

CS 202 Computer Science II

Spring 2017 Syllabus and Information

General Information

Contact Your Instructor

Name: Jeff Kinne

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Phone: 812-237-2136

Office: Root Hall, room A-120

Lecture, Exam, Office Hours

Lecture: ~~Tuesday, Wednesday, Thursday, Friday from 8-8:50am~~ Tues/Thurs 8:15-9:15 and Wed/Fri 8:15-8:50 in Root Hall, room A-017.

Exam: Tuesday Dec 12, 8-9:50am in A-017. And Friday Dec 15, 8-9:50.

Instructor Office Hours: I am generally in my office and available most MWF's from about 8:30am-4pm except when in other meetings. My official office hours are Wednesdays 9-10am, 1-3pm.

GA Tutoring: See <http://cs.indstate.edu/info/labs.html>

Website: this google doc, or find a link from kinnejeff.com

Prerequisites

CS 201 with a C or better.

After this Course

CS 202 is a prerequisite for most upper-level CS courses. You need to earn a C or better.

Recommended text

There is no required text. The following will be used as references

- [The C Programming Language by Kernighan and Ritchie](#)
- [MIT course - Practical Programming in C](#)
- [CS 201 as taught by Jeff Kinne](#)
- [The C Book](#)
- [C Programming Wikibook](#)
- [How to Think Like a Computer Scientist C++ Version](#)
- [cplusplus.com](#)
- [ACM Programming Contest Problems](#)

A good textbook to have as a supplement is [Introduction to Algorithms](#) by Cormen, Leiserson, Rivest, and Stein. The CLRS book includes most of the material from CS 202, 303, 420, and 458, and is a great reference to have. For the basics of C programming, [The C Programming Language](#) by Kernighan and Ritchie is the standard reference. Note that neither text is required, but are great leisure reading. If you are a CS major you should get copies of these two books.

Course Announcements

Announcements regarding the course will be made both during class and via email to your @sycamores.indstate.edu email address. You should regularly check this email account or have it forwarded to an account that you check regularly. You can set the account to forward by logging into your indstate.edu email from Internet Explorer (the "light" version of the webmail client that opens up from Firefox or Chrome does not give the option to forward email).

Classroom conduct

You may not use cell phones, iPods/music players, etc. during class. You should be civil and respectful to both the instructor and your classmates, and you should arrive to class a few minutes before the scheduled lecture so you are ready for lecture to begin on time. You may use your computer during class if you are using it to follow along with the examples that are being discussed. You may not check email, facebook, work on other courses, etc. during class.

Course Description

The official description of this course from the catalog is

“This course is a continuation of CS 201. It involves a deeper study of programming languages, but emphasizes programming in a particular language. Topics include algorithm design and analysis, data structures, recursion, threads, network programming, graphics, security, and ethics.”

In brief, this course completes your introduction to C/C++ programming and data structures and algorithms (together with CS 151, 201, and 303). The course will be fairly heavy in

programming, but we start to work on more and more non-trivial, interesting programs (that are more efficient than the program you would first think of).

Course Outline

We begin the course by following along with the outline for CS 201/202 put together by Geoff Exoo that is linked above. Along the way, we will get a view of each of the following topics.

1. C programming refresher with some interesting example and ICPC problems
2. C programming - anything you haven't seen yet?
 - a. Review of all the keywords and symbols, what haven't you seen
 - b. Review of commonly used libraries (I/O, math, string, time/date, ...)
3. Editors, command-line tools, etc. - things that are useful for developers
 - a. Editors - vim, emacs
 - b. Command-line tools - man
4. C++ programming - object-oriented programming and C++ syntax
5. Basic algorithms/techniques
 - a. Brute force
 - b. Divide and conquer
 - c. Dynamic programming
 - d. Graph algorithms
6. Running time analysis of algorithms - big O and such, recursion trees
7. Basic data structures
 - a. Arrays (fixed size, and that can grow)
 - b. Linked Lists (and queues, stacks)
 - c. Binary trees (unbalanced and balanced)
 - d. Hash tables
 - e. Heaps (aka priority queues)
 - f. Adjacency matrix, adjacency list
 - g. Maybe some others
 - h. C++ versions of basic data structures
8. Something interesting and fun (network programming, graphics, threads, extremely large number arithmetic, ...)
9. Maybe - compiling/designing programs in IDEs (Eclipse, MS Visual Studio)

Grading and Assignments

The students of this course have the following responsibilities: read assigned readings before lecture, attend lecture, complete homework assignments, take in-class quizzes, take exams, and complete a project. You will have a grade for attendance, homeworks + quizzes, exams, and the project.

Your “total” or “overall” grade will be the minimum of these. There may also be assignments or quizzes labeled as “checkpoints” - which will mean that if you do not complete them you either cannot pass the class, or cannot get a grade of C (the assignment will specify whether it is a checkpoint for passing or a checkpoint for earning a C).

- **Project:** graded based on correctness, proper coding style, completed sub-tasks I asked you to, good explanation of it during your presentation.
- **Homeworks and Quizzes:** average of all homework and quiz grades, computed as a weighted average so that assignments worth more points count more. Quizzes cannot be “made up”; homeworks can be completed for 50% late credit.
- **Exams:** 3 exams total, with the exam grade calculated as
$$\max(.2*\text{exam1} + .3*\text{exam2} + .5*\text{exam3}, \\ .4*\text{exam2} + .6*\text{exam3}, \\ \text{exam3})$$
- **Class Attendance:** computed as $.5*\text{lecture} + .5*\text{lab}$ attendance. Note that you are required to spend 5 hours per week in the unix lab and logged in and working. For unix lab attendance, one week will be dropped.

