CS 65 Syllabus

Introduction to Computer Science I | Fall 2022

Overview:

Welcome to CS65: Introduction to Computer Science! As the title suggests, this course is an introduction to the field of Computer Science (CS). Although most consider the terms “computer scientist” and “computer programmer” perfectly synonymous, the field is significantly broader than simply learning to write code. In reality, CS concerns the study of **algorithms**, which are step-by-step instructions to be executed by some actor, and of **data structures**, which are ways of representing information so that it can be efficiently processed by algorithms. Since algorithms and data structures are more general than just writing code, you may find that the skills you acquire in this course will apply in more situations than you expect.

Course Goals:

This course has been designed with a few specific goals in mind. Namely:

1. **Goal #1 (G1)**: Understand the fundamentals of CS,
2. **Goal #2 (G2):** Design, document, develop, test, and debug algorithms in the Python programming language,
3. **Goal #3 (G3):** Recognize common data structures and how to use them to efficiently solve problems, and
4. **Goal #4 (G4):** Solve computational problems by breaking them into manageable parts and synthesizing them into a coherent whole.

Who should take this course:

It is a personal goal of mine to make this course as **inclusive and accessible** as possible. It is by no means a ‘weed-out’ class, in fact, I actually like to think of it as a ‘weed-in’ course.

If you need to satisfy one of the following AOIs, this course could be a good fit for you. CS65 counts for two different Areas of Inquiry:

- Critical thinking
- Information Literacy

If you like logic puzzles or solving problems, there’s a good chance you’ll thoroughly enjoy this course. We study **algorithms**, which are basically just step-by-step processes for solving problems.

You might not know it yet, but Computer Science is an incredibly powerful **creative tool** that will allow you to build whatever you can think of.

CS + X:

Computer Science is even more powerful when combined with another field–sometimes this is referred to as CS + X, and here are some examples:

- CS + Biology = Computational Biology, Bioinformatics
- CS + Chemistry = Computational Chemistry or Pharmacy
- CS + Astronomy or Physics = Computational Physics, Aerospace Engineering
- CS + Neuroscience = Artificial Intelligence, Deep Learning,
- CS + Linguistics = Natural Langauge Processing or Computational Linguistics
- This list goes on and on!

Instructor:

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Send me a message on Microsoft Teams
Assistant Professor of Computer Science at Drake University
Collier-Scripps 325 (office)
More about me: https://merriekay.com/

Let me introduce myself to you

My name is Meredith Moore, and I am an Assistant Professor of Computer Science at Drake University. You can call me Professor Moore, Dr. Moore, Prof Moore, Dr. M, really whatever you prefer. I will sign all of my emails as Meredith, and won't be offended if you call me Meredith, but prefer Professor Moore.

You may not know this, but we already have something in common–I also attended Drake University as an undergraduate. I studied computer science and neuroscience at Drake, and went on to get my PhD in Computer Science from Arizona State University. My research is focused on using computer science to make the world a more inclusive and accessible place–whether that's through developing new assistive technologies, or making sure that American Sign Language can be translated to text regardless of your skin color.

I have two Australian shepherds who I spend a lot of time with–actually you may see me walking around campus with them.

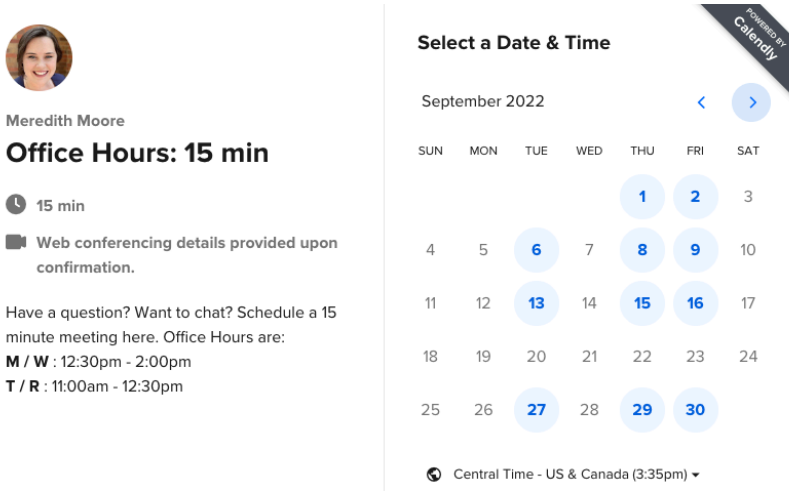
Office Hours:

Use the following table as a summary of when and where my office hours will be held this semester. If these times do not work for you, that's perfectly fine, just send me and email and we can schedule something outside of these times.

