Class: 1010 Intro Computer Science

Class Time

Lecture: Tu/Th 11:10 AM - 12:25 - Room 310 Class Room Building (CR)

Attendance is required.

Lab Times

Lab 10: Tu 3:20pm - 5:10pm - Enzi STEM Room 315

Lab 11: Tu 6:20pm - 8:10pm - Enzi STEM Room 315

Lab 12: Th 3:20pm - 5:10pm - Enzi STEM Room 315

Lab 13: Th 6:20pm - 8:10pm - Enzi STEM Room 315

Lab 14: Fr 2:30pm - 4:20pm - Enzi STEM Room 315

Attendance is required.

Final Time

Our class at 11:10 a.m. – 12:25 p.m. Thursday the final will be December 16 10:15 a.m. – 12:15 p.m. In this room.

Instructor

- Prof Philip Schlump
- Office: Office hours will be Tuesday, Thrusday from 9:00am to 10:45am and by appointment. Appointments can include using zoom.com for remote office hours.
- Contact via email (pschlump@uwyo.edu) or (for emergencies only): 720-209-7888 (my personal cell) and pschlump@gmail.com (personal email). For using GIT and inviting me to have access to your files/projects use pschlump@uwyo.edu as the email address.
- Class Time: Turn off phones and other internet connected devices during class and lab.

If you call me to set up an appointment, you will need to send me a SMS message first so that I enter your name into my contact list. I get 10+ robo-calls a day and I will not answer a random number. Text me with your name and that you are a student in 1010 class.

Overview of the class

Python is becoming a more important language. In some analysis is is the most important language. Job sites show that Python is the most in-demand job. Python was designed to be easy to learn.

xyzzy

Throughout the class we will be using a number of tools. Visual Studio Code will be used for editing text and other files. Python 3.8 will be the version of Python that we are working with. This is the Anaconda install version of Python. The exact version of Python is the Anaconda 64 bit release of Python. We will use TensorFlow 2.x.
Realistically you should install these tools on on your own computer. They work on Mac, Windows, and Linux. I do 80% of my development on a Linux system, 15% on Mac and 5% on Windows. We will also use a tool called Jupyter Notebooks. This is a layer on top of Python.

Visual Studio Code: https://code.visualstudio.com/download

Python 3.8 - Anaconda: https://www.anaconda.com/products/individual

xyzzy - Jupiter

(You won't need this installed for a while, but...) TensorFlow 2.x: https://tensorflow-object-detection-api-tutorial.readthedocs.io/en/latest/install.html

Required texts

We will be covering the first 1/2 of the book in learning Python (pages 1 ... 318). The book can be purchased from Amazon if you need a paper copy. *Python Crash Course* by Eric Mathers, 2nd edition. At this point in time Amazon lists it for $17.00 and notes that it is the best selling Python book of all time. The Amazon link is: https://www.amazon.com/Python-Crash-Course-2nd-Edition/dp/1593279280/ref=pd_sim_14_7

There will be outside reading also. I will provide links or .pdfs.

Required Projects

Most of the class grade comes from the homework. Specifically 30% of the semester grade is from the midterm and the final. 15% from Midterm, 15% from Final. The final is cumulative.

Extra credit

No extra credit is planned at this time.

Class Dates and Schedule.

Note - This is the current "Plan" - if this is updated it will be announced in class and posted to the Github.com site for the class.

Date	Lect. No	Description
Week 1		
Tue Aug 24	1	Cover Syllabus - Class Rules Why Computer Science. Your first program (Excel/Google Sheet) Your first program - Python.
Thr Aug 26	2	Python Mental Model. Basic Operators. Variables / Types *Textbook Chapter 1*
Week 2		
Tue Aug 31	3	Code Re usability. def‘. Unit Conversions. Mikes to km. Big Numbers. Encryption. A Model of Solar System *Textbook Chapter 2*
Thr Sep 2	4	Lists. Data Structures. Files, Modules. Input / Output in Python. Use of Command Line *Textbook Chapter 3*
Week 3		
Tue Sep 7	6	How important testing is. Testing Code Automated Testing Formal Verification *Textbook Chapter 11 - Testing*
Thr Sep 9	7	More on Lists, Dictionaries Maps. Very basic use of Git. *Textbook Chapter 4*
Week 4		

