

Introductory Missive

Spring, 2008

Introduction

Welcome to CS4, an Introduction to Scientific Computing.

The CS4 website can be found at <http://www.cs.brown.edu/courses/cs004>. There is also a MyCourses site for the course at <http://mycourses.brown.edu>. With the advent of Banner, the official course number changed from CS4 to CSCI0040. You will find lingering references to the old number (some things are hard to change).

From the course announcement:

An introduction to computer programming and software design in a high-level language. Emphasizes fundamental techniques and strategies for solving scientific problems with computers. Illustrates abstract concepts with a wide range of exemplary applications from engineering, the sciences, and the humanities. Intended primarily for students not concentrating in computer science who want a single application-oriented programming course. No prerequisites.

The important part in the above blurb is that there really are no prerequisites. You don't need to have programmed before. As far as math goes, we will use some simple algebra and trigonometry, a little linear algebra (vector and matrix operations, systems of equations), and basic calculus. You will find these plus some basic ideas from the sciences, engineering, economics, and other fields discussed in lecture and covered in the assignments and exams. However, we don't expect you to be familiar with all of these topics. We will teach you what you need to know and provide equations to use in your programming assignments.

During the semester, you will learn two programming languages. The first and the primary focus of the course is MATLAB, a language designed for numerical calculation and visualization. The second is the C language, a high-level language used in a variety of applications.

Instructors

The course has a professor, three undergraduate Head Teaching Assistants (HTA), and thirteen Undergraduate Teaching Assistants (UTA).

Professor	Phone extension	Office	Email
Alan Usas	3-7312	CIT 329	ausas@cs.brown.edu

Prof. Usas holds office hours by appointment. Use email to contact him.

Teaching Assistants	Email
Todd Allan Shortlidge, HTA	tshortli@cs.brown.edu
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You can send mail to the entire course staff by e-mailing cs004tas@cs.brown.edu, or to the Head TAs and the professor by e-mailing cs004headtas@cs.brown.edu.

Assignments and Grading Scheme

Your final grade is determined by your grades on individual assignments, as follows:

Type	Percentage
Class Participation and Quizzes	5 %
Weekly TA-led collaborative lab sections	15 %
Weekly written homework sets	40 %
Two take-home exams	40 %

The first exam will cover the MATLAB content in the course, and the second exam will cover C programming. Note that you must score above 50% on both exams to pass the class. Final grades will be assigned on the scale: 90-100, A; 80-89, B; 70-79 C.

Quizzes

Quizzes are short problems given in lecture that take no longer than 5-10 minutes to complete; they are designed to help you understand the lecture and to help us test your understanding of the course material. You must attend lecture to receive credit for quizzes.

Labs

Labs in CS4 are meant to be precursors to homeworks in the sense that they help you to familiarize yourself with skills and topics that will be useful to you and which you will encounter in the homework. They also get you started on your actual homework assignment while there is a TA around to help.

Everyone will attend one lab per week at a specified time that they will sign up for at the beginning of the course. Labs will be held in the “Sun Lab” (room 143 in the CIT). You will be required to attend lab at the same time every week unless you have special permission from the teaching staff.

Labs and homeworks will be handed out together each week. Please read them before you come to lab so you are prepared. The better prepared you are, the easier it is for the TAs to help you.

You should check in with the lab TA at the beginning of each two-hour lab session. At the end of the two hours (or before, if you finish early), you must have your work approved by your lab TA. The labs are designed so that, given a little preparation beforehand on your part, you should be able to complete the lab within the two-hour period allotted. You must check in with your lab TA before leaving in order to receive any credit for the lab.

Homework

Homework assignments are designed to help you internalize the course material; they consist of written problems and short programming tasks. Homework will be assigned each week, and you will have about one week to complete it. You will hand in your homework electronically using the instructions given on each homework. Homework not turned in by the due date will be given no credit.

Exams

As the only completely non-collaborative type of assignment in the course, exams account for a significant portion of your grade. Lest that sound too scary, you should know that they are take-home and open-notes—essentially

a longer and harder homework assignment that you do by yourself.

