CS 1120: Media Computation
Spring 2018

Tuesday/Thursday 12:30 - 1:45 p.m., ITTC 28

Instructor
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Office hours:
Tuesday: 2:30 - 5:00 p.m.
Wednesday: 9:00 - 11:30 p.m.
Other hours available by appointment

Resources
Required text:
Introduction to Computing and Programming in Python (4th Edition) by Mark Guzdial and Barbara Ericson.
ISBN-13: 978-0-13-292351-4

Course website: http://sergey.cs.uni.edu/cs1120 and UNI eLearning
Course mailing list: cs-1120-01-spring@uni.edu

Note that to send messages to the course mailing list, you must send from the mailing address from which you are subscribed. By default, that is your uni.edu email address.

Goals
This course has two primary goals. First, you will study digital media and some of the techniques that are used to digitally represent photo, sound, and text files. Second, the course aims to teach a bit about how to write computer programs. Programming is the way that computer scientists express their ideas and implement solutions to problems. Even if you never program for a living, you may find situations in your career where you would like to be able to make a tool do something that it doesn't yet do. More and more applications are allowing this kind of "end user programming." I hope that you leave this course with a sense of what programs can do and of how you can write programs to express ideas.

Media computation is the primary theme in this course. Computing with images, sound, and text offers a rich body of problems to solve that will bring us into contact with many of the fundamental ideas of computer science: representing and transforming data; design, analysis, and experimentation; and the thrill of solving problems in any domain of human thought.

By the end of the term, you should feel comfortable:
1. writing basic Python programs to manipulate images, sound, and text;
2. thinking about problems in terms of representing and transforming data.

Requirements

Sessions

Some of the material that we cover in class will expand upon what appears in your texts, so attendance is essential. You will be expected to read assigned topics prior to the class session and to participate actively in class.

Laboratory

There will be 10-12 laboratory sessions, beginning the second week of class. Attendance of lab sessions is required -- you will receive credit for a lab only if you attend. During each lab session, you will do exercises that complement the topics being covered in class, usually that same week.

Assignments

Over the course of the semester, you will complete one introductory and 6-8 programming assignments. The programming assignments will involve applying techniques learned in class and will occasionally involve extending or modifying code originally developed in class or a lab session.

Exams

We will have two midterm examinations during the semester and a comprehensive final exam at the end.

Evaluation

Final grades will be computed according to the following weights:

In-class labs	20%
Assignments	35%
Exam-1	15%
Exam-2	15%
Final exam	15%

Following is the grading scale used for this class. There is no curve.

93+	A
90 - 92	A-
87 - 89	B+
83 - 86	B
80 - 82	B-
77 - 79	C+
73 - 76	C
70 - 72	C-
67 - 69	D+
63 - 66	D
60 - 62	D-
59-	F

Computer Access
The software using for this course is available in the following CHAS computing labs:

- Wright 112. This is a teaching lab used for several classes and may not always be available.
- Wright 339. This is a public lab which is rarely closed for classes.
- ITTC 335. This is a small general purpose student lounge.

Working on your own laptop/computer: I *highly* suggest using your own desktop or laptop to complete your assignments so you aren't constrained by the open hours of the labs. Having your own computer will greatly aid you in your studies, and the computer itself does not have to be very expensive.

All of the software that we are using this semester is freely available and will work with Windows, OSX, and Linux. See the course "Resources" page at: http://sergey.cs.uni.edu/courses/cs1120/resources

General Policies

Assignments
Programming assignments are designed to take what you have learned in lab and during lecture, and apply these skills to a program on a scale larger than that explored in-lab. It is expected that you will complete all assignments ***as an individual*** unless otherwise instructed (see section on scholastic conduct). If you have questions concerning an assignment, feel free to consult your instructor.

Homework assignments must be submitted through eLearning (unless otherwise indicated). Assignments will not be accepted via email. All assignments are due at their assigned date and time. In order to receive partial credit, always submit your best effort by the assignment due date. **Late work will not be accepted.** Exceptional circumstances will be considered only if discussed with the instructor prior to the due date.

Exams
You are the one responsible for being here for the assigned date of your exams. Failing to do so results in a zero grade for the exam. Excuses will be considered to allow you to make up your exams only when you provide prior notice AND proper documentation for your instructor.

Scholastic Conduct
Since cheating definitions and academic ethics policies are often written for other types of classes, you might tend to wonder how those translate to a computer science course. You may be surprised to hear there are many ways to write a program to solve a specific problem. This is very similar to how there are many different ways to write an essay addressing a particular topic. After a certain point in the course, I may be using plagiarism-detection software to detect similarities that are very unlikely to occur if students were working alone.

