CompSci 161 Spring 2021 Syllabus and Course Reference

Note: This course is being taught as a remote offering. This document is made primarily to communicate to students the plans for the quarter. If any policies in this become untenable, they may be changed. However, I promise my priority in such matters is to do right for you. Students should assume all policies are in effect unless told otherwise by the professor.

It is the instructor's intent to provide maximum flexibility while maintaining the educational environment. I believe the flexibility I provide will be sufficient for most students; if your situation is such that more flexibility will better enable you to be successful with your goals for the quarter, please get in touch with the instructor as soon as you can. Information for how to contact appears later on this page.

Professor David Kay has the following language in his syllabus and I am using it here, too: *We're required to say that in unusual circumstances, these criteria could change. We won't make changes arbitrarily, but the world has had a lot of special circumstances lately and we'd like everyone to try to be flexible, rolling as best we can with the punches that come our way.*

Lecture: We are scheduled for MWF 10:00 - 10:50 AM Irvine time. We will meet on Zoom; a link will be provided. For those who cannot, or choose to not, attend synchronously, there will be videos posted on Canvas. These may or may not be recordings of the live lecture but do cover most or all of the material. Just as in a normal quarter, you are still responsible for the content of the live lecture, although the instructor intends to keep the lecture material substantially the same as the videos. Attendance will not be taken at lecture. The only times you are required to be available during the actual time is for the quizzes, which are conducted synchronously. Efforts will be made to have the videos available promptly after lecture; unless 24 hours have passed since lecture, please do not ask where they are.

Your instructor will remain available on Zoom after the lecture most days. Anything discussed after 10:50 is not considered to have been covered, although students may ask questions about course material during this time. *We can also talk about topics that aren't CompSci 161, such as future classes, future plans, questions about course planning, life in industry, graduate school, and so on.* Back during in-person classes, Shindler would often hold these hours outside the classroom and adjacent to it.

Discussions are also scheduled on your calendar. Attendance is encouraged at all discussions *and required at some* -- see the schedule at the end of this document for which ones are required. Videos covering the material at required discussions will be posted, similar to lectures.

You are responsible for all material and announcements covered in the lecture. If you miss a lecture or discussion, *watch the video* or ask a friend. If you are not able to view lectures regularly, you may want to consider taking this course another quarter.

Getting help in this class.

TAs will regularly hold live help sessions. *These are a great time to ask questions about lecture material, the associated reading, and problem sets.* **Office Hours** will be announced shortly and will be posted in a place where students can find the information easily.

Students who wish to contact course staff asynchronously should do so in a manner best suited to their question. When you complete the syllabus quiz, details about which appear later in this syllabus, you may elect to be invited to Piazza. A question specific to your situation should be private, while a question of general interest should be public. It is expected that you treat your classmates and course staff respectfully when engaging with them. Abuse of Piazza may result in a revoking of Piazza privileges or referral to appropriate authorities.
You may post anonymously on Piazza if you wish. You are anonymous only to your classmates; instructional staff may still see who you are.

If your question is of general interest, or might be answerable by anyone in the class, post the question on Piazza with a privacy setting that allows your classmates to answer. For example, if you are not sure when an artifact is due, or you have a question about a topic that came up in lecture, then that question fits into this category. Do not post your solution, in part or in whole, to something you need to submit for credit in any manner that classmates may see.
Course Staff are instructed not to answer questions in this category unless the privacy setting is correct. For example, if you make a private post asking when a problem set is due, it may be ignored.

If your question can be answered by any member of course staff, but is not for viewing by your fellow students, post it on Piazza with a privacy setting to instructors only. For example, if you have a bug in your code that you cannot resolve, and you are having trouble finding the time to get to office hours, this would be a great option. Be sure to include relevant details, such as the block of code that is not working, the error message, and what you have tried to do to fix it.

If you need to reach your instructor specifically, use email. Your instructor is Michael Shindler, reachable by email at **mikes** at **ics** dot **uci** dot **edu**. Emails sent for course related purposes must be sent *to this address*, must come from your UCI (or ICS) email address, include your full name and ID number in the *body* of the email, and have a *meaningful subject line* that begins with the substring “CompSci 161” -- **due to your instructor’s large volume of emails, any that do not conform to this will probably not be read and do not count as having been sent for purposes of the course.** Emails that should have been a wider-reaching Piazza post will get, at most, a reply indicating such. *If your instructor ever tells you to email him, be sure to follow this requirement.* Please do not use Canvas to send messages in any form. There is a very good chance that they won’t even be read.

Course announcements : On occasion, course announcements may be made via Piazza. You should adjust email settings accordingly if you do not check Piazza regularly. You are considered to be aware of the announcement 24 hours after it has been sent.

