Syllabus in Fall 2019 for
CS 151 Introduction to Computer Science

Contact Your Instructor

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Office: Root Hall A-140D (Kinne), A-140F (Sternfeld), A-140G (Davenport)

Lecture, Exam, Office Hours

Lecture: MWF 9-9:50am (section 002 Kinne), MWF 10-10:50am (section 001 Sternfeld), MWF 11-11:50am (section 003 Davenport)
Section and CRN: section 002 is CRN 51026, section 001 is CRN 50192, section 003 is 51127
Credit Hours: *3*

Exam: Dec 11 8am (section 002), Dec 9 10am (section 001), Dec 13 10am (section 003).
Also check the [Office of the Registrar's exam schedule](#)

Instructor Office Hours:
Jeff Kinne - MW noon-3pm, TR 9-11am
Rob Sternfeld - MTW 1-3pm
Adam Davenport - see [CS lab hours calendar](#)

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

Website: http://cs.indstate.edu/~jkinne/cs151-f2019

Instructor/class Directories (cs.indstate.edu):
 /u1/h0/jkinne/public_html/cs151-f2019/code

Prerequisites
none

Recommended (not required)
- *For Python*, we will follow the e-book https://automatetheboringstuff.com/. Note that there are many others that you can use to supplement.
- *For using Linux and the CS systems*, we will use https://cs.indstate.edu/wiki/index.php/Linux_and_CS_Systems_Bootcamp
- We will use other free online sources as needed.

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.

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

"History of computers and computer science, principles of process description, and problem analysis. The basic structures of sequence, iteration, and selection. Programming style, artificial intelligence, current applications."

But, the course description for this course will be updated to the following this year.

"Core concepts that are foundational in computer science - including programming, use of computers for dealing with files and programs, how data is stored, number systems. Focus on building skills needed for programming and further study in computer science, and intermediate mastery of a particular programming language."

This is the first course in the CS major/minor and is also required for IT majors. This is also a course that is recommended for non-majors who want to take a programming course. The programming language we are using currently, Python, is currently popular in the sciences and in general.

We hope this course will be _fun_ and _interesting_, and that you have _useful_ knowledge and skills at the end. Note that in terms of programming, the biggest predictor of success is how much time you put in - you must (must [must]) allocate time outside of class to work on the programming assignments and start them soon after assigned.

Course Outline

Note - the precise order of topics is subject to change, but this is what we plan to complete by the end of the course.

- Using Linux
    - Getting around, connecting from home, utility programs
- How computer work
    - *Note - these topics are explored as needed throughout the semester*
    - Bits / bytes / Hz / KB / etc.
    - Stored program architecture / assembly language / machine code
    - Bit operations - and, or, not, xor, shift, complement
    - Number systems and binary, octal, hex, storing numeric data vs character data, file types
    - Boolean logic - and, or, not
- A particular programming language (Python 3
    - Basic Data Types (str, int, float, bool), Literals, Variables, Arithmetic, Expressions
    - String operations and escape characters

○ Standard Input/Output
        ○ Conditional Statements and Loops
        ○ Functions - arguments, definitions, calls
        ○ Command Line Arguments
        ○ Collections of data - lists, tuples, dictionaries
        ○ File Input/Output, Parsing Input Data
        ○ Simple Scripting
    ● Sorting
    ● Pattern matching and parsing
    ● Simple Animations

Learning Outcomes

    ● Able to use Linux systems and terminal - managing files, running code, using utility programs.
    ● Basic mastery of core programming concepts - data types, conditionals and loops, boolean logic, functions, string operations. In particular -
        ○ Can take a specification and produce code implementing it.
        ○ Can take code and "play computer" to determine the precise results of running the code on a given input.
        ○ Understanding of good coding style and able to practice good coding style - use of functions to avoid redundant code, whitespace formatting, variable and function names, comments.
    ● Understanding of base systems, including ability to convert between binary, hex, octal, and decimal.
    ● Understanding of and ability to explain different file types - text versus binary.
    ● Able to read and write data with programs, including parsing simple file formats (e.g., csv).
    ● Understanding of sorting algorithms - able to "play computer" to execute sorting algorithms that were covered in class on small test cases.

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 **_5-10 hours_** 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. Note that the federal government definition of 1 credit hour as requiring 2 hours worth of time on the course for each credit hour of lecture, so you should think of this as the default for all of your courses.

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).**

Note - your classes should be more important than your part-time job.

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.

Your total/final grade will be computed as -

    ● Exams - 50%

- - If we have two exams plus a final, the weighting will be 10% exam1, 15% exam2, 25% final exam.
    - Earlier exams will be dropped if you do better on later exams - if exam1 is lower than the others it will be dropped, if the final is higher than exams1&2 then only the final will count.
    - No late exams will be given.
- Programs / HWs / quizzes - 30%
    - Program / HW / quiz grade will be calculated proportionally - assignments with more points will count more towards the grade.
- Attendance - 20%
    - Calculated based on the number of times you were present as a fraction of the days that attendance was taken.
    - If you are late to class or leave early, you will miss these points.

Programs/HWs will normally be due by 11:59pm Sunday evening. Solutions will often be either discussed in class or posted online on Monday.

Expect a quiz roughly once per week. Expect unannounced quizzes on material that was assigned for reading.

CS Course Policies

Note that this course follows all standard CS course policies. In particular check the CS course policies related to - cheating/plagiarism, attendance, missing exams. See http://cs.indstate.edu/info/policies.html for details.

Late Homeworks

Late work on programs/HWs will not be accepted.

Start Homeworks Early

We 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 we mean that spending two hours on 3 consecutive days may be more productive than trying to spend 6 hours at once on the assignment.

Grade Cutoffs

We try to design homework assignments and exams so that a standard cutoff for grades will be close to what you deserve. After the first exam a grade will be created 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

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

A+/A
You can do *all* the assignments *on your own*.

B+/A-

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

B-/B

Most things you understand very well and a few you might not (more towards the former for a B and more towards the latter for a C).

C/C+

Learned enough and have the minimum skills to move on in the subject.

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.

D-

Students will normally *not* get an F if - you attend 80% of the lectures, complete some of the assignments up through the end of the course, and get nearly half of the problems on the final exam correct.

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/campusinistries.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