SI 206 Fall 2017 – Data-Oriented Programming

Instructor: Colleen van Lent (Office - NQ 3369)
GSIs: Chong Li and Niharika Ved

The GSIs are an incredible resource. However, they are contractually limited to keep their contact hours *under* a certain amount, and this includes email contact. In addition, they are not able to change grades, you will need to submit grade changes via a Google Form and/or see me in office hours.

Contact:

1) Your first point of contact should always be the Piazza message board through Canvas. This is a great place to get and receive help, as well as receive participation points. Sign up at piazza.com/umich/fall2017/si206001fa2017
2) If you have not been able to find help there, the next step is to fill out the Help Queue Form via Google https://goo.gl/forms/eyJ3c3PmXlIIFWN22
3) For other course questions please use: 206-Instructors@umich.edu
4) For grade disputes please use the Google Form Regrade Request form via Google: https://goo.gl/forms/y2WsO5T6TRPUHCfZ2
5) For questions of a personal nature, please use my email (collemc@umich.edu)

In all cases if you have not had a response within 2 business days, feel free to reach out again.

Lectures: M/W 2:30-4:00pm 260 Weiser Hall
Discussion Sections: ***You must attend the discussion section you are enrolled in.***
002 – Wed. 6:00 - 7:00 PM 2114 MLB
003 – Th 8:30 - 9:30AM B134 MLB
004 – Th 3:00-4:00 PM G550 DENT
005 – Th 6:00-7:00 PM B134 MLB

Office hours:
Office hours are a great time to ask questions about assignments. Students who are waiting should feel free to help each other out. Please note - After Sept 15th please check Canvas for updated Office Hour times.

Colleen van Lent - Thursdays 10:00am - 12:00pm NQ 3377
Chong Li - Thursdays 11:30 AM - 1:30 PM 1270 NQ
Niharika Ved - Monday 12:30 PM to 2:30 PM

"Donut Hours" - I will be having bi-weekly donut hours on Fridays(10-11am) and Mondays (9:15-10:15am). These are to get to know students, talk about career paths etc. We will not be discussing homework. These meetings are limited to 10 students at a time. Please sign up at: **https://calendar.google.com/calendar/selfsched?sstoken=UU8wRGFQb1NtWUJEfGRlZmF1bHR8MzYxZWIwYjIiNWQ2MDAyYzFjN2RiMTQ3NTkyNjIkNTM**

COURSE RESOURCES

- A laptop: if you do not have a laptop to use in class (whether because you have a desktop computer OR because you use University computers for your coursework), that is fine –but please let Colleen know by the end of the first week of class so we can make sure you have the same participation options.
- Readings: We will refer to excerpts from Programs, Information, and People (Python 3) by Paul Resnick, including writing by Jackie Cohen and Samuel Carton, which can be found here: https://www.programsinformationpeople.org/runestone/static/publicpy3/

  We will also refer to Python for Everybody: Exploring Data in Python3 by Chuck Severance, which can be found here: https://www.pythonlearn.com/book.php

  We will also read and refer to a number of other online sources, all of which will be provided to you via Canvas and links. You will need to access them at least on campus Internet to download or print out, but all of the resources required for this course will be freely available. *You can find the weekly reading assignments in the Modules section of Canvas.*

COURSE DESCRIPTION

This course will focus on giving you a strong background in data-oriented programming, in the Python programming language. It is intended for students who have completed an introductory programming course and are moving on to the next step in a data-oriented Fashion. This course helps students continue to develop their core programming and software development skills, to build competency and literacy in important areas that includes basic data structures, debugging and testing, using distributed code repositories, pattern matching, and programmatic gathering and processing of data. Applications in assignments and labs are oriented around data manipulation: in many cases, data of interest is distributed online among many Web pages, stored in a database, or available in a large text file. Often these data (e.g. all headlines from a year of newspapers) are too large to obtain and/or process manually. Instead, we need an automated way to gather the data, parse it, and summarize it before we can do more advanced analysis. The course teaches how to use Python and its packages to accomplish these tasks in a quick, useful, and repeatable way. Overall, we will be focused on gaining good understanding of code, such that you can pick up new frameworks and packages and learn to use them comfortably, comfort with manipulating and debugging and documenting code, and practice writing solid, modular, clearly understandable code.

