

CS 1120: Media Computation

Spring 2017

Monday/Wednesday/Friday 10:00 - 10:50 a.m., ITTC 322

Instructor

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Office hours:

Monday/Wednesday/Friday: 11:00 - 12:50 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>

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 e-mail 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." We 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 are eleven scheduled 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 seven 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.

All of the software that we are using this semester is freely available. See the course "Resources" page at:

<http://sergey.cs.uni.edu/courses/cs1120/resources>

General Policies

Assignments

Homework assignments must be submitted through eLearning (unless otherwise indicated). Assignments will not be accepted via email. Assignments are due by the end of the day on the date specified in the assignment. You may submit an assignment up to 24 hours after the due date, but there will be a 10% penalty. Assignments will not be accepted after the late deadline. 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.

Honesty/Integrity

Working together is encouraged for programming assignments, to help you understand the problems and to encounter different points of view. Acknowledge by name any person with whom you collaborate in the documentation of the program you submit. **However, any work you submit must be your own.** Undocumented or unacceptable collaboration, including the sharing of code, will be considered a form of academic dishonesty.

The guidelines set forth by the University Faculty Senate at UNI will be upheld in this course in regards to cheating and/or plagiarism (www.uni.edu/policies/301). Academic misconduct will not be tolerated and will be severely penalized, possibly resulting in a failing grade for the course. A description of the incident will be forwarded to the appropriate university office and handled through proper university channels.

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	Date	Session topic, Labs, Assignments
1	Mon, 01/09 Wed, 01/11 Fri, 01/13	Introduction to computer science and digital media Introduction to programming Lab 1
2	Mon, 01/16 Wed, 01/18 Fri, 01/20	Martin Luther King, Jr. Day / no class no class Image manipulation / Assignment 0
3	Mon, 01/23 Wed, 01/25 Fri, 01/27	Image manipulation Image manipulation Lab 2
4	Mon, 01/30 Wed, 02/01 Fri, 02/03	Image manipulation / Assignment 1 Image manipulation Lab 3
5	Mon, 02/06 Wed, 02/08 Fri, 02/10	Image manipulation Image manipulation Lab 4
6	Mon, 02/13 Wed, 02/15 Fri, 02/17	Image manipulation / Assignment 2 Image manipulation Lab 5

7	Mon, 02/20 Wed, 02/22 Fri, 02/24	Image manipulation Image manipulation Exam review
8	Mon, 02/27 Wed, 03/01 Fri, 03/03	Exam 1 / Assignment 3 Sound manipulation Lab 6
9	Mon, 03/06 Wed, 03/08 Fri, 03/10	Sound manipulation Sound manipulation Lab 7 / Assignment 4
10	Mon, 03/20 Wed, 03/22 Fri, 03/24	Sound manipulation Sound manipulation Lab 8
11	Mon, 03/27 Wed, 03/29 Fri, 03/31	Sound manipulation / Assignment 5 Sound manipulation Exam review
12	Mon, 04/03 Wed, 04/05 Fri, 04/07	Exam 2 Text manipulation Lab 9
13	Mon, 04/10 Wed, 04/12 Fri, 04/14	Text manipulation Text manipulation Lab 10
14	Mon, 04/17 Wed, 04/19 Fri, 04/21	Text manipulation / Assignment 6 Text manipulation Lab 11
15	Mon, 04/24 Wed, 04/26 Fri, 04/28	Moving information between media Steganography Course review / Assignment 7
16	Mon, 05/01	Final Exam: 10-11:50 am