By default, students arriving at any course meeting in Zoom will find that the setting mutes you by default and turns off your video. You are neither required to unmute nor to put on your video. You **ARE** permitted to do either or both, at your discretion. If you are unmuted and the instructor mutes you, you are welcome to unmute yourself later; the former has happened in the past due to a student remaining unmuted while having a personal conversation at their computer. If you wish to communicate with the instructor during office hours, voice is fine, as is the Zoom "chat room," either messages sent to everyone or messages sent to the instructor privately. In short, we will aim to simulate in-person office hours as best we can given the circumstances. TAs are permitted to set different policies for their office hours and discussions than these if they so choose.

Students with disabilities: Any students who feel that they may need an accommodation based on the impact of a disability should contact me privately to discuss these specific needs. Also, contact the Disability Services Center online or by phone at (949) 824-7494 as soon as possible to better ensure that such accommodations, such as alternative test-taking environments or note-taking services, can be arranged for you in a timely way.

Commercial note-taking Students are prohibited from selling (or being paid for taking) notes during this course to or by any person or commercial firm without the express written permission of the professor teaching this course. This includes, but is not limited to, a prohibition for providing notes, handouts, slides, assignment descriptions, or code to websites such as Chegg, Koofers, or CourseHero. Violations of this will be treated as a serious violation of the student code of conduct.

To ensure the free and open discussion of ideas electronic video and/or audio recording by students is not permitted during classroom lectures, discussion and/or activities unless the student obtains express written permission from the instructor. If permission is granted, any distribution of the recording is prohibited. Students with specific electronic recording accommodations authorized by the Office of Disability Services do not require instructor permission; however, the instructor must be notified of any such accommodation prior to recording. Any distribution of such recordings is prohibited.

I **recommend** that you have a copy of the textbook *Algorithm Design and Applications* by Michael T. Goodrich and Roberto Tamassia. The book is available in hard copy from the usual sources and is also available online at a much cheaper rate. Note that this is not the same textbook that you may have used for I&C SCI 46, although that book has some good sections that relate to this class.

Exam procedures and policies: For information about exam procedures and policies, see the *Remote Exam Logistics and Rules* document, which is incorporated into this syllabus by reference here.

Academic Honesty Expectations For information about academic honesty expectations and policy, see the *Academic Honesty Guide* document, which is incorporated into this syllabus by reference here.

Grade calculation:

Problem sets:		23%
Warm-up and Reinforcement Exercises		10%
Syllabus Quiz and Course Evaluations[1]		1%[2]
Four Quizzes:		41%
Fundamentals / Prerequisites Quiz	7%	
Divide and Conquer Algorithms Quiz	10%	
Dynamic Programming Quiz	14%	
Greedy Algorithms Quiz	10%	
Decorum		5%

A second chance to demonstrate mastery of each of these topics will be available to you during the final exam period. Your final exam will consist of four questions, one for each of the following categories of questions. Each question type will also appear in an exam prior to the final; for the final exam, your better score from either that question previous to the final or that question on the final will hold for this category.

- Using the divide and conquer paradigm to design an algorithm 4%
- Using dynamic programming to design an algorithm 6%
- Proving that a greedy algorithm is *optimal* 5%
- Proving that a greedy algorithm is *sub-optimal* 4%

Professor Thornton had the following as part of his I&C SCI 46 course last quarter; I am adopting his policy here as well; I am changing it slightly for how I am using it this quarter.

It should go without saying — though the recent experiences of other instructors around the country tell me otherwise — that we expect a reasonable level of decorum within all of these online spaces at all times. While I won't be able to describe all the ways that you might misbehave, do be aware that we will not tolerate behavior that is offensive to others; just because you're online doesn't relieve you of your obligation to be collegial with one another and with course staff, and there will be repercussions when you do not meet that obligation.

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[1] Completion of course evaluations by the time they close is worth 1%. Your instructor will be able to identify who has filled out evaluations, but will not be able to match evaluations to individuals. This is not something that can be completed after the deadline.

[2] The syllabus quiz is available at https://docs.google.com/forms/d/e/1FAIpQLSdgooFADNTLnAP15HceXn7E6XjJFIbRe4NX5lKInE86vmNJBw/viewform and is due April 2 at 9:59 AM. Note that there is important material in the syllabus that is not covered in the quiz. Students who do not finish by that time are still required to complete this in order to be added to the course Piazza.

Letter grades will be assigned based on the aforementioned relative weights. We will neither have a straight scale nor a straight curve. Among students who complete the class, it is guaranteed that 90% of the available points in the class will constitute at least 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 (not to be confused with C-). Students curious about the current standing are encouraged to contact the instructor to discuss this.

I will not know the cut-offs until after all artifacts have been graded. Students asking if the class is curved, or what the curve will be, or asking for the instructor to curve the class, will be ineligible for any adjustments to the cut-point that may otherwise benefit their classmates. If you do not know what a curve is, or why you probably don't want to ask for one in most classes, I encourage you to read up on how a curve is different from an adjustment to grade cut points.

At the end of the term, for students whose grade from Warm-Up and Reinforcement exercises is lower than their course average, I will compute what their grade would be without that portion and with the rest re-normalized to be out of 100%. If that would qualify the student for an A- or better, and if that is higher than the student would get with those sections included, the student will get the higher grade. This option is not available for grades that result in a B+ or lower.

