edu/course/view.php?id=????>

## Key factors of success in this class

### Reading

You are expected to complete any assigned reading by class time. Be prepared to discuss the reading material in class.

Each week as part of the homework assignments, you will be asked to complete a number of readings and answer short questions about them. These readings describe real-world applications of various aspects of computer science.

### Pair Programming

You are encouraged to work in pairs as it is a great way to learn, produce excellent programs and keep up with the schedule. The pair programming strategy is widely adopted by software development companies. In the first part of the semester, individual and pair assignments will alternate, to let you explore the advantages of both approaches. After the first exam, you will have choice whether to work individually or in pairs for the rest of the semester.

Assignment problems will be designated as *individual*, which you should complete on your own, or *pair*, which you can complete with one other student. In general, programs written in pairs are known to have better designs and fewer errors than programs produced by developers working alone.

**Guidelines for pair programming** If you choose to work with a partner, you must work with the same partner for the entire assignment that week. You and your partner will each submit their own solution for each problem. If you hand in as pairs, the solutions must be identical, otherwise we will grade them individually. However, both students must submit a Moodle “Note” indicating that you worked in a pair, and who your partner was. You may switch partners between assignments.

If you choose to work with a partner, *you must work together in front of one computer for every problem that you complete together*. While you are working, the computer screen should be visible to both people. One person should type, while the other person observes, critiques and plans what to do next. You must switch roles periodically. You may think about the problems individually and make minor bug fixes, but your solution overall should be a true joint (collaborative) effort. **NOTE:** *Splitting up the work is not permitted. Both team members must work on each problem together.*

### Maintaining Academic Integrity

We expect *all* students to read and abide by the principles clearly explained in the university’s academic responsibility policy at <http://www.bucknell.edu/x1324.xml>.

The computer science department has an extension to this policy that explains how it applies to computer science. *It is very important that you read and abide by this policy also.* You can read the extension here: <http://www.bucknell.edu/Documents/Engineering/ComputerScience/student-conduct-policy.pdf>.

In this course, all submitted projects, labs and homework assignments will be electronically compared to other student’s work in this and past semesters. Incidents of irregularities will be referred to the University’s Board of Review on Academic Responsibility. Academic dishonesty is a serious offense.

A friendly reminder of Bucknell University Honor Code: *As a student and citizen of the Bucknell University community,*

- 1. I will not lie, cheat or steal in my academic endeavors.*
- 2. I will forthrightly oppose each and every instance of academic dishonesty.*
- 3. I will let my conscience guide my decision to communicate directly with any person or persons I believe to have been dishonest in academic work.*

4. *I will let my conscience guide my decision on reporting breaches of academic integrity to the appropriate faculty or deans.*

## Professionalism

We will practice quality behavior befitting a professional. Professionalism is defined by many criteria, most of which are common sense. As a general guideline, behave as you would in your dream workplace. If some low-quality behavior (for instance, arriving late or unprepared, shirking group work) does not belong to the workplace, it does not belong to our classroom either.

To encourage a professional, respectful atmosphere that is conducive to maximal learning in the classroom:

- Avoid using computers in class for any activity that is not directly related to class (do not surf the net, use any IM or chat programs, read blogs, update your Facebook status, etc. ) The best strategy is not to bring computer/tablet to class at all.
- Silence the cellphones during class (this includes muting any vibrate setting) and avoid sending or reading text messages.
- Be on time and do not leave before the class is over.
- Do not use the classroom to catch up on your sleep.

Take the above guidelines very seriously. One-time violators may be asked to leave, systematic violations will reflect negatively on the participation grade.

**Attendance** Attendance of all lectures and laboratory sessions is expected. Since we are not following the textbook very closely, attending lectures becomes extremely important. If you have a good reason to miss a lab or a class, e.g., if you are sick, please send your instructor e-mail *before that class*. If you need to miss a lab, send an email message to both your lecture and lab instructors. If you miss a class, ask your classmates for notes and carefully review the missed material. Then follow up with instructors or TAs if you have questions.

**Participation and engagement** As an adult, *you* are responsible for *your* education at Bucknell. Take your learning in your hands: do the reading before you come to class, ask and answer questions in class and on Moodle, talk to your instructor frequently, help others and ask other for help, work with others to study and solve problems. You are responsible for the material presented in class. If there are concepts that seem unclear, be sure to ask questions to get clarification. If you are having a tough semester and discover you have fallen behind, please visit with your lecture instructor sooner rather than later, we will be very happy to work with you and help you catch up.

A friendly reminder of **Bucknell University's expectations for academic engagement**: "Courses at Bucknell that receive one unit of academic credit have a minimum expectation of 12 hours per week of student academic engagement. Student academic engagement includes both the hours of direct faculty instruction (or its equivalent) and the hours spent on out of class student work. Half and quarter unit courses at Bucknell should have proportionate expectations for student engagement."

