

CSCI 170 Spring 2019 Syllabus

There are five lectures:

- MW 10:00 - 11:20 in GFS 101
- MW 2:00 - 3:20 in SLH 100
- TuTh 8:00 - 9:20 in WPH B27
- TuTh 11:00 - 12:20 in ZHS 252
- TuTh 12:30 - 1:50 in SLH 102

There are four discussions:

- Friday 12:00 - 1:50 in SLH 102
- Friday 2:00 - 3:50 in GFS 106
- Friday 4:00 - 5:50 in GFS 116
- Friday 10:00 - 11:50 in SLH 102

The first lecture of each week for each grouping will cover roughly the same material as the remaining four; similarly for the second one. You are responsible for all material covered in lecture and discussion and are strongly encouraged to attend the one in which you are enrolled. However, if you miss or will miss that one, you are welcome to attend another one, subject to seating availability.

Required Textbook: *Discrete Mathematics* by Sandy Irani

This textbook is digital; subscription information is available on the course Piazza page. *There are required readings in this book; the first is due Monday of Week Two.*

Recommended Textbook: *How to Prove It: A Structured Approach*, by Daniel J. Velleman. I suggest getting the second edition, but copies of the first are fine too.

Course Announcements and Forum: we have a Piazza forum. Announcements will be made via Piazza and sent to your email. Questions that do not require the attention of any particular member of course staff should be posted on Piazza with the appropriate privacy setting. Emails sent to course staff should come from your USC email address, include your ID number, and have a meaningful subject line that begins with the substring "CSCI 170". Grades will be posted on blackboard.

Grade Calculation:

Homework:	14%		
Reading:	11%		
Quiz 1:	5%*	February 7,	7PM
Quiz 2:	10%*	March 28,	7PM
Quiz 3:	5%*	April 25,	7PM
Final/Special:	55%	May 8,	7PM

Special category:

Non-inductive proofs (3 of 5)	15%
Inductive Proofs (2 of 4)	15%
Fundamental Graph Algs (2 of 4)	10%
Counting problem (1 of 2)	5%
Discrete Probability (1 of 2)	5%
Num Theory Fundamentals (1 of 2)	5%

* The "special" category reflects that there are fundamental material topics in CSCI 170 that should be learned and demonstrated, but that I don't believe are truly forgotten, nor can they be "crammed" -- that is, you'll learn them by regular practice over time, not by one or two nights' of sleepless work right before an exam. **For example**, there are four chances to write an inductive proof on an exam in CSCI 170, two during quiz 2 and two at the final. Your two best of these count for a combined 15% of your grade. Yes, that means if you are satisfied with your grade on those questions on quiz 2, you can skip these questions on the final at no penalty! Some of these categories may be a question with multiple smaller parts.

Students whose in-class total (quizzes and special category), re-normalized, is higher than their grade calculation will get the higher grade ***if and only if*** it results in an A or A- for that student. That is, if you can achieve an A or A- average on material without submitting homework or doing the reading in advance of lecture, you aren't required to do those aspects for formal credit. Students whose re-normalized grade results in something lower than an A-, however, will not receive the boost.

Letter grades will be assigned based on the above relative weights. We will neither have a straight scale nor a straight curve. It is guaranteed that 90% of the available points will constitute an A (not an A-), although the cut-line for an A *may* be lower than that. Similarly, collecting at least 80% of the available points will be at least a B, and 70% will be sufficient (but might not be necessary) for at least a C. The initial cut-points promised here are higher than in previous semesters due to the difference in the grading mechanism.

The only factor in your grade is demonstrated knowledge in the class, and the only reconsideration requests granted are based on marking error. Requests for a grade bump based on other reasoning, such as scholarship requirements, academic eligibility, or transfer needs, will not be considered. If you need a particular grade in CSCI 170, the time to consider that is during the semester. There is plenty of opportunity for help, practice, and credit during the semester. On a related note, there are no opportunities for extra credit. Make the most of your regular credit.

Homework and Reading

This semester, we are using a digital textbook distributed by zybooks. When acquiring the book, be sure to follow the instructions given on Piazza to ensure it is linked to your account and the class. The first reading assignment is due on Monday of week two. The reading portion of your grade is based on percentage of reading assignments completed by their due dates. There are no grace days nor dropped scores for the reading, although you are still expected to complete it.

All homework assignments will be submitted via the Desire2Learn system. You will need to turn your submission into a PDF in order to do this; free scanner apps are available for most smartphones and physical scanners are available at the library. Unless you tell us otherwise, we will grade the *last* submission you make within the submission period. It is your responsibility to submit your assignment, by the due date and time, to the relevant folder in Desire2Learn. Assignments submitted by any other method without prior written authorization, including to the wrong folder on Desire2Learn or in any digital format other than PDF, will be treated as not having been submitted. Re-submission to correct for this will not be accepted.

