

I&C SCI 46 Winter 2020 Syllabus and Course Reference

Lecture: MWF 4:00 - 4:50 PM, SSLH 100

You are responsible for all material and announcements covered in lecture. If you miss one, ask a *classmate* to fill you in on what you missed. If you are not able to attend lectures regularly, you may want to consider taking this course another quarter.

Your instructor is Michael Shindler, reachable by email at `mikes at ics dot uci dot edu`.

Emails sent to course staff must be sent to this address, must come from your UCI (or ICS) email address, include your full name and ID number, and have a meaningful subject line that begins with the substring "I&C SCI 46" -- emails that do not conform to this will probably not be read and do not count as having been sent for purposes of the course.

Piazza: We have a Piazza forum. Questions that do not require the attention of any particular member of course staff should be posted on Piazza with the appropriate privacy settings and labeled with the proper folder. Course staff will not reply to any anonymous posting on Piazza. 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.

Course announcements : On occasion, course announcements may be sent via email to all students enrolled in the class through the mechanism that Piazza allows. 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.

Office Hours and associated locations will be announced shortly and will be posted in a place where students can find the information easily. In addition, the professor will typically be available after class for questions.

Office hours are a great time to ask questions about lecture material, the associated reading, and programming assignments. You may also stop by to introduce yourself if you'd like, even if you don't have a question to ask. 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 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 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 arrangement, 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!

One important note: ICS2 100 is a shared space, which is being used by multiple courses this quarter, sometimes in an overlapping fashion. TAs and tutors in these courses have been instructed that they are not expected to work with students who are not enrolled in their course (e.g., if you encounter a tutor for ICS 45C, that tutor is not going to be able to help). We don't want to turn you away, per se, but it's an unreasonable burden on TAs and tutors in one course to be responsible for multiple courses at once, so, in fairness to them, we're not asking them to do it. Please be respectful of that.

We have one **required textbook**: 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%
 - Plus a warm-up project. 2% one-time
- Six written problem set assignments 2% each, for 12% total
 - Plus a warm-up assignment 1% one-time
- Three mid-term exams 10% each, for 30% total
- Final 25%

Programming assignment scores will be posted on Canvas. The score presented there *does not* include the lateness penalties. Written homework and mid-term exams will be posted on GradeScope.

The total points you earn from projects and homework assignments (scaled to 0 through 100) will be capped at 30 points above the mean of your exam scores (scaled to 0 through 100). For example, if you average 90 on the assignments, but your exam average is only 50, then your assignment average is treated as only 80 (because that's 30 more than 50). In other words, your assignment scores won't count fully if you can't show from your exam scores that you learned what you should have from the assignments.

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 pass the final exam, 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-. Students curious about the current standing are encouraged to contact the instructor to discuss this.

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 semester. On a related note, there are no opportunities for extra credit.

Grade reconsideration requests: You will contact your instructor (**not** your TAs or readers!) in a prescribed manner and he will look into each matter. The cut-off time to submit a reconsideration request is 72 hours after the first attempt to return the artifact (programming assignment, problem set, exam) to you. Students who do not follow this procedure for reconsideration requests will be ineligible for any regrading, regardless of the merit of the request. Artifacts returned via GradeScope will use that regrade mechanism; otherwise, send an email to the professor with your request.

Programming Assignment Policies

Late policy: every programming assignment is due at **3:59PM 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.

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 of 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 test your code on the virtual machine before considering your submission to be final.

Programming assignments that do not compile in our environment may receive scores as low as zero, even if minor changes to the code would have caused a much higher grade.

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*.

Exam Rules: All exams are expected to be individual effort. Students are not permitted to use notes, electronics of any form, or bring textbooks to the exam. On exam days, once students enter the classroom, they may not leave until explicitly dismissed by the instructor. Students for whom this presents a medical problem should consult the instructor *as soon as possible* and no later than one week before the exam.

Students are required to bring a legible photo ID issued by either the university or a government: examples include your UCI ID, a state driver's licence or ID, or a passport. The ID must be legible and include your name as it appears on the roster as well as a picture. If this will not be possible, you must contact your instructor as soon as you know. For exams after the first, if you do not write dark enough for the grader to read your work after it is scanned, they may treat it as a non-response.

Students may elect to leave the exam room after finishing their exam, provided at least 15 minutes remain. After that time has passed, all students with an exam are expected to remain seated in the exam room until after exams are collected and the professor has excused them.

Students will be assigned seating and must take the exam in that seat and they must take the exam that has been assigned to that seat. Proctors other than the professor are not authorized to offer exemptions to this, please do not ask. Students may not open the exam booklet until explicitly told to do so by the instructor. When given the instruction to cease writing, students must *immediately* cease writing and close their exam booklet. It is prohibited to write any further at that point, including finishing one's current sentence.

Failure to abide by these exam rules, or directions given by course staff during the exam, may result in disciplinary action, including but not limited to a failing grade in the class.