Day of the Week	Time	Where
Tuesday	11:00 am - 1:00 pm	CS 325
Thursday	11:00 am - 1:00 pm	CS 325
Friday	11:00 am - 12:30 pm	CS 325
	1:00 pm - 1:30 pm (or longer)	Walking office hours with dogs, meet outside Collier Scripps to walk Bulldog Mile

I guarantee that I will be in my office during these times unless specifically declared otherwise.

Use this link to schedule
It will look something like this:



I'm trying something new this year–Every Friday at 1:00 pm I'm going to hold **Friday dog-walking office hours** where I will bring my dogs to campus and walk the Blue mile with whoever would like to join us. We will meet outside of Collier Scripps in the Ray Promenade each and every Friday.

Class Meeting Time and Place:

Time: Mondays and Wednesdays 11:00 am - 12:15 pm
Place: Collier Scripps 301

While this class will be taught in person and I expect you to attend in person, I always record my lectures using Zoom and post the recording after the class. If for some reason, you are unable to make the in-person class session, please email me and I will provide you with the zoom link for the day so you can attend class virtually. Please note I will expect you to be in attendance (virtual or in the classroom) during the scheduled class times, as participation in class is part of your grade (see Grading).

Text:

There is no required textbook for the course. Assigned readings will be based on the free open-source textbook: Think Python (Second Edition)) by Allen B. Downey, 2015, however as

this is an open-source text, some modifications will be made and an updated version will be shared with the class. **The text is used more as a resource than as a primary source**. Required readings from the above text will be posted on the blackboard website.

Course Content:

The following content makes up the core content of CS65:

- Introduction to Computer Science
- Introduction to Python
- Basic Types and Operations
- Variables, Expressions, and Statements
- Graphics
- Functions
- Conditionals (if statements)
- Loops
- Strings
- Lists
- Files
- Debugging
- Dictionaries
- Classes and Objects
- Accessibility
- Sorting and searching (time permitting)

Late Work Policy

Due dates for every assignment are provided on the course webpage as well as the course page in Blackboard. Unless otherwise stated, assignments are due on those days. However, I recognize that sometimes “life happens.” In these instances, you may use your allotted **two flex days**. These days allow you to submit an assignment up to two days late without penalty. You can use these days for any assignment and for any reason. You do not need to provide me with the reason: **simply submit this form before the due date**.

Flex days cannot be split into hours.

Once you’ve exhausted your flex days, then point deductions will occur for any assignment submitted after the deadline. An assignment submitted within 24 hours of the due date will only be eligible for 90% of the maximum number of points allotted. Assignments submitted more than 24 hours after the due date will not be accepted. If you experience extenuating circumstances (e.g., you are hospitalized) that prohibit you from submitting your assignments on time, please let me know. I will evaluate these instances on a case-by-case basis.

Attendance Policy:

This is a highly interactive class. In other words, active participation is an expectation and the norm. You will receive credit for participating in class which will be counted towards your final grade. I will keep track of your participation using PollEverywhere. Throughout the class, I will pose questions using this polling software to get a better understanding of how the class is doing with the content. These responses will not be counted for correctness, but rather for completion.

I respect your privacy. If you encounter challenges with your physical or mental health that interfere with your ability to participate in the course or complete your work, **I will not require any kind of documentation**.

You also do not need to explain; **you can simply inform me that you are experiencing problems** and we will work together to figure out a plan that will enable you to complete the course if you want to. For example, If for some reason, you are unable to make the in-person class session, please email me and I will provide you with the zoom link for the day so you can attend class virtually.

If you are unable to participate in the course for a prolonged period, we will discuss whether an incomplete is the best option.

My commitment to using a person's chosen name & pronouns

Everyone has the right to be addressed by the name and pronouns that they use for themselves. I am committed to ensuring that I address you with your chosen name and pronouns, and expect everyone to do so. A student's chosen name and pronouns are to be respected at all times in our classroom. Please let me know in the Intro Questionnaire what name and pronouns we should use for you if they are not on the roster.

