I&C SCI 46 Fall 2021 Syllabus and Course Reference

Note: 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 in this document.

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.

Lectures are held MWF 10:00 - 10:50 AM in DBH 1100 and again MWF 1:00 - 1:50 PM via Zoom. A link for the latter will be provided. For those who cannot, or choose to not, attend synchronously, there will be videos posted on Canvas. These will *mostly* be recordings of the live lecture that was conducted via Zoom. It is the instructor's intention to post these as soon as possible, although delays do happen. The videos may or may not be edited for break-points.

Attendance will not be taken at either lecture. The only times you are required to be available during the actual time is for the quizzes, which are conducted **synchronously**. You are responsible for the material covered in the lecture in which you are enrolled, regardless of which you choose to attend on non-exam days. You must attend the exams prepared for the lecture in which you are enrolled.

Your instructor will remain available after the lecture most days, either outside the classroom (live lectures) or via Zoom (remote lectures). Anything discussed after the close of that day's lecture 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 ICS 46, such as future classes, future plans, questions about course planning, life in industry, graduate school, and so on.*

Students with disabilities: Any students who feel that they may need accommodation based on the impact of a disability should 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.
The above paragraph was written pre-Covid. If you need to contact DSC and are unable to do so, please contact the professor ASAP and we will investigate together.

Getting help in this class.
The lab tutors and the TAs will also regularly hold live help sessions. *These are a great time to ask questions about lecture material, the associated reading, and programming assignments.*

Students who wish to contact course staff asynchronously should do so in a manner best suited to their question. Unless otherwise announced, the EdStem forum should be preferred; as this is our first quarter using it, this may change. 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 the message board system may result in a revoking of privileges or referral to appropriate authorities.
You may post anonymously on EdStem 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 EdStem 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 project 2 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 EdStem 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 "I&C SCI 46" -- **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 EdStem 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 sent via email to all students enrolled in the class either via Canvas or via EdStem. You should adjust email settings accordingly if you do not check these sources regularly. You are considered to be aware of the announcement 24 hours after it has been sent, regardless of whether you read the alert.

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.

Lab Hours:
While there are no scheduled lab sections in this course, we will be offering informal lab meetings on a selection of days and times throughout the week.

During these times, some combination of the instructor, TAs and lab tutors will be available to help you as you work through your projects. C++ requires an attention to detail that is uncharacteristically high, even for programming, so it will be handy to have a place you can go to get help; keep this on your calendar. You're free to come and go as you'd like within that time; there are no "sections" or other formal arrangements, and you do not need an appointment to attend.

Lab meetings are not a required part of the course, and nothing will be graded in the labs this quarter, but attendance does offer some significant benefits:

- You will have a chance to consult a TA and one or more lab tutors regarding your work; this kind of instant feedback and help can be invaluable as you work through your projects.
- You will be surrounded by a large group of other people facing the same problems that you're facing. This kind of shared journey will build a social network that will last you, in some cases, for the rest of your life. Don't squander that opportunity!

You are **required** to have a copy of the Zybook about Data Structures. To get a copy of the book, sign in or create an account at learn.zybooks.com and enter zyBook code **UCIICSCI46ShindlerFall2021**. Then click “subscribe.” A subscription is $58. The cutoff to subscribe is December 1, 2021. Subscriptions will last until December 22, 2021. *Use your @uci email when signing up for your Zybook. Failure to do so may result in difficulty crediting you with your points for the reading and may also result in a penalty.*

I also suggest reading: *Data Structures and Algorithms in C++,* second edition
by Michael T. Goodrich, Roberto Tamassia, David M. Mount
The book is available in hard copy from the usual sources and online at a much cheaper rate.