CS Course Policies

Note that this course follows all standard CS course policies. In particular, (a) cheating/plagiarism by graduate students (for courses with graduate students) results in an F in the course, (b) missing 20% of the classes (lecture attendance) results in an F for any student, and (c) there will be no makeup exams. See <http://cs.indstate.edu/info/policies.html> for details.

Late Homeworks

All homework assignments will be given a preferred due date. Assignments can be turned in past the preferred due date, but any assignments turned in late will have their value multiplied by 50% (so the highest grade you can get on a late assignment is 50%). Some assignments might have a “final due date” past which no credit will be given.

Start Homeworks Early

I suggest attempting a homework assignment the day it is given, or the day after, so that if you have a problem you can ask early. If you continue to have problems in trying to complete the assignment, you will have time to ask again. Many of the homework assignments require thought and problem solving, which takes “time on the calendar” not just “time on the clock”. By

that I mean that spending an hour on 3 consecutive days is likely to be more productive than trying to spend 3 hours at once on the assignment.

Expected Amount of Work

If you take this class seriously and get what you should out of it, some weeks you will likely be spending around **20 hours/week** or more on the class. The students who get A's in their CS courses and have an easy time finding jobs do spend this much time on this course. Not everyone would need to spend this much time and not all weeks will be the same, but you should plan on putting in whatever time it takes. This is the foundation for the rest of CS, so it definitely pays off to do your best here.

Note - this is your most important class, by far (for CS majors). Also, your classes should be more important than your part-time job.

Grade Cutoffs

I will try design homework assignments and exams so that a standard cutoff for grades will be close to what you deserve. After the first exam I will create a grade in Blackboard called "Letter Grade" that is what your letter grade would be if the semester ended today. Initially, I will likely assign the following grades: 93-100 A, 90-93 A-, 87-90 B+, 83-87 B, 80-83 B-, 77-80 C+, 73-77 C, 70-73 C-, 67-70 D+, 63-67 D, 60-63 D-, 0-60 F

My goal is that the different grades have the following rough meaning.

A+/A

You understand everything and probably could teach the course yourself.

B+/A-

You understand nearly everything, and should be all set to use this knowledge in other courses or in a job.

C/C+/B-/B

Some things you understand very well and others you don't (more towards the former for a B and more towards the latter for a C).

D-/D+/C-

You did put some effort in, and understand many things at a high level, but you haven't mastered the details well enough to be able to use this knowledge in the future.

F

Normally, students that get an F simply stopped doing the required work at some point.

Blackboard

The course has a blackboard site. Click [here](#) to go to blackboard. You should see this course listed under your courses for the current term. The blackboard site is only used for giving you your grades (go to the course in blackboard, then click “My Tools”, and then “My Grades”). All course content, schedule, etc. is kept in this google doc (which you are currently viewing).

Academic Integrity

Follow the standard CS course policies in terms of what is and is not allowed on assignments: <http://cs.indstate.edu/info/policies.html>

Please ask the instructor if you have doubts about what is considered cheating in this course.

Special Needs / Student Disabilities

Standard language included in the syllabi for ISU courses.

Indiana State University recognizes that students with disabilities may have special needs that must be met to give them equal access to college programs and facilities. If you need course adaptations or accommodations because of a disability, please contact us as soon as possible in a confidential setting either after class or in my office. All conversations regarding your disability will be kept in strict confidence. Indiana State University's Student Support Services (SSS) office coordinates services for students with disabilities: documentation of a disability needs to be on file in that office before any accommodations can be provided. Student Support Services is located on the lower level of Normal Hall in the [Center for Student Success](#) and can be contacted at 812-237-2700, or you can visit the ISU website under A-Z, [Disability Student Services](#) and submit a Contact Form. Appointments to discuss accommodations with SSS staff members are encouraged.

Once a faculty member is notified by Student Support Services that a student is qualified to receive academic accommodations, a faculty member is obligated to provide or allow a reasonable classroom accommodation under ADA.

Disclosures Regarding Sexual Misconduct

Standard language included in the syllabi for ISU courses.

Indiana State University fosters a campus free of sexual misconduct including sexual harassment, sexual violence, intimate partner violence, and stalking and/or any form of sex or gender discrimination. If you disclose a potential violation of the sexual misconduct policy I will

need to notify the Title IX Coordinator. Students who have experienced sexual misconduct are encouraged to contact confidential resources listed below. To make a report or the Title IX Coordinator, visit the Equal Opportunity and Title IX website:

<http://www.indstate.edu/equalopportunity-titleix/titleix>.

The ISU Student Counseling Center – HMSU 7th Floor | 812-237-3939 | www.indstate.edu/cns

The ISU Victim Advocate – Trista Gibbons, trista.gibbons@indstate.edu

HMSU 7th Floor | 812-237-3939 (office) | 812-230-3803 (cell)

Campus Ministries - United Campus Ministries | 812-232-0186

<http://www2.indstate.edu/sao/campusministries.htm>

www.unitedcampusministries.org | ucmminister2@gmail.com

321 N 7th St., Terre Haute, IN 47807

For more information on your rights and available resources

<http://www.indstate.edu/equalopportunity-titleix/titleix>