Missed Exam Policies

If you miss a non-final exam, for an exceptional, documentable circumstance, I will assign a grade for the missed exam based on your final exam score. Note that:

- If the circumstance is something that you would have known about in advance, I need to be informed in advance.
- A work conflict is not a valid excuse for missing any exam. If you cannot arrange for time off from work to attend the class, you should not be taking the class.

If you miss the final exam and do not have a valid reason, you will receive a score of 0.

The following policy applies if you miss the final exam for a valid reason:

- There are only two classes of valid reasons for missing the final exam:
 - An unforeseeable emergency, such as a medical emergency. In such cases, I will ask for documentation.
 - An absence from an exam due to a foreseeable circumstance that I have approved in advance.
- If you wait until after the exam to get a foreseeable excuse approved, and it is not approved, you will receive a grade of zero (0) on the exam.
- If I accept your reason for missing the final exam, at my option I may either (1) give you a makeup exam or (2) assign your grade on the basis of the remaining course work that you did not miss.
- If I give a makeup exam, I may give it less weight than announced in the syllabus.

Academic Integrity Rules

As students in I&C SCI 46, you are expected to know and follow the academic integrity expectations of both the Bren School and of the University as a whole. Please take the time to review them at <https://www.ics.uci.edu/ugrad/policies/#03>. In addition, please consult the Academic Honesty Guide on the next page of this syllabus for how to stay safe.

In general, it has been the experience of many professors that students who violate the academic integrity policy fell behind and had a moment of panic. If that describes you at some point this quarter, please go see Professor Shindler. We can find a way to get you back on track and find out why you're falling behind.

I&C SCI 46 Academic Honesty Guide

For items we collect to grade, it is still important to be able to seek out helpful information, 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, or any aspect of a programming assignment you have not yet finished, 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 the Office of Academic Integrity & Student Conduct.

You should never:

- Show your take-home assignment to someone else, unless getting allowable help such as for compile-time or run-time errors.
- Write your solutions from notes taken outside of lecture or lab section.
 - This includes solutions from previous quarters or from YouTube videos and the like.
- Seek help on a required assignment from any source where not all respondents are subject to UC Irvine’s academic honesty policy.
 - This *especially* includes, but is not limited to, websites like Chegg or CourseHero.
- Tell another student specifically how to solve part of a problem.
- Submit anything that you did not play an active role in creating.

If someone copies your work, both of you are culpable! Remember: friends that pressure you for unreasonable help are not really friends. Similarly, do not post your solutions in an open space online, even after the due date.

You should never need to get a solution elsewhere. There are plenty of allowable course resources to help you reach your own solution. Furthermore, academic dishonesty carries a penalty of F in the class, or potentially worse consequences; it isn’t worth the risk!

Lastly, if you do get substantial (but allowable) help from a classmate, cite their help on your submission by clearly stating “help from” and your classmate’s name. 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.

I&C SCI 46 Winter 2020 Projected Schedule

Note that this is a *projected* schedule and is subject to change. All reading is in the required textbook. All assignments, both programming and problem sets, are due at **3:59PM**. Late submissions are allowed for programming projects after (but not including) project 0, but not for problem sets.

Note that problem sets are typically due immediately prior to the start of the lecture, while programming assignments are typically due the day before and/or the day after a lecture.

If you need review of C++ or object oriented programming, please consider reading chapters 1-3 of the textbook. 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	Reading
1	Jan 6	Introduction, Recursion as a problem-solving technique		3.5
	Jan 8			
	Jan 10			
2	Jan 13	Syllabus, Stack ADT	PS0 due 1/13	5.1
	Jan 15	Stacks and Queues	Project 0 due 1/14	5.2, 5.3
	Jan 17			
3	Jan 20	Martin Luther King Jr Day		
	Jan 22	Asymptotic Notation	Project 1 due 1/21	
	Jan 24	Exam 1	PS1 due 1/22	Ch. 4
4	Jan 27	Intro to Graphs		13.1, 13.2
	Jan 29	Graph traversals		13.3,
	Jan 31	Intro to hashing	Project 2 due 2/1	9.2
5	Feb 3	Hash Tables	PS2 due 2/3	
	Feb 5	Elementary graph algorithms		13.4, 13.5
	Feb 7	Elementary graph algorithms		
6	Feb 10	Flex lecture	PS3 due 2/10	
	Feb 12	Binary Search Trees	Project 3 due 2/13	10.1
	Feb 14	Exam 2		
7	Feb 17: Presidents' Day			

	Feb 19	Maintaining BST balance	Proj 4 checkpt 2/20	10.2,
	Feb 21	General Trees		7.1, 7.2
8	Feb 24	General Trees	PS4 due 2/24	7.3
	Feb 26	Priority Queues	Project 4 due 2/25	8.1, 8.2,
	Feb 28	Priority Queues		8.3,
9	Mar 2	Flex lecture	PS5 due 3/2	9.4,
	Mar 4	Exam 3		
	Mar 6	Sorting: Inversion Removal		11.1, 11.2
10	Mar 9	Better ways to sort		
	Mar 11	Lower bounds on sorting	Project 5 due 3/12	11.3
	Mar 13	Flex lecture	PS6 due 3/13	
Final Exam: Wed, Mar 18, 4:00-6:00pm				