Grade calculation:

- Five programming assignments — 6% each for 30% total
  - Plus a warm-up project. — 2% one-time
- Five written problem set assignments — 2.5% each for 12.5% total
- A syllabus quiz[1] — 0.25 % one-time
  - Note that there is important material in the syllabus that is not covered in the quiz
- Submitting course evaluations — 0.25% one-time
- Assigned reading in Zybook — 0.5% each for 7% total
  - Lowest is dropped; all other reading assignments are weighted equally;
- Three mid-quarter exams — 11% each, for 33% total
- Final Exam — 15%

It is expected that you be polite in all course related interactions, whether with your instructor, TAs, lab tutors, readers, or classmates. Disruptive behavior related to this course may result in a grade penalty, up to and including reduction to an F in the class, as well as referral to appropriate authorities.

Letter grades will be assigned based on the aforementioned relative weights. We will neither have a straight scale nor a straight curve. 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 for at least a C-. 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.

Cut-points for grades for students in the in-person lecture may be different from those for students in the virtual/remote environment. This is mostly due to the difference in how exams are conducted and the degree to which the environment may be controlled. It is the instructor's intent that the approximate distribution of letter grades will be the same for the two classes. All other aspects will be the same for the two: students get the same lecture material in the same order (and videos are available to both sets of students); both sections have the same problem sets, the same projects, and the same assigned readings, all with the same deadlines. Two sets of practice exams will be released, although there will be problems that appear the same on each. The practice exams serve both to help prepare students for the exam and to showcase the format of the exams. For projects that permit partnerships, students may elect to form a partnership with any willing student enrolled in ICS 46 this quarter, regardless of delivery method.

---

[1] The syllabus quiz is available at https://docs.google.com/forms/d/e/1FAIpQLSdO4WEVS1xE-b0njgM19mGpKJWeMx19CVK-Hyu5AN_yh07OfA/viewform and is due 9/30 at 9:59am. You must log in via your UCI Google account to access this quiz.

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 I&C SCI 46, the time to consider that is early in the quarter. There is plenty of opportunity for help, practice, and credit during the quarter. On a related note, there are no opportunities for extra credit.

The gradebook on Canvas will periodically be used to communicate current grades. You should consider each artifact in isolation to confirm that you and the professor have the same belief for what your grade on that item is. **Do not, for any reason**, consider anything else in the Canvas gradebook to be official; for example, sometimes that software will tell you a percent grade in the class or will estimate your letter grade. These estimates are, at best, less reliable than a certain company that sells cable internet; the mechanism on the instructor's side to prevent these from being displayed is even less reliable than that.

Zybooks. Required reading in the Zybook is to be conducted on that platform. Your feedback is provided there as well. Due dates for the Zybook readings are *always* 9:59 AM Irvine time, although if you are accessing the book from a different time zone, it might display as being in your local time. Regardless, completing them on time is **your** responsibility.

For information about artifact submissions and grading policies, including grade reconsideration requests, please see the document “Artifact Submission and Grading Policies.” That document is incorporated into this syllabus by reference.

Programming Assignment Policies

Late policy: every programming assignment is due at **9:59 AM Irvine time** on the day listed. Late submissions are accepted for all except project 0. Every hour, or fraction thereof, an assignment is late being turned in reduces the grade by 1% of what the submission would have been worth had the student done so on time. There is a small and undisclosed grace period early in each hour that is considered part of the previous hour for purposes of submission penalties. Assignments two minutes late are probably not penalized, those fifteen minutes late almost certainly will be. Remember Murphy’s Law and plan to submit your work on time!

Project 0 must be turned in on time and no late submissions will be accepted for it.

The largest late penalty, in terms of effect on your final grade in the class, will be forgiven. Remember that this only applies to programming assignments and that there is a **maximum** of 99 hours late, even for the project that will be your largest penalty.

If there are extenuating circumstances related to your ability to submit one or more assignments on time, please see your instructor to discuss how to handle this. The sooner you contact me, the more I can do to help you.

Grading environment: a copy of the ICS 46 virtual machine will be made available to you. While you are not required to use it to develop your code, we will be using it for grading assignments. We will not entertain regrade requests that ask us to evaluate student code on another machine, nor any that ask us to grade anything other than what was submitted. You are strongly encouraged to comprehensively test your code on the virtual machine before considering your submission to be final.