The skills taught in this course are useful regardless of whether data analysis or processing or data science are immediately in your present or future. Indeed, they are useful across disciplines, from arts, to humanities, to lab sciences, to social and computing sciences and beyond.

The work in this course will consist primarily of:

- ***Readings*** which will be assigned before lectures and posted on Canvas. Lectures will assume those readings have been completed, and will address tricky ideas from them, questions that may come from them, and extensions from them. We will use a freely available online textbook, but we will also occasionally include other online resources and links. Readings may occasionally include exercises to try out (no need to get them correct, just try). Occasionally we may ask you to put any questions about readings on our Piazza site forums (you are always welcome to do so).

- **Homework assignments** are small assignments which will help you build up to our four projects in the course. Usually, these will be programming assignments, but sometimes they will be documentation-focused (writing about programming or other tools in English / commenting code), or using another online/programming related tool in a certain way.

- **Projects**. There will be four projects in the course. The homework assignments preceding each project will build up to the project, but in each project you'll have some new additions before it is complete or an opportunity for personal creativity. Programming is a creative discipline, and we want you to embrace that! The final project will provide more options for creativity than the others, which you can use as a basis for ideas. ***All projects must be submitted as .zip files (not .rar files, not individual files).***

- Other graded components
  There will be a **midterm exam**, and **discussion attendance** is required (but may be waived). See further below for grading scheme details.

- Lectures will include **student participation**: question-asking, going around the room for participation, occasional paired activities, etc. We strongly encourage you to ask questions when you are uncertain of an answer, because that is helpful for everyone! However, you never need to answer a question/speak to the whole group in lecture if you do not want to, but you must find other ways (piazza, discussion sections, etc.) to participate.

Throughout the course, in lecture, discussion sections, and office hours, we expect respect of one another – this class is yours as much as it is ours, and a positive environment in this class is up to you. To that point, if you choose to use a computer during lecture, you should use it solely for course material and note-taking so as not to distract others. We expect you to read all assignment instructions carefully and thoroughly: instructions can make all the difference. Being overwhelmed and confused is always acceptable (and often expected) in this course but you must ask questions early and often.

Student Mental Health and Well-being
The University of Michigan is committed to advancing the mental health and wellbeing of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, contact Counseling and Psychological Services (CAPS) at(734) 764-8312 and https://caps.umich.edu/ during and after hours, on weekends and holidays, or through its counselors physically located in schools on both North and Central Campus. You may also consult University Health Service (UHS) at (734) 764-8320 and https://www.uhs.umich.edu/mentalhealthsvcs, or for alcohol or drug concerns, see www.uhs.umich.edu/aodresources. For a listing of other mental health resources available on and off campus, visit:http://umich.edu/~mhealth/

Accommodations for students with disabilities
If you need an accommodation for a disability, please let me know by the end of the 2nd week of class or within 72 hours or new documentation. Some aspects of this course, the assignments, the in-class activities, and the way we teach may be modified to facilitate your participation and progress. As soon as you make me aware of your needs, we can work with the Office of Services for Students with Disabilities (SSD) to help us determine appropriate accommodations. SSD (734-763-3000;ssd.umich.edu/) typically recommends accommodations through a Verified Individualized Services and Accommodations (VISA) form. I will treat any information that you provide in as confidential a manner as possible.

Academic Integrity:
UMSI strongly encourages collaboration while working on some assignments, such as homework problems and interpreting reading assignments as a general practice. Active learning is effective. Collaboration with other students in the course will be especially valuable in summarizing the reading materials and picking out the key concepts. ***You must, however, write your homework submission on your own, in your own words, before turning it in***. If you worked with someone on the homework before writing it, you must list any and all collaborators on your written submission. Read the instructions careful and request clarification about collaboration when in doubt. Collaboration is always forbidden for take-home and in class quizzes and exams. Largely duplicate copies of the same assignment will receive a 0 for all parties. See the (Doctoral, MSI, BSI) student handbooks available on the UMSI intranet for the definition of plagiarism, resources to help you avoid it, and the consequences for intentional or unintentional plagiarism.