Please form your PDF by either using a scanner app, a traditional scanner, or by type setting your homework.

Only “required” problems need to be submitted. There will also be problem sets that are not collected, although you are highly encouraged to do these.

You may submit homework to the online system by 11:59 PM on the due date. If you miss the due time, your homework is late. You are allowed three grace days over the course of the semester, to be used in integer increments. Saturday and Sunday **do count** towards grace days. If a homework assignment was due Wednesday, and you turn it in Saturday (by the collection time), you will use up all three of your late days. Homework will not be accepted beyond the allowed grace period.

Regardless of remaining number of late days, homeworks will never be accepted after solutions have been posted: solution post times will always be announced well in advance. In particular, the solutions to homework 2, 5, and 7 will be posted 48 hours after their initial due periods, so these assignments may only have two grace days used on them.

In-class Exams: We have three in-class quizzes, each during a quiz section, plus a final exam, as marked in the “grades” section above. You will be provided with paper on which to take the exam. Exams will be individual effort, closed-book and closed-notes. You will be allowed two (2) 8.5”x11” handwritten note sheet (front & back) on each of the exams. They must be handwritten by you onto the paper; hand-writing on a tablet and printing is not okay. *These are not “cheat sheets,” please do not label them as such.*

Students requiring alternate exam arrangements must make such requests within the first two weeks of the term, or as soon as possible after knowing of the conflict or requirement.

Grade Reconsideration: Reconsideration requests for any graded artifact must be made within one week of our first attempt to return the item or the grade to you. Quizzes will be returned in the first lecture period after the quiz was given; students who miss that lecture should make arrangements with their instructor of record to pick up their exam, such as during office hours. Once the reconsideration period has passed, grades are considered final.

Quiz reconsiderations: Within one week of our first attempt to return your quiz to you in lecture, review the solutions and rubric. If you believe your quiz was incorrectly graded, or you do not understand why you were deducted points for something, fill out the form available on Piazza. Then, make a scan of the page(s) relevant to your regrade request and upload to a designated folder in D2L marked for that quiz regrade. *You must upload as a PDF, not any other file type.* Reconsideration requests that do not follow these rules may be rejected regardless of merit.

Homework reconsideration: Within one week of our posting of grades on Desire2Learn, review the solutions and rubric. If you believe your homework was incorrectly graded, or you do not understand why you were deducted points for something, fill out the form available on Piazza. Unlike quizzes, do not send additional scans of the files -- we have access to them already online.

Tentative Schedule. Readings from the Irani textbook are *required* and the specifics are listed in the online version. The due times are 10AM on Mon/Wed mornings, **for all lectures**.

Week	Lecture Topics	Reading (Irani)	Due Dates and Exams
1 January 7	Introduction Sets, Functions, Sequences		
2 January 14	Runtime Analysis Foundations of Logic	Reading 1 Due Reading 2 Due	
3 January 21	No Lecture January 21 or 24 Propositional Equivalences, Predicates	Reading 3 Due	Homework 1 Due 1/21
4 January 28	Quantifiers, Rules of Inference Introduction to Proofs	Reading 4 Due	
5 February 4	Proof Methods and Strategy The Well-Ordering Property		Homework 2 due 2/3 Quiz 1: Thursday 2/7
6 February 11	Introduction to Induction Strong Induction	Reading 5 Due Reading 6 Due	
7 February 18	No Lecture February 18 or 21 Recursive Algorithms and Correctness	Reading 7 Due	
8 February 25	Introduction to Graph Theory More Types of Graphs	Reading 8 Due Reading 9 Due	Homework 3 due 2/26
9 March 4	Trees Fundamental Graph Algorithms	Reading 10 Due Reading 11 Due	Homework 4 due 3/7
Spring Break!			
10 March 18	Applications of Trees Introduction to Counting	Reading 12 Due Reading 13 Due	
11 March 25	Counting II Counting III	Reading 14 Due	Homework 5 due 3/24 Quiz 2: Thursday 3/28
12 April 1	Discrete Probability Conditional Probability	Reading 15 Due Reading 16 Due	
13 April 8	Bayes Rule, Expectations Expectation and Variance	Reading 17 Due Reading 18 Due	Homework 6 due 4/8
14 April 15	Introduction to Number Theory Prime numbers, Euclidean Algorithm	Reading 19 Due Reading 20 Due	
15 April 22	Applications of Number Theory Fun Stuff with CSCI 170 material	Reading 21 Due	Homework 7 due 4/21 Quiz 3 Thursday 4/25
Final Exam: Wednesday May 8 at 7:00 PM			

CSCI 170 Academic Honesty Guide

For items we collect to grade, it is still important to be able to seek out helpful information and collaborate, but it is clearly wrong to pass off work by others as your own. Navigating these two principles can be tricky, as it is possible to enter the danger zone between them unintentionally.