Date	Lect. No	Description
Tue Sep 14	8	Control Flow / If Statements *Textbook Chapter 5*
Tue Sep 16	9	Dictionaries Outside Data - SQLite3 Outside Data - Pandas *Textbook Chapter 6*
Week 5		
Tue Sep 21	10	Control Flow / Loops *Textbook Chapter 7 - Loops*
Thr Sep 23		NO CLASS - Wyoming Hack-A-Thon. Yes you still have lab(s).
Week 6		
Tue Sep 28	11	String Processing. Representation. Searching Genetic Data. *Textbook Chapter 7 - User Input*
Tue Sep 30	12	Functions / Recursion *Textbook Chapter 8*
Week 7		
Tue Oct 5	13	Midterm Review.
Thr Oct 7	14	Midterm Test
Week 8		
Tue Oct 12	15	Object Oriented Programming. *Textbook Chapter 9*
Thr Oct 14	16	More on Objects. Objects and Testing. How the web works. A bit of HTML, CSS, JS. A bit of bottle.
Week 9		

Date	Lect. No	Description
Tue Oct 19		
Thr Oct 21		
Week 10		
Tue Oct 26		
Thr Oct 28		
Week 11		
Tue Nov 2		
Thr Nov 4		
Week 12		
Tue Nov 9		
Thr Nov 11		
Week 13		
Tue Nov 16		
Thr Nov 18		
Nov 22-26		Thanksgiving Break.
Week 14		
Tue Nov 30		
Thr Dec 3		
Week 15		
Tue Dec 7		

Date	Lect. No	Description
Thr Dec 9		Final Review.

Lab Schedule

This is the schedule for the lab.

Date	Week	Description
Week 1		
Aug 24, 26, 27	1	Installation of Python, Compeer Setup Hello World Program. Lab Goal: Be able to write a program.
Week 2		
Aug 31, Sep 2, Sep 3	2	File System. Editing Text Files. Lab Goal: Be able to write a program. 1st part of Unit Conversion.
Week 3		
Sep 7, 9, 10	3	Solar System Distances Lab. Lab Write and Test 2 Program(s). Get output of Test. Run Programs to answer Lab Questions. Creating text file (Markdown) for homework.
Week 4	4	CSV/Dictionary? xyzzy?
Week 5	5	SQLite3 Data Analysis Pull out data. Draw Graphs.
Week 6	6	Search Genetic Data. Determine if person's genes have CF.
Week 7	7	Recursive Calculation Calculate Fibonacci Find the largest value in a list.
Week 8	8	A simple form with a web page and form. Render a page with a form. POST - save data to SQLite3.

Date	Week	Description
Week 9	9	Tensor Flow Install - Hello World
Week 10	10	Data Analysis
Week 11	11	Image Classification
Week 12	12	Hand Writing Analysis
Week 13	13	xyzzy
Week 14	14	xyzzy

Homework/Assignments

Assignment #	Date Due	Pts	Description
1	Mon Aug 30	50	Lab 1: Hello World in Python Due as a part of your lab.
2	Mon Sep 6	100	Basic Unit Conversion
3	Mon Sep 13	100	Distance to Planets (with test code)
		100	Lab 2: Planet Paper Due. Due as a part of your lab.
4	Mon Sep 20	100	Sort and Search Data
		50	Lab 3: Setup and use git and a branch.

Install

Python Packages to Install

1. pandas
2. numpy
3. bottle
4. SQLite3

Tools

1. Anaconda Python

2. Iron Python (Jupyter Notebooks)
3. Visual Studio Code
4. GIT
5. VIM

Late work.

Generally it is a good idea to get the homework done on time. Normally I take 10% off for each week day that a homework is late until it is worth only 40% of the original points. The last day for turning in homework is Dec 10 at Midnight. No homework will be accepted after this point.

Original work policy (in this class).