Additionally, you need to cite your source if you seek and use help found on the Internet (much like citing a source in an essay course). To do this, you need to put the URL and a brief description of the help you found in a comment directly above the affected block of code. I will show you how this is done further along in the class. However, if you do use code from the Internet, I reserve the right to ask you how it works line-by-line. If you cannot explain it to me, I will not give you credit for that part of the assignment. In other words, ***if you use help or code found on the Internet, you must cite it and fully understand it***. It is always better to try to figure things out on your own than to use something you don't understand.

In this class, homework assignments must be done on your own as your own individual work. However, this does not mean that you cannot ask for help. Here are some general guidelines for keeping out of trouble.

If you are seeking help from a classmate:

- DO NOT ask to see their code or look at their code.
- DO explain your thought process and where you are stuck in words.
- DO draw diagrams on the board.

If you are helping another classmate:

- DO NOT show them your code.
- DO NOT directly modify their code.
- DO try to help them in words, similar examples from lectures and labs, and diagrams.

If I suspect a case of plagiarism or cheating, I will notify the student via email and allow the student to come in and explain what happened. If I determine that plagiarism or cheating has taken place, the following possible sanctions will occur (in accordance with UNI Academics Ethics Policies found at http://www.uni.edu/policies/301). The following list does not list all possible academic ethics violations, and it is your responsibility to be familiar with the full list (again, http://www.uni.edu/policies/301).

Remember: Discussing assignments is good. Copying code or answers is not.

Email Accounts

It is a requirement that you obtain and use your university email account (even if you only set it up in order to have emails forwarded to another account). You should check your email daily for class announcements.

Disabilities and Special Needs

The University of Northern Iowa is an Affirmative Action Equal Opportunity Institution. The Americans with Disabilities Act of 1990 (ADA) provides protection from illegal discrimination for qualified individuals with disabilities.

Please address any special needs or special accommodations with me at the beginning of the semester or as soon as you become aware of your needs. Those seeking accommodations based on disabilities should obtain a Student Academic Accommodation Request (SAAR) form from Student Disability Services (SDS) (phone 319-273-2677, for deaf or hard of hearing, use Relay 711). SDS is located on the top floor of the Student Health Center, Room 103.

Learning Assistance

I encourage you to utilize UNI's Academic Learning Center's free assistance with writing, math, reading, and learning strategies at no cost to currently-enrolled UNI students:

- The Writing Center offers one-on-one writing feedback for all UNI undergraduate and graduate students. Certified Writing Coaches work with students to help them successfully manage all phases of the writing process, from getting started, to citing and documenting, to editing and proofreading.
- Math and Science Services serves as an academic resource to bridge the learning gap that exists once the student leaves the classroom. Students may walk in during the semester to review for an exam, ask questions about preparing and studying for an exam/class, discuss confusing concepts, complete homework, meet with a study group, or study in a quiet setting. Individual consultations with trained staff are available by appointment.
- The College Reading and Learning Center helps students transition to college-level reading and learning expectations at UNI. Students work with trained Academic Coaches by signing up for workshops, scheduling appointments, or walking in.

UNI's Academic Learning Center is located in 008 ITTC. Visit the website at www.uni.edu/unialc or phone 319-273-2361 for more information.

Privacy

The Family Educational Right to Privacy Act, also known as the Buckley Amendment, is a federal law designed to protect student privacy. This means that only you have legal access to your grades. Your parents, friends or significant others have no right to discuss with us your course performance. You have the option to sign a waiver of these rights, but if you have not signed such a waiver, we are not allowed by federal law to discuss your grades with anyone but you. Please realize: if your parents contact us to talk about your grades, federal law prohibits us from doing so.

Tentative Schedule

The schedule in this syllabus is tentative and may be updated in the course of the semester. A detailed up-to-date schedule that includes specific topics and assigned readings is available on the course web site: http://sergey.cs.uni.edu/cs1120

Week 1	Introduction to computer science, programming and digital media
Week 2	Image manipulation
Week 3	Image manipulation
Week 4	Image manipulation
Week 5	Image manipulation
Week 6	Image manipulation
Week 7	Exam 1; Sound manipulation
Week 8	Sound manipulation
Week 9	Sound manipulation
Week 10	Sound manipulation
Week 11	Sound manipulation
Week 12	Exam 2; Text manipulation
Week 13	Text manipulation
Week 14	Text manipulation
Week 15	Moving information between media
Finals	Final Exam