DS 2001: Computer Science Practicum for DS 2000

Instructor: Prof. Felix Muzny[1] (pronunciation: "Muse-knee"; pronouns: they/them and he/him)
Contact: f.muzny@northeastern.edu
Office: Meserve 307A
Office Hours: see ds 2001 canvas

Section	Time	Location	TAs
2	W 11:45am - 1:25pm	WVH 210A	Monisha (she/her), Isabella (she/her, "Iz-uh-bell-uh"), Prithiv (he/him, "Pre-thiev")
3	W 2:50pm - 4:30pm	WVH 210B	Sarah (she/her), Nilesh (he/him, "Knee-Lay-Sh"), Andrew (he/him)
8	R 11:45am - 1:25pm	WVH 210B	Syona (she/her, "Sa-yo-na") , Harshada(she/her, "Her-shuh-da") , Anthony(he/him, "Ah-tuh-nee")
6	R 2:50pm - 4:30pm	WVH 210A	Mayukha (she/her, muh-yoo-kuh), Nilesh (he/him, "Knee-Lay-Sh"), Anthony(he/him, "Ah-tuh-nee")

TA Office Hours: see the DS 2000 home page

Spring 2024 Course Format

DS2000/2001 are organized as in-person, on-ground classes for Spring 2024. This means that we expect you to attend class in person **when you are well**. Do what you need to do to be fed/hydrated/prepared to be present and engaging with the material.

- If you are ill in any way (even with a negative covid test) I expect you **not** to attend class in person. In lieu of attending class in person, fill out the "I'm missing class" form (on Canvas) as early as possible and follow up with Felix as necessary.
- If you encounter other extenuating circumstances, fill out the same form as early as possible and follow up with Felix as necessary.

Masking Policy

I will be masking for a minimum of the first two weeks of the semester. Please help protect our community and do the same.

About This Course

DS 2001 is a practicum and co-requisite for DS 2000, Programming With Data. In the DS 2000 lecture, you'll learn foundational data science and programming concepts. In practicum, we'll complete practice exercises,

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[1] Call them "Felix", "Professor Muzny", or "Professor Felix"

review material, and study and discuss issues related to data within a general computer science context. Students from all majors are welcome. We'll explore several different interdisciplinary topics.

New programmers are welcome; we don't assume any previous knowledge and we'll start from the very beginning.

Each week, you'll complete a practicum assigned within the scheduled time. Instructors and TAs will be on-hand to go over concepts, answer questions, and lend a hand. At the end of practicum, you'll submit whatever you've completed. We do expect you to be diligently working during practicum but you are not required to spend significant time outside of practicum to get full credit. Practicum assignments are graded on a scale of 0 (not attempted) through 4 (exceeds expectations). See the grading rubric for more information on this scale.

Sometimes, technical issues arise during practicum time that prevent you from working on your lab work. Should this happen, we will work with you to resolve the issues, but you may need to spend extra time outside of class to earn full credit for the material that day.

The practicum includes a final project, which you **will** need to spend significant time on outside of class. The goal of the project is to coordinate your data analysis skills with research questions that you are interested in. It will also allow you to gain hands-on experience with finding, importing, analyzing, visualizing, and presenting a dataset (or datasets) of your choosing. You can work alone or in a small group (of 2 - 3 total members, all from Computer Science DS 2001 sections) -- you will first submit your group's topic, membership, and division of labor in a proposal. Near the conclusion of the semester you will submit your Python code along with any datasets you used in the project in addition to preparing and giving a presentation to your classmates.

You'll also present your project to course staff and your classmates; this can be done in-person or remotely. One of your project responsibilities is to attend the presentations (remote or real-life) of your classmates and complete peer reviews. All project components, including presentations and peer reviews are **required**.

TA Office Hours

We have office hours all week long. Please check the DS2000 website for the schedule, and keep an eye on Piazza for any updates. Remember that you are welcome to attend the office hours of any TA, not just the ones assigned to your section of DS 2001!

TAs are here to help and happy to answer your questions about the course material, homework assignments, practicum, and the project. We expect you to treat all TAs with kindness and respect; we expect the same of your behavior towards one another and towards all the instructors.

Come to office hours well before an assignment is due; they often get crowded, and if you arrive a few hours before an assignment is due, you'll end up feeling rushed and frustrated. Even if you find yourself in that unhappy situation, bear in mind that **it is not the TAs' job to provide the solution for you**. We host office hours so we can debug **your understanding of the material**, not your code.

Software and Communication

We'll be using Python 3 in this class. During our first practicum, we'll work together to download and setup everything you need to program with Python for your practicum assignments, homeworks, and the project.

The main piece of software we'll be using is:
- [Anaconda Navigator](#)
    - Spyder (included with Anaconda Navigator installations)

You will be submitting your assignments on Gradescope, just as in DS 2000.

There is a gradescope set up specifically for the computer science practicum. You should already be enrolled automatically from Canvas, but if you're not, sign up for it at https://www.gradescope.com/courses/686431 using entry code **6G6Z6J**.