Homework is turned in online via file upload. The homework is really, really important. Do your own work. That is how you learn. If you use google or other web sources, then note where you got the code or answer from. If you copy from the web, then expect that on a one-on-one basis I will be asking you how the code works. Help each other. It is legitimate in this class, (it may not be in other classes), for you to help your fellow student. If you do then note it in comments your code. Code is very unique to each person. If two of you turn in the same code - that is very bad. If you note that you worked on it together - and then I ask each of you to explain how it works - thats alright. If you have questions about this email me.

Title IX – Duty to Report

The University of Wyoming faculty are committed to helping create a safe learning environment for all students and for the university as a whole. If you have experienced any form of gender or sex-based discrimination or harassment, including sexual assault, sexual harassment, relationship violence, or stalking, know that help and support are available. The University has staff members trained to support survivors in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more. The University strongly encourages all students to report any such incidents to the University. Please be aware that all University of Wyoming employees, including student staff, are required to report all Title IX related concerns to the Title IX Coordinator or their supervisor. This means that if you tell a faculty member about a situation of sexual harassment or sexual violence, or other related misconduct, the faculty member must share that information with the University's Title IX Coordinator. UW's Title IX Coordinator is Jim Osborn (Manager of Investigations, Equal Opportunity Report and Response). He is located in Room 320 of the Bureau of Mines Building, and can be reached via

email at report-it@uwyo.edu or via phone at 766-5200 or 766-5228. For more information, go to: http://www.uwyo.edu/reportit/learn-more/faqs.html .

Attendance and Absence policies

You have to watch the lectures and listen to the podcast. This class has prerecorded lecture and audio that you are expected to watch/listen to. This is your "required" attendance.

SARS-Cov-2 / COVID-19 Related Policies

During this pandemic, you must abide by all UW policies and public health rules put forward by the City of Laramie (or by Natrona County if at UW-Casper), the University of Wyoming and the State of Wyoming to promote the health and well-being of fellow students and your own personal self-care. Please review our current policy. As with other disruptive behaviors, we have the right to dismiss you from the classroom (Zoom and physical), or other class activities if you fail to abide by these COVID-19 policies. These behaviors will be referred to the Dean of Students Office using the UWYO Cares Reporting Form for Student Code of Conduct processes.

Syllabus Changes

I will alert you to any possible course format changes in response to UW decisions about community safety during the semester.

Classroom Behavior Policy

(This section is not really applicable to this class - we will have class discussions that this applies to)

At all times, treat your presence in the classroom and your enrollment in this course as you would a job. Act professionally, arrive on time, pay attention, complete your work in a timely and professional manner. You will be respectful towards your classmates and instructor. Spirited debate and disagreement are to be expected in any classroom and all views will be heard fully, but at all times we will behave civilly and with respect towards one another. Personal attacks, offensive language, name-calling, and dismissive gestures are not warranted in a learning atmosphere. As the instructor, I have the right to dismiss you from the classroom.

Classroom Statement on Diversity

The University of Wyoming values an educational environment that is diverse, equitable, and inclusive. The diversity that students and faculty bring to class, including age, country of origin, culture, disability, economic class, ethnicity, gender identity, immigration status, linguistic, political affiliation, race, religion, sexual orientation, veteran status, worldview, and other social and cultural diversity is valued, respected, and considered a resource for learning.

Disability Support

If you have a physical, learning, sensory or psychological disability and require accommodations, please register as soon as possible and provide documentation of your disability to Disability Support Services (DSS), Room 109 Knight Hall. You may also contact DSS at (307) 766-3073 or udss@uwyo.edu. Visit their website for more information: www.uwyo.edu/udss

Academic Dishonesty Policies

Don't cheat on the exams. I expect you to take full advantage of all the online resources you can get your hands on. That includes Stack Overflow, Github etc. If you do use someone else's code, put in a link to where you found it. Don't cheat on the projects - do you own work. Most of the learning in the class is from *doing* the projects.

Substantive changes to syllabus

All deadlines, requirements, and course structure are subject to change if deemed necessary by the instructor. Students will be notified verbally in class, on our WyoCourses page announcement, and via email of these changes. I do travel during the semester. Class could be canceled or assignments due dates changed.

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