**Brownie points** We will practice asking others for help and acknowledging their assistance using an experimental system of brownie points. There is a place on Moodle to ask your questions about the class. Every question you resolve for a classmate will result in 1 brownie point. There will be a special entry on Moodle to account for those points. If someone has fully answered your question, post a note there saying "Brownie point to ... for ...!" (for instance, "Brownie point to Anastasia for explaining the rules of this class!"). Sometime in the semester, brownie points will turn into something sweet :)!

## Assignments and Assessments

**Homework and Laboratory work** There will be a homework assignment each week. Portion of the assignment designated as Lab needs to be completed during your scheduled lab hours, in your assigned computer lab. Assignments should be submitted electronically using Moodle by 11:00 p.m. on the due date. Submission instructions are provided on the class website.

**Exams** There will be two midterm exams and a comprehensive final exam. The first exam will be in class on Friday, September 27, and the second exam will be in class on Friday, November 1. The final exam will be scheduled by the Registrar.

**Final Project** During the final two weeks of the semester, you will complete a final project. You will choose your project from a small set of open-ended problems; more details on the project will be given as the semester progresses. The final project counts as two homework assignments in your grade.

**Quizzes and warm-up exercises** There will be short quizzes (3-5 minutes containing questions selected from the current reading material, including the Problem 0 articles) or practice problems. They will be given in the beginning of a lecture or via Moodle. *You must be in lecture to take the quiz.* A missed quiz will receive a grade of 0 (No make-ups are not allowed, but your lowest quiz grade will be dropped from the final grade). Occasionally, there will be small warm-up exercise to be completed at home, a Moodle discussion or peer evaluation that you'd be asked to participate in or another small-scale assignment in addition to your homework. Grades for these assignments will be accounted in *Professionalism and Participation* part of the total grade.

## Grades

The course grade will be distributed as follows:

Labs and Homework Assignments	40%
Exam 1	15%
Exam 2	15%
Final Exam	20%
Professionalism and participation	10%

A few additional rules: In order to receive a passing grade for the course, you must receive a passing grade (60% or above) both in the lab/homework portion *and* in the exam portion. Missing a significant number of classes (over 10%) will result in lowered final grade.

## Special Circumstances

### Late Homework Policy

Homework is due on the day indicated at 11:00 PM. (Homework problems 0 and 1 will usually be due on Thursdays and the rest will be due on Sundays unless otherwise indicated). At the beginning of the semester you will receive three late cards, each of which may be used for one 24-hour extension on any one homework assignment. If you submit your homework after the deadline, you will automatically use a late card. You do not need to tell us that you're using a late card. We will notice based on your submission time and automatically deduct a late card. Homework that is more than 24 hours late or submitted after the deadline when no late cards remain will *not* be accepted. If you worked with another student on a late assignment, then *both* students will use a late card. If we receive a late assignment and only one student has a late card remaining, then only that

student will get credit for the assignment. The final project will have two phases, each with its own deadline. The above rules apply to both deadlines. If you have late cards left at the end of semester, you can use them for the final project.

In extreme circumstances (such as serious illness), you should notify your instructor and request due date extension *before* the assignment in question is due.

### **Missed Work**

No make-up quizzes and other small exercises will be given. No late homework will be allowed beyond the rules provided in the *Late Homework Policy* section. No make-up midterm examination will be given without proper documentation justifying your extenuating circumstances that caused you to miss the exam. You *must* follow these rules:

1. Inform your instructor that formal documentation is coming from a physician, coach or other authority prior to the absence if possible, but no later than the first class period after the excused absence
2. Bring the original documentation justifying your extenuating circumstance to your instructor *and* the Dean as soon as possible. The Dean will approve or disapprove your extenuating circumstance.
3. If they approve it, please bring a copy of the documentation to your instructor for him/her to keep.
4. Work with your instructor to schedule a make-up to happen as soon as possible.

Failure to provide adequate documentation in a timely fashion that justifies your extenuating circumstance will result in a zero for the exam. The make-up must be scheduled to occur within a week after you return.

Sports, performance, conference, job interview trips are not considered an emergency. If you need to go on such trip, you must follow appropriate school policy. If approved, assignment can be given to you early, an exam may be sent to your coach for you to complete on your trip.

**Regrade requests** If your grade is less than 100% of points and you have questions why points were deducted, please see your lecture instructor as soon as possible but no later than two weeks after the graded assignment or exam was returned. Timely resolution of all questions will help you avoid making the same mistake in another assignment! If you believe that points were deducted incorrectly, please submit regrade request addressed to TA Eric Bacon via email (copy your lecture instructor on that email) within two weeks after the graded homework is returned (late regrade requests will not be considered).

**Special accommodations** If you have a physical, mental or learning disability, either hidden or visible, which may require classroom, test-taking, or other reasonable modifications, please see your Associate Dean as soon as possible. If you have been granted special accommodations, please inform your instructors in a timely manner (a week before accommodations are needed would be considered timely).

**Important disclaimer** The instructors promise the best effort in adhering to the above rules but reserve the right to change them if deemed necessary. For instance, slight alterations to the course schedule are possible if the class needs more/less time for a certain topic; additional readings may be assigned during the semester as needed; and so on. Updates will be announced in class and by email, posted on course webpage and on Moodle. Check your Bucknell email at least daily.