CS 2100: Discrete Structures

Administrative Details and Syllabus
Fall 2018

Important Information

Class Website  Canvas (available through CIS)

Lectures  Tuesdays and Thursdays 12:25-1:45p in L104 WEB

Discussions  Fridays 9:40-10:30a (L120 WEB), 10:45-11:35a (2250 WEB), 11:50a-12:40p (L122 WEB), or 12:55-1:45p (L122 WEB)

Instructor  D. Erin Parker, 3144 MEB


Important Dates  Mark your calendar – quizzes* and exam may not be missed!

Quiz 1  Thursday, September 6 (in class)
Quiz 2  Thursday, September 27 (in class)
Quiz 3  Thursday, October 18 (in class)
Quiz 4  Thursday, November 8 (in class)
Quiz 5  Tuesday, December 4 (in class)  *Lowest quiz score will be dropped
Final exam  Wednesday, December 12 (10:30a-12:30p)

Final course grade  Quizzes 60%, Final exam 25%, Homework assignments 15%

Prerequisites  CS 1410 and MATH 1210

Course Information

CS 2100 provides an introduction to the discrete mathematics and structures that are at the foundation of computer science, as well as teaches logical thinking about discrete objects and abstract things.

Fair warning. The pacing in this class is brisk. Students should be aware that not all of the topics they need to know will be covered during lectures. Students should spend a considerable amount of time reading, studying, and solving problems outside of lecture.

The prerequisites for this course are grades of C- or better in CS 1410: Introduction to Object-Oriented Programming and MATH 1210: Calculus I (or higher math). Students who do not meet these prerequisites will be removed from CS 2100 in the first week of class.
Course Materials

Website. The class website is a Canvas course available through CIS. *It is always under development,* with updates to the class schedule, lecture notes, homework specifications, and more, occurring regularly. It is critical that students become familiar with the class website right away and plan to visit it several times a week, at a minimum.


Lecture notes. The instructor often makes use of slides, sample problems, and other materials during lecture. These items are posted on the class website following the lecture; however, such posted items may not represent completely the material covered in class. Students who must miss class are strongly encouraged to check with a classmate.

Announcements. Important course announcements will be posted to Canvas and done so sparingly. Make sure to set up Canvas notifications appropriately to receive the announcements in a timely manner. Ideally, each student should receive an email notification as soon as an announcement is posted.

Personal computers. Students may use their own computers for completing homework assignments (typing problem solutions and taking Canvas quizzes); however, broken tools or computers, or network connectivity issues are not sufficient basis for a homework deadline extension. Plan ahead and use the lab computers if your own computer is not working.

Student Evaluation

In-class quizzes. Five quizzes will be given in class on 9/6, 9/27, 10/18, 11/8, and 12/4. *Make-up quizzes will not be arranged for any reason other than a documented medical emergency.* The four highest quiz scores for each student will be used to compute their final course grade; therefore, students who cannot be in attendance for one of the quiz dates above should plan to use their “drop” score accordingly. Students who cannot be in attendance for more than one of the quiz dates above should plan to take CS 2100 in a future semester.

NOTE: In-class quizzes are not the same as the Canvas quizzes, which are parts of homework assignments (see below).

Final exam. The exam is cumulative and will take place Wednesday, December 12 10:30a-12:30p in L104 WEB. *This date and time is set by the University, is not negotiable, and may not be missed.*

Homework assignments. Assignments are given to help students prepare for in-class quizzes and the final exam. The specifications, deadline, and submission instructions for each assignment will be posted on the class website. Give yourself time to think about the material. Plan on working on the assignments a little each day, and ask questions when you get stuck. Do not plan on solving an assignment all at once; it actually takes much longer to finish!

Suggested steps for approaching CS 2100 homework assignments:

1. Read the relevant sections of the textbook in a timely way.
2. Try solving the practice problems, as well as the “blue” problems that are solved for you in the back of the book.

3. Try solving the assigned homework problems.

4. If you are struggling with either step 2 or 3, try doing the online activities on the textbook’s website (goo.gl/JLjfL8).

5. If you are still struggling after step 4, make use of the instructor’s office hours and/or the TA help hours (see the class website for schedules).

Homework assignments are to be done independently. It is acceptable for you to discuss how to solve problems with classmates, but copying solutions is considered academic misconduct.

