

SYLLABUS

CSCI 2270: COMPUTER SCIENCE II - DATA STRUCTURE

SUMMER 2018, 4 CREDITS, JUNE 4 – JULY 27, 2018

Section 300:

Lecture

When: Monday, Tuesday, Wednesday, Thursday 9:15-10:35 am

Where: ECES 114

Recitation

When: Friday 10:00-10:35am

Where: ECES 114

Section 310:

Lecture

When: Monday, Tuesday, Wednesday, Thursday 11:00-12:20 am

Where: ECES 114

Recitation

When: Friday 11:00-12:20am

Where: ECES 114

INSTRUCTOR INFORMATION

Name: Christopher Godley

Email: christopher.godley@colorado.edu

Office Location: ECCS 1B21B

Office Hours: (Feel free to attend either section's office hours unless otherwise notified)

Section 300: Tuesdays 1:00-3:00 pm

Section 310: Wednesdays 1:00-3:00 pm

TA INFORMATION

Name: Shudong Hao

Email: shudong.hao@colorado.edu

Office Location: TBD

Office Hours: TBD

PRE-REQUISITES

Requires prerequisite courses of CSCI 1300 or CSCI 1310 or CSCI 1320 or ECEN 1030 or ECEN 1310 and APPM 1345 or APPM 1350 or MATH 1300 or MATH 1310 (all minimum grade C-). COURSE TOPICS Studies data abstractions (e.g., stacks, queues, lists, trees) and their representation techniques (e.g., linking, arrays). Introduces concepts used in algorithm design and analysis including criteria for selecting data structures to fit their applications.

TEXTBOOKS AND MATERIALS

Course materials, such as lecture notes and assignments, will be available in electronic form on the Moodle site for the course: <http://moodle.cs.colorado.edu/>.

Required text: The textbook for this course is an ebook, which will be distributed on the course Moodle site. Hoenigman, R. 2015. Visualizing Data Structures. Lulu Press.

It is highly recommended that you get a Dropbox account or invest in a USB memory stick for saving your files. Don't lose your hard-earned progress if your computer crashes!

GRADING

Lecture Quizzes	10%	(3 times/week, due by 5pm of the following day)
Recitation	20%	(Weekly, due by 11:59pm on Thursday)
Homework	35%	(Weekly, due by 11:59pm on Friday)
Exam	15%	
Project/Final	20%	

GRADING CRITERIA:

The grades for this class follow the standard percentage breakdown for the College of Engineering:

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

COURSE CALENDAR

WEEK 1, JUNE 4 - 10

Topics:

Introduction, C++ Review, Arrays, Structs, File I/O

Algorithms and pseudocode

Pointers, Dynamic memory

Chapters:

1,2,3

Due:

Recitation 1

WEEK 2, JUNE 11 - 17

Topics:

C++ Classes introduction

Linked Lists

Chapters:

Due:

Recitation 2

Assignment 1

WEEK 3, JUNE 18 - 24

Topics:

Linked Lists

Stacks, queues

Binary trees

Binary search trees

Chapters:

Due:

Recitation 3

Assignment 2

WEEK 4, JUNE 25 - JULY 1

Topics:

Binary trees

Binary search trees

Tree-traversal algorithms

Tree balancing

Chapters:

Due:

Recitation 4

Assignment 3

Midterm June 29; 5-7pm

WEEK 5, JULY 2 - 8

Topics:

Tree-traversal algorithms

Tree balancing

Chapters:

Due:

Recitation 5

Assignment 4

WEEK 6, JULY 9 - 15

Topics:

Graphs

Breadth-first search

Depth-first search

Recitation:

Due:

Recitation 6

Assignment 5

WEEK 7, JULY 16 - 21

Topics:

Graphs

Dijkstras algorithms

Priority queues

Recitation:

Due:

Recitation 7

Assignment 6

WEEK 8, JULY 22 - 28

Topics:

Priority queues

Review

Recitation:**Due:**

Assignment 7
Project

Honor Code: As members of the CU academic community, we are all bound by the CU Honor Code. I take the Honor Code very seriously, and I expect that you will, too. Any significant violation will result in a failing grade for the course and will be reported. Here is the University's statement about the matter: All students of the University of Colorado at Boulder are responsible for knowing and adhering to the academic integrity policy of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported to the Honor Code Council (honor@colorado.edu; 303-735-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). Other information on the Honor Code can be found at <http://www.colorado.edu/policies/student-honor-code-policy> or <http://www.colorado.edu/honorcode/student-information>.

Special Accommodations: If you qualify for accommodations because of a disability, please submit to your professor a letter from Disability Services in a timely manner (for exam accommodations provide your letter at least one week prior to the exam) so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact Disability Services at 303-492-8671 or by e-mail at dsinfo@colorado.edu.

If you have a temporary medical condition or injury, see Temporary Medical Conditions: Injuries, Surgeries, and Illnesses guidelines under Quick Links at Disability Services website and discuss your needs with your professor. Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, I will make reasonable efforts to accommodate such needs if you notify me of their specific nature by the end of the 3rd week of class. See full details at <http://www.colorado.edu/policies/observance-religious-holidays-and-absences-classes-andor-exams>

Classroom Behavior: Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veterans status, sexual orientation, gender, gender identity and gender expression, age, disability, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the policies

at <http://www.colorado.edu/policies/student-classroom-and-course-related-behavior> Discrimination and

Harassment: The University of Colorado Boulder (CU Boulder) is committed to maintaining a positive learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct, discrimination, harassment or related retaliation against or by any employee or student. CUs Sexual Misconduct Policy prohibits sexual assault, sexual exploitation, sexual harassment, intimate partner abuse (dating or domestic violence), stalking or related retaliation. CU Boulders Discrimination and Harassment Policy prohibits discrimination, harassment or related retaliation based on race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Individuals who believe they have been subject to misconduct under either policy should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127. Information about the OIEC, the above referenced policies, and the campus resources available to assist individuals regarding sexual misconduct, discrimination, harassment or related retaliation can be found at <http://www.colorado.edu/policies/discrimination-and-harassment-policy-and-procedures>