If you are a more advanced student and are willing to help other students, please feel free to do so. Just remember that your goal is to help teach the material to the student receiving the help. It is always appropriate to ask for and provide help on assignments via the forums or during the open lab portions of class. **Any instances of cheating will result in a 0 for the assignment and the lowering of the final grade by one grade level**.

Answers to FAQ

• Posting code snippets on Piazza is great, and encouraged! Posting complete answers to homework problems is not acceptable.
• Study groups are welcome and strongly encouraged, as is talking through any and all programming problems you encounter. However, if you feel you are either giving or receiving all of the answers and it is impacting your learning negatively, please break up your study group, and/or contact Colleen confidentially.
• Use of any solutions provided from previous semesters is not allowed.

GRADED ASSIGNMENTS IN THIS COURSE

Homeworks (480 pts)
Must complete 8 out of 10 homeworks**. No homework is accepted more than 24 hours late. (Be warned though, you will want to complete the assignments in order to work on the Projects.) Homeworks will vary: some will involve completing some programming problems, or writing in English, or trying out someone else's code, or debugging… it will vary dependent upon the topic(s) we are focusing on that week. If you enroll late for the course you have 48 hours from enrollment to complete any missing homeworks.

Projects (600 pts)
You must complete all three projects. You have up to 8 late days (total) over the course of the semester in which we will not deduct points on assignments. There is no need to explain the circumstances. These late days are automatically applied the first time you miss an assignment.

Git commits (150 pts)
After learning about Git version control, you are required to make at least 3 commits per week, more than 4hrs apart. Each commit is worth 5 points, up to 3/week for a maximum of 15pts per week. (Two weeks are dropped.)

Midterm Exam (250 pts)
The midterm is in-class on November 8th!!

Participation (50 pts)
Your participation is based on lectures, discussion, contributing to Piazza, and some additional opportunities. For Piazza answering as well as asking questions, contributing to threads on discussion forum at least twice every three weeks throughout the semester is expected.

Final project (310 pts)
Your final project will build on some of the work you've done earlier in the semester. It will be approximately the worth and size/difficulty of two regular projects. No late submissions are accepted. The due date is 12/15 11:59pm.

Discussion Attendance (160 pts)
There are 10 discussion section opportunities during the semester. We will count 8.

- You are absent if you arrive more than 10 minutes late.
- You may not attend an alternate discussion.
- Your two free misses count for missing discussion due to job interviews, fairs, celebrations, travel, late enrollment, etc. There are no excused absences other than this, excepting extraordinary circumstance.

Regarding extensions:
Homeworks may be handed in up to 24 hours late without penalty. After that, no late submissions are accepted. For Projects you have a total of 8 days you can apply during the course of the semester. There is no need to request or explain these late days. However, you do not get to choose which projects to apply them to - they are applied at the first instance.
There are not extensions for the Final Project.

However, if you have an extreme medical or family care or other type of situation that may be an extraordinary circumstance, please contact Colleen to discuss an extension. You need to contact Colleen ***at least three days in advance*** for an extension on a project. Homeworks build up to the projects, and you should not be first reading or starting the projects less than 3 days before the deadline.

Regarding grading and re-grading:
We grade all assignments with a strict rubric, wherein the same rubric is applied to everyone. If you believe there is an error in the way you have been graded, please submit a regrade request per our system. We will change your grade if there has been a mistake; we will always apply the same rubric to every person's assignments. All regrade requests must be submitted within 7 days of assignments being graded.

GRADING IN THIS COURSE
There is a total of approx. 2000 points available in this course (see above for how they are distributed among different types of assignments). The approximate grading boundaries are as shown:

1800 - A	1400 - C
1750 - B+	1340 - D+
1600 - B	1200 D
1540 - C+	

If there are a different number of points e.g. on the midterm or final project, we will retain the percentage correspondences to grades, but the point totals required for each will change. This class is not curved. In order to get an A+ in the course you must have 2000 points and NO missing homework assignments (complete all 10 assignments).