Each homework assignment consists of three parts:

- Page and problem numbers from the textbook (see the textbook for the full statement of each such problem)
- Full statements of problems that are not in the textbook
- Canvas quizzes

The Canvas quiz part of each assignment can be attempted any number of times taking any amount of time until the assignment deadline. Only students with perfect scores on the Canvas quiz parts of the assignment are eligible for full credit on that homework assignment. (More information on how assignments are graded will be posted with the first homework.)

It is the students’ responsibility to ensure the successful and timely submission of each assignment — start early and follow the instructions carefully. Corrupted or missing files are not grounds for extensions — double-check your submissions and save a digital copy of all of your work in your CADE account.

Final course grade. The final course grade is based on in-class quizzes (60%), the final exam (25%), and homework assignments (15%).

Regrades. Students who wish to appeal a score on a homework assignment or an in-class quiz must do so within one week of receiving the score and use the Regrade request form on the class website.

Letter grades. The following table is used to associate numerical scores with the corresponding letter grade. Note the lack of rounding.

<table>
<thead>
<tr>
<th>Number Range</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>93 ≤ X ≤ 100</td>
<td>A</td>
</tr>
<tr>
<td>90 ≤ X &lt; 93</td>
<td>A-</td>
</tr>
<tr>
<td>87 ≤ X &lt; 90</td>
<td>B+</td>
</tr>
<tr>
<td>83 ≤ X &lt; 87</td>
<td>B</td>
</tr>
<tr>
<td>80 ≤ X &lt; 83</td>
<td>B-</td>
</tr>
<tr>
<td>77 ≤ X &lt; 80</td>
<td>C+</td>
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<tr>
<td>73 ≤ X &lt; 77</td>
<td>C</td>
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<tr>
<td>70 ≤ X &lt; 73</td>
<td>C-</td>
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<tr>
<td>67 ≤ X &lt; 70</td>
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<tr>
<td>63 ≤ X &lt; 67</td>
<td>D</td>
</tr>
<tr>
<td>60 ≤ X &lt; 63</td>
<td>D-</td>
</tr>
<tr>
<td>X &lt; 60</td>
<td>E</td>
</tr>
</tbody>
</table>

Getting Help

To get help understanding course material, students may see the Teaching Assistant(s) during TA Help Hours, see the instructor during Office Hours, post a question to the Q&A forums on Piazza (https://piazza.com), or contact the course staff directly (also via Piazza). See Important CS 2100 Information → How to get help in CS 2100 on the class website for details.
Policies and Guidelines

CS 2100 laptop policy. Students are expected to engage with the instructor and classmates during class meetings. Students are permitted to use a laptop or mobile device to take notes. *Use of a laptop or mobile device for any other purpose is not permitted, and students who do so will be asked to leave the classroom.*

UofU Student code. All students are expected to maintain professional behavior, according to the University of Utah Student Code at [www.regulations.utah.edu/academics/guides/students/studentRights.html](http://www.regulations.utah.edu/academics/guides/students/studentRights.html). Students should read the Code carefully and know that they are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee.

Other policies and guidelines. CS 2100 students are also bound by the following policies and guidelines:

- CS 2100 Academic Misconduct Policy ([www.cs.utah.edu/~parker/2100_Fa18_amp.pdf](http://www.cs.utah.edu/~parker/2100_Fa18_amp.pdf))
- The School of Computing Policies and Guidelines ([www.cs.utah.edu/socguidelines](http://www.cs.utah.edu/socguidelines))
- The College of Engineering Guidelines ([www.coe.utah.edu/students/academic-affairs/academics/semester-guidelines](http://www.coe.utah.edu/students/academic-affairs/academics/semester-guidelines))

Students should thoroughly read and understand each of these documents, asking questions as needed.

Syllabus

The following are the key topics planned for study and the corresponding chapters in the course text. See the class website for a detailed schedule.

- Modules 1A and 1B: Mathematical Reasoning: (Chapters 1 and 2) – Introduction to formal mathematical statements, logic, theorems and proofs, fundamental strategies for proving mathematical statements.
- Module 2: Set Theory and Boolean Logic: (Chapter 3) – Introduction to sets, set operations, proving set properties, and Boolean Logic.
- Module 3: Relations and Functions: (Chapter 4) – Introduction to relations, equivalence relations, functions, and properties of functions.
- Module 4: Combinatorics and Probability: (Chapters 5 and 6) – Basic combinatorics, counting principles, and an introduction to discrete probability.
- *If time permits,* Module 5: Graph Theory: (Chapter 7) – Basic graph theory and networking.