The two exams are weighted as follows within the exam category. The MATLAB exam counts 60% and the C exam counts 40%. **You must achieve at least 50% on each exam to pass the course, although that alone is not sufficient to earn a passing grade.**

Collaboration Policy

In order to make sure that every student is evaluated fairly and according to the amount she or he learns, we have instituted a few rules governing collaboration. Note that these rules are specific to CS4; rules vary widely from course to course.

- **Labs**

Collaboration is strongly encouraged in labs. Learn from each other and from the TAs. However, each student must type up his/her own solution and understand it fully.

- **Homework**

The only type of collaboration allowed on homeworks is high-level discussion about how to approach a problem or review of concepts covered in class. You may not look at another student's code, nor read any part of your code aloud to another student. No code should be shared between students.

- **Quizzes**

Quizzes will be given in class, and no collaboration is allowed.

- **Exams**

No collaboration is allowed on the two take-home exams. You will be required to sign your exam before you hand it in to acknowledge that you did not work with anyone else on your exam or obtain help from anyone other than the TAs or the professors. Indeed, to be certain that there is no doubt at all about exam collaboration, you may not discuss the exam *in any way* with anyone except the TAs and professor. That means you can't even chat with friends over dinner about how hard it is.

Important Note

The TA staff is trained to look for collaboration policy abuses and makes use of software designed to recognize collaboration in programming assignments.

Violating the collaboration policy is a violation of the Academic Code, and can result in all of the punishments detailed by the University. Just don't.

Where To Get Help If You Need It

TA Hours

TA hours will be held in the TA rooms on the second floor of the CIT. These rooms are usually room 271 (aka. the Birdcage) and room 227 (aka. the Moonlab). Check the website for any changes to these rooms as well as the official times of TA's office hours. TAs will gladly clarify homework questions, explain concepts covered in lectures, programs and homeworks, and help you with general questions about the class.

TAs are here to help you, but remember that TAs are students too. Please don't ask them questions outside of official TA hours or labs. TAs have their own classwork to do. If you ever feel that you can't possibly make the scheduled TA hours, please talk to the Head TAs. If you need to speak with someone during business hours, try contacting Professor Usas.

The Discussion Board and E-Mail

Announcements, assignment clarifications, info about upcoming CS talks, interesting links, and more will be posted to the course discussion board on MyCourses, `mycourses.brown.edu`. You can post questions there (as long as they don't give away your answer to a problem or violate the collaboration policy), and the TAs will answer them pretty quickly. If you want to know something about the course, the discussion board is a good first place to check; chances are someone else wanted to know, too. If you have a question that is inappropriate for the discussion board (i.e. is too specific or revealing to tell the whole class about), please come to TA hours or mail `cs004tas@cs.brown.edu`.

The Web

Homeworks, labs, lecture notes, documentation, important notices, and nifty links will all be available from the course web page in a plethora of formats. Please check the web page as often as you can (within reason, of course—go out and enjoy the sunshine every now and again), as important notices, corrections, etc. will be posted there. The CS4 web page can be found at <http://www.cs.brown.edu/courses/cs004/>. MyCourses will mainly be used for the discussion board and for posting grades. Most course material will be on the website.

What To Do If You're Bored

There will occasionally be extra problems on homeworks and exams. Schedule a meeting with Professor Usas if you feel that the pace of the class is too slow.

Texts, Class and Notes

This class has no required texts. Your main text will be the lecture notes available on the course web page; you can also find online documentation about Matlab on the website or in the Matlab help browser. A few books will be placed on reserve in the Library for both MATLAB and C. Other resources will be identified online. You are strongly encouraged to read the lecture notes from each class before the next one; you may be quizzed at the beginning of class on your understanding of the previous material. We ask this of you because our course material builds on itself rather intensely, and we feel that mastering each lecture's material as it happens will be easier in the long run than falling behind and having to catch up.

You are responsible for the material covered in class even if you do not attend or if the material is not mentioned in the online class notes.