

CS 1060: Explorations in Computer Science

Administrative Details and Syllabus

Spring 2012

Description

Applications of modern computing have transformed the ways that people communicate, govern, learn, play, shop, socialize, and work. The rapid pace at which computational innovations appear, combined with the surface complexity of the digital world, lead most people to despair of ever learning how it all works. The good news, however, is that mastering a small number of scientific principles and engineering strategies leads directly to a high-level understanding of the vast field of computing. The scientific principles – representation, abstraction, and algorithm – date back many hundreds of years and are the intellectual basis of computing. The engineering strategies – digital circuits, stored programs, programming languages, and networks – date back roughly sixty years and are the practical basis of computing. This course introduces these seven principles and shows how they make possible such disparate technologies as web search engines, computer-animated movies, computer games, digital music, and artificial intelligence.

There are no pre- or co-requisites for this course. The course assumes no background in computing beyond the ability to use a computer to send email, browse the web, and write papers. The course is appropriate for students seeking an understanding of computational principles that will complement their major field of study.

This course satisfies the Applied Science (AS) Intellectual Explorations requirement.

Instructor: David Johnson

Email: dejohnso@cs.utah.edu.

Office: 2875 WEB

Office Hours: See the class website.

Teaching Assistant: See the class website for the TA consulting schedule.

Class Meetings: Mondays, Wednesdays, and Fridays 10:45-11:35a in 1230 WEB

Communication

A key responsibility for a student in this course is to use the online class website and to check it regularly for due dates, updated materials, and corrections. The class website is at

www.learning.eng.utah.edu

(select CS 1060). It will be updated throughout the semester with the class schedule, assignments, links to course software, and much more. The website requires users to log in, and first-time users will need to establish a new account (the enrollment key is 1060).

It is critical that students become familiar with the class website right away. To send urgent messages to everyone in the class, such as corrections to assignments or changes in due dates, the course staff will make use of the email addresses that students provide when establishing a new account on the class website. Students are expected to check their email and the class website regularly.

Students who would like to ask a question of the course staff should use the staff mailing list (teach-cs1060@eng.utah.edu). The course staff will respond to each question directly. Please do not use the messaging system internal to the class website – it does not provide notifications of mail to the course staff and will likely not be reviewed in a timely manner.

Course Materials

The required text for the course is

Nine Algorithms That Changed the Future: The Ingenious Ideas That Drive Today's Computers,
by John MacCormick.

This will be supplemented by readings available online, or through materials posted on the course website. There are also a few software programs that the class will use to explore computer science concepts. These should all run on a standard computer or can be found on machines in the college of engineering computer labs.

Lectures

This class will meet for lecture three times a week for fifty minutes. The instructor will often make use of slides during lecture, and the slides (along with any other materials pertinent to the lecture) will be posted on the class website. Students are encouraged to take notes in class and should not expect to rely solely on posted slides to recall the material covered in each lecture. Lectures will often involve in-class demonstrations and experiments. Students are expected to participate actively by asking and answering questions. The lecture schedule is posted on the class website as a weekly outline, and many lectures have corresponding reading assignments.

Assignments

Students will practice the concepts learned in the classroom by completing **weekly** assignments. Most assignments will be computer-based and will entail investigating computational phenomenon using provided software. Each assignment will clearly indicate how and when students should submit their solutions. Students are expected to submit completed assignments by the posted due date and time.

Testing

Student progress will be evaluated frequently throughout the semester by a number of quizzes to be given in class. Quiz dates will be announced with at least one-week notice. Further, a number of practice tests will be administered through the class website, and completion of such practice tests will be graded (see below).

The final exam for this class is cumulative and will be given on Thursday, May 3, 2012 from 10:30 am – 12:30 pm in 1230 WEB.

Grading

The final course grade will be based on a number of evenly-weighted assignments (55% total), a number of evenly-weighted quizzes (20% total), a final examination (20%), and class participation (5%). The class participation grade will be based on completion of practice tests, class polls, and overall contribution to class meetings.

The lowest scoring assignment and lowest scoring quiz score will be dropped.

Scale for assigning letter grades:

A 100-93 **A-** 93-90 **B+** 90-87 **B** 87-83 **B-** 83-80 **C+** 80-77 **C** 77-73
C- 73-70 **D+** 70-67 **D** 67-63 **D-** 63-60 **E** 60-0

Students who wish to appeal a grade on an assignment or a quiz must do so within one week of receiving the grade.

Working Together

Students are encouraged to discuss assignments with fellow classmates, but each student is responsible for writing an individual answer. Cheating is: sharing written or electronic work either by copying, retyping, looking at, or supplying a copy. Cheating is not: discussing concepts, answering questions about concepts or clarifying ambiguities, or helping someone understand how to use the class tools and software.

Of course, there must be no collaboration during examinations. Please see the University of Utah Student Code (www.regulations.utah.edu/academics/6-400.html) for a detailed description of the university policy on cheating.

Students with Disabilities

The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. Students who need accommodations in this class should give reasonable prior notice to the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with the student and instructor to make arrangements for accommodations.