Programming assignments that do not compile in our environment will earn zero points, even if minor changes to the code would have caused a much higher grade. **This has been a problem for some students in past quarters. Be very careful and be sure to test every function in your code, especially with any assignment that requires the use of generic programming (templates).**

You may use any standard function that you could implement trivially (e.g., std::min, std::abs) unless it is explicitly disallowed or if it would clearly solve a problem you are expected to solve in this assignment.

For various reasons, students are encouraged to backup the code they are writing as they progress. Version control software, such as Git, is strongly encouraged, but not required. Students who use Git for version control are reminded to keep their repositories *private*. Students who don't know how to use version control software but would like to learn are *encouraged* to contact your instructor, who might (schedule and student interest depending) have an optional session about this later in the quarter.

Partnerships: some programming assignments will permit you to work with *one* partner. It is **not** required that you do so. If you do so, I expect you to work via pair programming. That is, you may **not** split the assignment, such as by having one person implement the data structure while the other person implements the function that uses the structure to solve a problem. I reserve the right to ask one or both project partners about the implementation and adjust the score for the group accordingly if I believe the work was split or one partner does not understand what was submitted. Similarly, any academic dishonesty arising from a group will be treated as an offense by both partners. *In past quarters, there have been situations where one partner plagiarized code without the knowledge of the other partner and both were held liable for the infraction. I believe this usually happens when a partnership splits a project.*

For any project that permits a partner, you will need to submit a form that will be provided in the project writeup. That form is often due a few days after the project *has been posted*. Late submissions for the form will not be accepted. Both partners will need to complete the form, which will require them to write their own UCINetID and also that of their partner. Partnerships where one partner does not submit the form on time, or where one or both partners submit the form incorrectly, will not be recognized. Your UCI Net ID is not your id number, nor is it your email address, although it is probably a substring of your email address. If you do not know what your UCI Net ID is, please read this link: UCInetID — Office of Information Technology

When submitting a project that you worked on with a partner, exactly one of you should submit the code to Checkmate. If neither of you submit the code, it has not been submitted. If

both of you submit, there will be a penalty assessed *on top of* the lower score of the two and deemed as your base score. Coordinate amongst yourselves to determine who will do the submission.

Compliance with Project Requirements: We reserve the right to review your code to ensure compliance with project directions; failure to comply with project directions may result in a decreased score. This may reduce your score to zero. If we believe you were attempting to deceive us with code that will pass automated test cases without complying with project restrictions, we may consider it academic dishonesty, which will result in a report to AISC and an F in the course. It is possible that we will return a grade to you before we detect this; a grade email sent to you does *not* mean we have agreed that your project is in compliance. I expect this policy to apply to very few, if any, students. An example of non-compliance with project requirements would be if you are asked to implement a linked-list based queue and your code does so via a `std::vector`. Such code would likely pass many automated test cases but would not be in compliance with project requirements, and would only be detected by code review. In order to expedite grades for the vast majority of students who are going to comply, we will likely return grades before inspecting code manually.

Exam Rules: All exams will be held synchronously in class hours. The full 50 minutes will be permitted, although this will include administrative duties, such as scanning and uploading responses for remote exams or distributing and collecting exams for in-person classes. All students are to take their exams during the lecture *in which they are enrolled*.

Students enrolled in the 10AM lecture are expected to take their exams in-person; students enrolled at the 1PM lecture will take their exams under the remote system. For details, see the policies in the relevant documents, which are incorporated into this syllabus by reference. You will be expected to abide by the policies in these documents during your exams. Students may not alternate exam sections: you either take the exam with your enrolled section or not at all, although the missed exam policy below covers excused missed exams.

For more detailed information about the exam rules, please refer to the document that references the style of exam that will be held for your course. If your enrolled lecture is listed as VRTL REMOTE, please see “Remote Exam Logistics and Rules” and if your enrolled lecture lists a classroom, please see “In-Person Exam Logistics and Rules.” Those documents are incorporated into this syllabus by reference.