There is one Piazza page for all of DS2000/2001. Follow the DS 2000 instructions to sign up for it. For practicum specific announcements and discussions, we'll use the Canvas announcements and discussion board features.

You can always reach out to course staff in practicum/office hours/piazza. Please do not message course staff on Teams.

Classroom Environment & Expectations

- **Attendance:** You are strongly encouraged to attend practicum whenever possible. If you are unable to attend practicum on a given day, it is your responsibility to attend office hours, consult practicum materials, and submit them on time electronically following the submission of your "I'm missing class" form.
- **Classroom environment:** It is unusually common in Computer science classes for some students to ask questions that are not really questions so much as opportunities to demonstrate knowledge of vocabulary or facts beyond the topic at hand. This can have a discouraging effect on other students who are not familiar with those terms, causing them to worry that they are less prepared to do well in the class (this is rarely the case—knowing terms outside the scope of the course is not a good predictor of success). If you find yourself wanting to make such a question or comment, please come talk to me about the topic after class or during office hours—I'm always happy to discuss tangentially related topics at those times!
- **Accommodation letters:** If you have an accommodation letter, please bring it to me at your earliest convenience so that I can make sure this class is meeting your needs.
- **Name and pronouns:** If your name and pronouns are not in alignment with those listed on our class roster, please let me know either in person or via email so that I can ensure you are correctly addressed in this class.
    - If you wish to add, change, or update your pronouns in Canvas, go to "Account" > "Profile" > "Edit Profile", then add, change, or update your pronouns and display name.
    - If you wish to change or update your name here at Northeastern as a whole, find [instructions with the registrar here](#).
- **Class expenses:** If obtaining any material for use in our class presents a financial hardship for you, please let me know and I will work with you to locate the resources that you need to succeed in this class.
- **Feedback:** Please don't hesitate to reach out to me if any aspect of this course or class community could be improved.
- **Illness:** If you are ill in any way, you are expected to submit the "I'm missing class" form and make up the material asynchronously on your own with the support of office hours.

Schedule

Practicum sections meet on Wednesdays and Thursdays. Please make sure you attend only the section you've signed up for, as space is particularly precious this semester. (All sections are registered at capacities of the rooms they are in). If you need to request attending a different section in a given week, reach out to me via email (f.muzny@northeastern.edu).

The topics we'll cover in practicum throughout the semester will align with the material in DS2000.

The practicum assignments are designed to be completed within the 100-minute officially scheduled time. However, we know that things happen so the deadline for practicums for <u>everyone (regardless of specific section)</u> will be on Thursdays at 9pm Boston time. We recommend submitting your work in real-time at the end of your section so you don't forget, but it's OK if your preference is to submit later as long as you meet that last deadline.

Rarely, we may have you complete a reading/watch a video/listen to a podcast outside of class, to be done before your next practicum meeting.

Below is the tentative practicum schedule. The ordering of topics is likely to change, but dates and requirements will not.

Week #	Dates	Topics
1	Jan 10, 11	Introduction, Getting Setup, Running and manipulating files
2*	Jan 17, 18	Variables, data types, working with data
3*	Jan 24, 25	Conditionals, branching, ethics
4*	Jan 31, Feb 1	Lists, loops
5*	Feb 7, 8	Functions, structured data
6*	Feb 14, 15	Functions, parameters, defining & using libraries, introduce final project
7*	Feb 21, 22	2-dimensional/nested lists
8*	Feb 28, 29	more on lists, project proposals
-	Mar 6, 7	SPRING BREAK
9*	Mar 13, 14	Strings
10	Mar 20, 21	project work time/SIGCSE, no practicum assignment
11*	Mar 27, 28	Classes, objects, abstraction
12	Apr 3, 4	Presentation guidelines, project work, discussion
13	Apr 10, 11	Presentations and presentation reviews
14	Apr 17	Presentations and presentation reviews

* these weeks will have graded practicum assignments

Evaluation

You will receive separate grades for DS2000 and DS2001. Your grade in DS2001 will be evaluated based on the following factors:

Factor	Weight
Practicum Assignments (your **1** lowest practicum grade will be dropped)	50%
Project (all components together, no components dropped)	50%

Final grades for DS 2001 will be based on the following scale. Decimal points will be rounded to the nearest integer.

Letter	Range
A	>94 - 100
A-	90 - 94
B+	87 - 89
B	83 - 86
B-	80 - 82
C+	77 - 79
C	73 - 76
C-	70 - 72
D+	67 - 69
D	63 - 66
D-	60 - 62
F	< 60

Practicum Grading

All practicum problems will be graded on the following scale:

0 - not attempted
1 - learning
2 - approaching
3 - meets expectations
4 - exceeds expectations

To get full credit for a problem graded on this scale, you need to get a 3 or 4. Receiving a 0 or 1 will get you no credit, and receiving a 2 will give you 50% of the credit.