To help guide you, follow this principle:

The “Kenny Loggins” Rule:

You may discuss high-level ideas, and give hints to other students regarding how to solve homework problems. Any time you seek help on, or discuss with someone else, a homework question that you have yet to solve, do not keep any written record of the discussion. Afterwards, take a 30-minute break and do something unrelated to the course (watching a 30-minute episode of your favorite cartoon show, for example). You may now return to your assignment.

This is less an ironclad rule as a guideline. It is a guideline to help you determine what is and is not appropriate collaboration and to avoid trouble from the “danger zone.” Flouting the spirit of the Rule while following its letter does not excuse cases of cheating which arise. For example, it is clearly **not** ok to study and memorize your friend's solution, watch a cartoon for half an hour, and then write out your friend's answer from memory and submit it. The spirit of the rule includes that what you write and submit for take-home assignments must reflect *your* work and *your* understanding at the time of submission. Do not submit anything that does not reflect *your* understanding of the material, no matter its origin.

You are responsible for understanding what is allowed, and what is not. It is possible to violate these guidelines without being malicious, and we still are required to report this to Student Judicial Affairs and Community Standards.

We have very observant graders who tend to notice inappropriate collaboration and plagiarism. Follow the above guidelines to make sure you never fall afoul of this.

You should never:

- Show your take-home assignment to someone else.
- Write your solutions from notes taken outside of lecture or discussion.
- Seek help on a required assignment from *any source* where not all respondents are subject to USC's academic honesty.
- Tell another student specifically how to solve part of a take-home problem.
- Submit anything that includes what you do not understand or could not explain to the instructor.

If someone copies your work, both of you are culpable! **Remember: friends that pressure you for unreasonable help are not really friends.**

You should never need to get a solution elsewhere. You can get nearly unlimited help for similar questions and apply your knowledge to solving the required problem. Furthermore, academic dishonesty carries a penalty of F in the class¹; it isn't worth the risk!

Lastly, if you do get substantial help from a classmate on a required problem, cite their help on your submission by clearly stating “help from” and your classmates' names. You must still follow other regulations here, but as long as you do these two things, you won't get in trouble for reasonable cited help

¹ Students are encouraged to be aware of university sanctioning guidelines: please read https://sjacs.usc.edu/files/2015/03/sjacs_appa.pdf

CSCI 170 Academic Success Guide

1. Go to lecture -- and participate!

There are some students who can skip a lecture and still do well. They are a small subset of the students who do skip lecture though. You will get the most out of lecture if you are well rested, nourished, have at least looked through the reading, and ask questions.

2. Go to Discussion and office hours!

In discussion, your TAs will present the material in such a way to reinforce the knowledge for you. Their presentation is likely to differ from how your lecturer presents it; this is a good thing. Furthermore, ending your school week by reviewing the material will help you long-term.

Between the instructor, TAs, and course producers, we have many times during the week in which you can go to get help.

3. Do your homework and the take-home assignments.

I mean two things by this point. First, do your assignments as in "do not skip doing your take-home assignments and turn in nothing." These are worth 25% of your grade, including the reading. Every semester, there are students who miss passing classes by less than that margin who neglected at least one homework. Do not be one of those students this semester!

Second, do your homework as in "take the time necessary to do well on it." You will need to devote a significant amount of time to do well on the assignments. The questions are chosen in such a way that we believe will best help you learn the material. Successfully using the homework to learn the material is often correlated strongly with success in the class.

4. When homework solutions are posted, review them: twice!

Homework solutions are typically posted very shortly after the last time to submit them. Review once while what you did is fresh in your mind and once when you get the graded artifact feedback. Be sure you know why you missed the points you did; that feedback will be valuable to you in learning the material and preparing for exams.

5. Plan your semester.

There are 11 dates you will need this semester for CSCI 170. They are listed on the syllabus. Put them on your calendar and do this for your other courses (if any) too. If you see that a due date is near when you have a deadline in another class, plan to start that preparation even earlier.

6. Understand this is not a middle school math class.

We are not looking for a number as an answer and showing your work isn't just for partial credit. Your work isn't limited to repeating exercises from lecture or discussion with different numbers either. We will be expecting you to explore ideas using class as a starting point. Many times you will be expected to write a proof or a new algorithm to solve a problem using techniques related to what we have discussed.

7. If you find yourself falling behind, let someone know.

The instructor, TAs, and course producers are around and able to help you get caught up.