Missed Exam Policy: If you need to miss an exam for any reason, and this is for reasons the instructor accepts, then we may reconsider how to calculate your grade. For reasons the student could have known about in advance, it is expected that the student contacts the

instructor as soon as possible after the conflict is known. If the conflict could have been known before the exam, the instructor will not provide any relief if informed after the exam unless it would have been unreasonable to do so prior to the exam. If you need to miss an exam, or if you do miss an exam, you must email the instructor as soon as possible upon knowing this.

This is especially important for in-person students who might be exposed to illness, especially Covid. If you are sick, especially if you might be contagious, please let your instructor know. Please do not risk your health or that of your classmates to take an exam.

Academic Honesty Policy

Please see the common policy document "Academic Honesty Guide" for information about academic honesty in this course. A copy of that document is available on the course Canvas page. That document is incorporated into this syllabus by reference.

I&C SCI 46 Fall 2021 Projected Schedule

Note that this is a *projected* schedule and is subject to change. All reading is in the required Zybook textbook and is available on that site. There are 15 required reading assignments in that book.

All assignments, both programming and problem sets, are due at **9:59 AM**, regardless of enrollment section. Late submissions are allowed up to 99 hours late for programming projects after (but not including) project 0, but not for problem sets or for reading.

If there is a discrepancy between the due date listed in the syllabus and the due date written on an assignment, the one on the assignment is the one to follow.

If you need a review of C++ or object oriented programming, please consider reviewing that early. It is expected that you are able to perform dynamic memory allocation, at least to the point where you could program a simple Linked List, given notes on the concept (but not detailed code). You should also have seen, and be able to write, simple uses of O notation, at least at the ICS 33 level.

Week	Date	Topic	Due Dates
0	Sep 24	Introduction,	
1	Sep 27	Introduction, Recursion as a problem-solving technique	
	Sep 29		Syl Quiz due 9/30
	Oct 1	Stacks and Queues	
2	Oct 4		
	Oct 6	Asymptotic Notation	Project 0 due 10/6
	Oct 8	Analysis of Algorithms	
3	Oct 11	Intro to Graphs	PS1 due 10/12
	Oct 13	Graph traversals	Project 1 due 10/13
	Oct 15	**Quiz 1**	
4	Oct 18	Intro to hashing	
		Hash Tables	
		Additional topics in hash tables	PS2 due 10/22
5	Oct 25	Additional topics in hash tables	Project 2 due 10/25
		Elementary graph algorithms	
		Elementary graph algorithms	PS3 due 10/29

6	Nov 1	Skip Lists	Project 3 due 11/1
		Quiz 2	
		Introduction to Binary Search Trees	
7	Nov 8	Height balance in binary search trees	
		Maintaining balance in binary search trees	
		Extended AVL Tree Example	Proj 4 chkpt 11/12
8	Nov 15	Heaps and Priority Queues	PS4 due 11/17
		Heaps and Priority Queues	Project 4 due 11/18
		Quiz 3	
9	Nov 22	Sorting: Inversion Removal	
		Sorting: Inversion Removal	
	Thanksgiving Holiday		
10	Nov 29	Better ways to sort: Divide and Conquer	
	Dec 1	Better ways to sort: Divide and Conquer	PS5 due 12/2
	Dec 3	Additional Topics in Sorting	Project 5 due 12/3
Final Exams during Finals Week: **MWF 10AM lecture: Mon, Dec 6, 10:30 - 12:30 PM in lecture room** **MWF 1PM lecture: Wed, Dec 8, 1:30 - 3:30 PM**			

A few notes about dates:

The lectures for October 1 and 4 will be time-shifted, in part to allow students to go over this material at their own pace, which may be faster or slower than traditional timing would allow.

On November 5, the 10am lecture will be presented via Zoom and recorded, and there will not be a live lecture for the 1pm section.

As with all non-exam lectures, attendance is optional, and the videos will be available. Students, regardless of whether or not they attend, are still responsible for learning the material presented.