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 CompSci 161 the time to consider that is early in the quarter. There is plenty of opportunity for help, practice, and credit during the semester. On a related note, there are usually no opportunities for extra credit. Make the most of your regular credit.

Submitting Artifacts to be Graded: Every graded assignment in this course is submitted in one of three ways. Course evaluations are submitted through the usual system and the registrar will inform me of who has submitted them at the deadline. I will get no other information from the registrar about the evaluations, even in aggregate, until after grades are submitted. I will never be given information to match a response to an individual student.

For information about submissions via Google Form or by GradeScope, including the regrade policies for these, please see the *Artifact Submissions and Grading Policies* document, which is incorporated into this syllabus by reference here.

Be aware that there is another lecture of CompSci 161 this quarter. Be sure you sign up for the Lecture A, Shindler, if you are enrolled in this lecture. The GradeScope access code for this lecture of CompSci 161 is YVBXBY.

Reinforcement Exercises: There will be periodic reinforcement exercise sets provided. These are due on the dates indicated on the tentative schedule, unless changed. The purpose of these is to reinforce what you saw in lecture and to provide an easy way for you to confirm what you have learned. These follow the same rules as problem sets for submission and regrade, although they are more likely to be graded on a good-faith effort than problem sets.

Warm-Up Exercises: Periodically, we will post short problem sets that will have a very short turn-around time, typically around 48 hours from posting to due. We will treat these in the same category as reinforcement exercises for purposes of your grade (although they might not be weighted equally to reinforcement exercise sets). They are designed to take you only a few minutes, maybe a dozen at most, to complete. Please treat them seriously, though, as their purpose is to help prepare you for an upcoming lecture topic.

CompSci 161 Spring 2021 Projected Schedule

This is a *projected* schedule and is subject to change. All reading is in *Algorithm Design and Applications* by Goodrich and Tamassia (except the Syllabus). Note that this is not the same textbook that you may have used for I&C SCI 46, although that book has some good sections that relate to this class.

All non-exam due dates are at 9:59 AM unless otherwise stated. All exams are due at the end of the period in which they are assigned. The absence of a due date listed when this syllabus is released does not imply the lack of a related assignment. PS0 refers to the syllabus quiz.

Discussions listed in the syllabus are *explicitly required* and material covered in them may be on homework or exams. You are encouraged to attend all discussions, even the ones that are not explicitly required.

Week	Date	Topic	Due Dates	Reading
1	Mar 29	Introduction		Syllabus
	Mar 30	DIS: BubbleSort and SelectionSort		
	Mar 31	Review: Asymptotic Notation		1.1, 1.2, 1.3
	Apr 1	DIS: Hierarchy of Running Times		
	Apr 2	InsertionSort, HeapSort, LowerBounds on Sorting	PS 0 due 4/2	5.1-5.4, 8.3
2	Apr 5	Graphs: DFS, Topological Sort	PS1 due 4/6	13.1, 13.2
	Apr 7	Graphs: BFS, Graph Coloring	RE1 due 4/8	13.3
	Apr 9	Quiz 1		
3	Apr 12	Intro to Divide and Conquer		8.1
	Apr 13	DIS: The Master Theorem		11.1
	Apr 14	QuickSort and Order Selection		8.2, 9.2
	Apr 16	Integer Multiplication		11.2
4	Apr 19	The Minima Set Problem		11.4
	Apr 21	Closest Pair of Points		22.4
	Apr 23	Flex: Concurrent Min/Max		
5	Apr 26	Fibonacci Numbers*		
	Apr 28	Quiz 2		

	Apr 30	The Interval Scheduling Problem		12.3
6	May 3	Longest Common Subsequence		12.5
	May 5	Edit Distance		
	May 7	The Subset Sum Problem		12.6
7	May 10	Optimal Binary Search Trees		12.1 (related)
	May 12	Flex: Traveling Salesperson		
	May 14	Quiz 3		
8	May 17	Review: Dijkstra's and Prim's		14.2, 15.1, 15.3
	May 19	Unweighted Interval Scheduling		10.2
	May 21	Scheduling with Deadlines		
9	May 24	Huffman Compression		10.3
	May 26	Kruskal's Algorithm		15.2
	May 28	The Union-Find Data Structure		Chapter 7
10	May 31	Holiday: Memorial Day		
	Jun 2	Flex: Offline Caching		
	Jun 4	Quiz 4		
Final Exam Mon, Jun 7, 10:30-12:30pm				

* : The lecture on Monday April 26 is *not* on Quiz 2. However, it is an important part of the material leading into Unit 3 (Quiz 3 material). The lecture is being held that day to avoid giving a quiz on a Monday. You are encouraged to attend anyway, or at least view the video before lecture on Friday, April 30.

March 30: I filled in dates that were missing after being told this isn't clear. The dates that are now filled in are in blue.