Here are some resources to learn more:

- Intro Handout on Pronouns
- Drake's Student Pronoun Policy
- Drake's Preferred Name Policy

Grading:

The following table shows the categories of graded items:

Graded Items	**Percentage**
Labs	40%
Quizzes	30%
Final Project	20%
Participation	10%

Grading Scale:

Final grades will be based on the following scale:

- *Percentages are **not rounded** when using this scheme as this would be the same thing as moving all of the grade boundaries down by 0.5%.*
- *For example, if you have a 91.9% that would be an A-, not an A.*
- *The upper boundaries are exclusive (so while this chart looks like a 92 would fall into both the A and A- category, it would really fall into the A category as the upper limit is exclusive).*

Final Grade					
93.0 - 100	A	80.0 - 82.99	B-	67 - 69.99	D+
90.0 - 92.99	A-	77.0 - 79.99	C+	63.0 - 66.99	D
87.0 - 89.99	B+	73.0 - 76.99	C	Below 63	F
83.0 - 86.99	B	70.0 - 72.99	C-		

Labs (40%):

Some of our meetings will be designated ‘Labs’. These meetings will involve many hands-on exercises that will be done in a small group (ideally 2 students). The labs will be graded using CodePost, and will need to pass some auto-graded tests for credit. Keeping up with the content of the labs is an important component of the course as the labs will be foundational to the fundamentals of the course.

Quizzes (30%):

There will be 5 small quizzes that will be administered via Blackboard. They will not be timed, and you will have a few days to complete them. They are to be completed individually, and you will only have one shot at submitting them. As in the real world, you will be allowed to use external resources like the class notes and the internet. You will be required to cite any sources that you used while completing these quizzes other than the class notes.

Final Project (20%):

The course includes a substantial project that is due at the end of the semester. More details will be announced later in the semester. You will be asked to demonstrate many of the concepts that you learned throughout the class in a creative project. The project will also include a final demonstration of the project. These project demos will take place during our last day of class.

Participation (10%):

It is important to me that everyone feels included and comfortable participating in this course. Toward this goal, I choose to implement two equitable participation methods. The first is the use of **Participation Cards**–a deck of cards with each student's name on them. I will use these cards to call on randomly selected students. This prevents the same small subset of students from answering all of the questions and will help me get a better understanding of how well the class is understanding a given topic. The goal of these cards is not to make students anxious, it is to ensure equity and inclusion by making sure everyone has an equal opportunity to participate in class.

The other method that I use to ensure equitable participation is a polling software called **PollEverywhere**. We will use PollEverywhere in each class to take attendance, review concepts from the previous class, as well as test the understanding of new concepts. There is a small fee associated with PollEverywhere–you will be asked to pay $13.99, which will allow you to use PollEverywhere in 10 classes.

Your PollEverywhere answers will not be judged on correctness–we're here to learn and will certainly make mistakes along the way. Instead, you will be given participation points for submitting your answers each day using PollEverywhere.

Course Communication:

Blackboard and email will be the primary method of communication for this course. I will survey the course early on to see if adding supplemental communication (Slack or Discord) would be of interest to the group.

Getting Help:

There will be times in this class when you feel like you're stuck–that's perfectly okay and a big part of practicing computer science. If you are stuck for longer than 30 minutes on one thing, please reach out to me and get help. It is my job to help you get unstuck, please reach out for help early and often.

Collaboration Policy:

The lab exercises are intended to be done in collaboration. The solutions to these in-class exercises should be developed amongst class partners and multiple names should be included in comments in the submitted code.

You are encouraged to work with other students on homework assignments; however, every student must implement program code, perform experiments, and write up the accompanying results separately (unless otherwise specified).

Sharing completed solutions on the homework assignments (verbally, physically, electronically, etc.) is not acceptable. If you work with someone, you must say so somewhere in your assignment, and you must affirm that you in fact worked together and that no completed solutions were shared. For instance, in the comments of a program or at the top of a written page, you must write something like:

"I worked on parts X and Y of this assignment with person Z. No completed solutions were shared."