You may resubmit any problem you got a 1 or 2 on (you must have made an attempt on your original practicum solutions) within one week of receiving your practicum grade. The reason for this is because learning happens primarily through revisiting topics and revising our understanding of them. A 1 or 2 is not punishment, it is encouragement to revisit a particular topic.

Project

You'll work on the project throughout much of the semester. We'll publish the project requirements early on, and it will be your responsibility to meet all project deadlines.

You can work alone or with a group of up to three (including you) people for your project. All members of your group must be registered for one of my DS 2001 practicum sections, but you need not all be in the same one.

The last two weeks of practicum are designated for project presentations. Presentations will occur in person except in extenuating circumstances. Your presentation will be viewed and evaluated by course staff; and you must submit peer reviews of other groups' presentations.

No project grades will be dropped.

Project components will be evaluated using a "traditional" grading system (as opposed to how practicums are graded).

See final project information sheet for deadlines, to be released near the end of January.

Academic Integrity

Practicum assignments are graded primarily on participation and effort; we expect that you will talk to one another during practicum and exchange ideas, concepts, and help. However, you **may not copy anyone else's code**. **This includes the code from large language models (ChatGPT, etc.)**. Note that "copying" includes any medium that transfers one student's code to another student, whether it be by showing it to them, telling to them, or by other means.

Projects are expected to be novel work. Within your project group, you'll collaborate on ideas, code, and writing, but you **may not share outside of your group. Including with large language models (ChatGPT, etc.)**.

A further note on this practicum's policy to not allow usage of large language models (LLMs): you are here to learn a new skill. This is a difficult thing to do and it can be very enticing to use tools like LLMs. LLMs will be **far more useful** to you in the future if you do everything in your power to learn and practice the fundamentals on your own. You should always be able to explain every part of the code you use and write. Anecdotally, when my students in CS 4120/6120 (a senior/grad level course on **the technology behind ChatGPT**) use LLMs to generate code, **oftentimes they cannot explain the code that has been written for them**. And these students have several years of experience *without* leaning on these tools!

The university's academic integrity policy discusses actions regarded as violations and consequences for students: http://www.northeastern.edu/osccr/academic-integrity

In this class, if you violate our academic integrity policy, this will result in a zero on the assignment(s) in question.

Accommodations

It is my job to create a classroom environment that is most conducive to you learning well. If you have accommodations from the Disability Resource Center, please provide your letter to me early in the semester so

that I can arrange for these accommodations. If you wish to receive accommodations and do not have a letter, please visit the DRC at 20 Dodge Hall or call (617) 373-2675.

Student Names and Pronouns

We recognize that your legal information doesn't always align with how you identify. Students may update their first and middle names as well as gender marker [with the registrar](#), even if they are not your legal names or gender. Those names and gender marker are what would appear publicly in most university systems. In the absence of such updates, what we see on most university systems by default are your legal name and gender marker.

Classroom Environment

To create and preserve a classroom atmosphere that optimizes teaching and learning, all participants share a responsibility in creating a civil and non-disruptive forum for the discussion of ideas. Students are expected to conduct themselves at all times in a manner that does not disrupt teaching or learning. Your comments to others should be constructive and free from harassing statements. You are encouraged to disagree with other students and the instructor, but such disagreements need to respectful and be based upon facts and documentation (rather than prejudices and personalities). The instructor reserves the right to interrupt conversations that deviate from these expectations. Repeated unprofessional or disrespectful conduct may result in a lower grade or more severe consequences.

Part of the learning process in this course is respectful engagement of ideas with others.

The [Code of Student Conduct can be found on the OSCCR website](#).

Title IX

Title IX of the Education Amendments of 1972 protects individuals from sex or gender-based discrimination, including discrimination based on gender-identity, in educational programs and activities that receive federal financial assistance.

Northeastern's Title IX Policy prohibits Prohibited Offenses, which are defined as sexual harassment, sexual assault, relationship or domestic violence, and stalking.

The Title IX Policy applies to the entire community, including male, female, non-binary, and transgender students, faculty and staff.

If you or someone you know has been a survivor of a Prohibited Offense, confidential support and guidance can be found through [University Health and Counseling Services](#) staff and the [Center for Spiritual Dialogue and Service](#) clergy members.

By law, those employees are not required to report allegations of sex or gender-based discrimination to the University.

Reports can be made non-confidentially to the Title IX Coordinator within the Office for Gender Equity and Compliance at: titleix@northeastern.edu and/or through NUPD (Emergency 617.373.3333; Non-Emergency 617.373.2121).

Reporting Prohibited Offenses to NUPD does NOT commit the victim/affected party to future legal action.

Faculty members are considered "responsible employees" at Northeastern University, meaning they are required to report all allegations of sex or gender-based discrimination to the Title IX Coordinator.

In case of an emergency, please call 911.

Please visit http://www.northeastern.edu/titleix for a complete list of reporting options and resources both on- and off-campus.

Religious Holidays

The course staff will make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, contact the course staff at least 7 days in advance of the conflicting date to reschedule a practicum or project due date.