Academic Integrity:

Students are encouraged to seek out resources for help in understanding concepts when completing coursework. However, there is a big difference between seeking outside resources for help in understanding and searching for solutions. All solutions prepared with the aid of any source, however minor, must specifically cite those sources and explain the relationship of the submitted solution to the source. All citations must include author names, titles, publication information, and links to electronic sources when they exist. For programming code, all such citations and explanations should be included with comments. When in doubt, be open and transparent about the use of sources. This will shift the issue away from a question of academic integrity penalties to a question of how many points to award for your contributions. A violation of the course's collaboration policy will also be considered an academic integrity violation.

The minimum penalty for a first violation of academic integrity will be a forfeiture of all points on the entire assignment or exam in question. A second violation will result in a grade of 'F' for the course. All violations will be reported to the College of Arts and Sciences Dean's office as explained in the Academic Integrity Policy.

Access and Success Accommodations:

Accessibility is very important to me. I've done my best to design this course such that it is as universally designed as possible–flexible attendance, recording lectures, removing timed exams, etc. However, I am more than happy to work with you if there are other accommodations that I can provide to help you succeed in this course.

In my opinion, academic accommodations are severely underutilized. While I am committed to designing my courses to be accessible to everyone, I know that there are times when accommodations make a huge difference. Please, if you are neurodivergent, consider setting up an appointment with Access and Success to have access to accommodations. I am in your corner for this, please don't hesitate to reach out to me if you have any questions.

Process for Communicating Academic Accommodations:

1. When students request accommodations, they must provide documentation to Access & Success.
2. First-year students, students new to requesting accommodations, and transfer students are required to make an appointment with Access & Success. Access & Success work together with the student to determine reasonable accommodations for each of the student's classes.
3. Returning students can fill out an accommodation request form, found on the Access & Success website, www.drake.edu/access-success. The same process will be followed as above, however returning students do not need to meet with Access & Success unless their accommodations need to be changed.

If you have a disability and require academic or physical accommodations in this course, please contact me and Access and Success Services (Michelle Laughlin, Director, Access and Success, at (515) 271-1835 or michelle.laughlin@drake.edu) in advance of the date the accommodations are needed. All requests for assistance must be received (at least) four full business days prior to the requested need.

Schedule:

This Schedule will be kept up to date, and you can click on these links.

Tentative Topic	Resources	Assigned	Due	Day	
Day00: Welcome to CS65	Slides, Video,	A0		M	8/29
Day01: Variables and Comments	Slides, Notes, Video	L1	A0	W	8/31
Labor Day -- No Class				M	9/5
Day02: Expressions and Datatypes	Slides, Notes, Video	L2	L1	W	9/7
Day03: User Input, Type Conversions	Notes, Video	L3	L2	M	9/12
Day04: Division Operators	Notes, Video		L3	W	9/14
Day05: Conditionals	Notes, Video	Q1, L4		M	9/19
No class *work on Q1, L4 no in-person class*			L4	W	9/21
Day06: String Comparison and Chained Conditionals	Notes, Video	L5		M	9/26
Day07: Lists	Notes, Video	L6	L5	W	9/28
Day08: While Loops	Notes, Video	L7	L6	M	10/3
Day09: Files	Notes, Video	L8	L7	W	10/5
Day10: 2D Lists, Files and Loops	Notes, Video	Q2		M	10/10
Day11: Intro to Functions	Notes, Video		Q2	W	10/12
No Class -- Fall break				M	10/17
Day12: Functions	Notes, Video	L10		W	10/19
Day13: Functions part III	Notes, Video	L11	L10	M	10/24
Day14: Functions and For Loops	Notes, Video	L12	L11 (10/28)	W	10/26
Day15: 2D Lists and Nested For Loops	Notes, Video	Q3	L12	M	10/31
Day16: Nested Loop Pracitce	Notes			W	11/2
Day17: Make a Dice Game	Notes	L13		M	11/7
Day18: Building from Scratch	Notes		L13 (Thurs)	W	11/9

Day19: Objects and Classes	Notes	Project Proposal		M	11/14
Day20: Class Design	Notes			W	11/16
Day21: Intro to GUIs	Notes		Project Proposal	M	11/21
No class -- Thanksgiving break				W	11/23
Day22: GUIs Part II	Notes			M	11/28
Day23: Intro to Accessibility	Notes			W	11/30
Day24: Work on Projects	Notes	Q5		M	12/5
Day25: Project Presentations	Notes		Q5, Final Project Presentations	W	12/7