



OMIS 30: Intro to Programming (with Python)

Week 1, Class 1

Introduction to Programming
Instructor: Denis Vrdoljak





Goals for the week

- Cover Intros and Intro Material
- Get your tools and environment set up
- Get familiar with the command line



By the end of this, week you should:

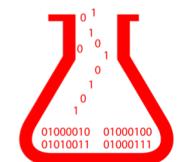
- Have Python installed and your IDE set up
- Be able to write a Hello World program in Python, and run it from the command line



About Me

Denis Vrdoljak

- Master Of Information and Data Science - UC Berkeley
 - Master of International Affairs - Texas A&M
 - BS, Engineering Physics - SCU, Class of 2005!
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- Currently Working as a Data Scientist @ Cisco
 - Data Science Advisor @ Bronco Accelerator
 - Other places I've worked at: UC Berkeley, SanDisk, Western Digital, IBM, Specter Defense, Berkeley Data Science Group





Where to Find Me

- dvradoljak@scu.edu
- Office: Lucas Hall, 216ZZ
- Office Hours: Wed 5:30pm



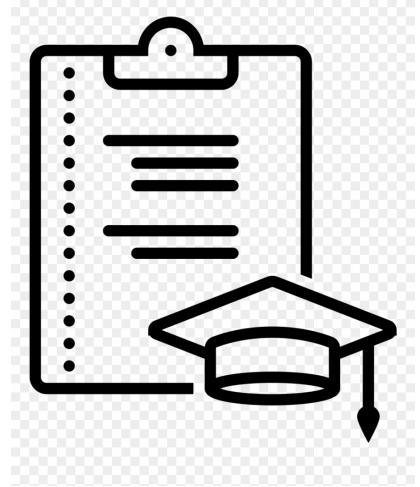


Student Introductions

- Introduce yourself
- Tell us about your background and interests
- Share with us what you hope to get out of this class/why you are here?
 - It's ok if the answer to this last one is "because it's a requirement," or "it looked easier than Physics for Engineers!"
- Share something interesting about yourself-- like what you did this summer, or what you want to do after graduating



Syllabus



https://github.com/denisvrdoljak/OMIS30_Fall2019/blob/master/OMIS%2030%20-%20Intro%20to%20Programming%20Syllabus.pdf



Course GitHub Repository

https://github.com/denisvrdoljak/OMIS30_Fall2019



Instructor and Department Objectives

- Orient students with basic command line skills
- Orient students with basic Python programming skills
- Orient students with coding best-practices & tools



Course Measurables

- Students can run command-line commands.
- Students can write self-contained programs via Python.
- Students can read, interpret, and understand functional code.
- Students can collaborate on code to write a self contained final project.



Course Topics

- Computer setup with Anaconda
- Jupyter notebooks
- Shell scripts and CLI basics - cd, ls, pwd, mkdir, move, copy, touch, echo, nano/vi
- Python Basics – print, format, math, PEMDAS, packing/unpacking
- Primitive types – int, float, string,
- Iterable Types – list, dict, set, tuples
- Psuedo-code, algorithm design, comments, PEP8
- I/O, print, stdin, working with files
- Conditional statements – if/else/elif
- Loops & Nested Loops – for/while
- Error handling: try/except
- Functions
- Classes, objects, methods
- Web-apps
- Web-scraping in Python (demo only)
- Machine Learning in Python (demo only)



Project/Exam Schedule (tentative)

| Week | Assigned | Due |
|-------------|--------------------|---------------|
| Week 1 | Project 1 Assigned | |
| Week 2 | | |
| Week 3 | Project 2 Assigned | Project 1 Due |
| Week 4 | | |
| Week 5 | | Project 2 Due |
| Week 6 | Project 3 Assigned | MIDTERM |
| Week 7 | | |
| Week 8 | Project 4 Assigned | Project 3 Due |
| Week 9 | | |
| Week 10 | | |
| Finals Week | | Project 4 Due |



Camino

Submit all assignments and projects in Camino

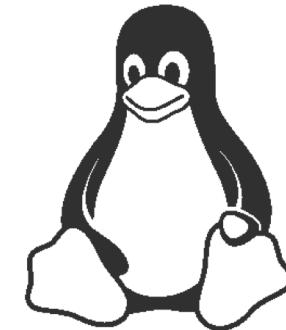
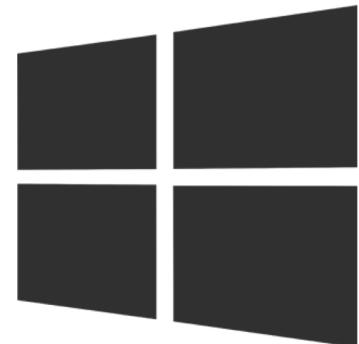
Announcements will be posted in Camino

Assignments will be posted in Camino



Required material

- Laptop running Windows, OSX, or Linux
 - Internet Connection





Required software



ANACONDA®



What is Anaconda Why do we want to use it?



ANACONDA®



Anaconda is a package manager for Python





Spyder, included in the full install, is an open source (free) IDE for Python





It also includes an install of Jupyter Notebooks, and simplifies setting up

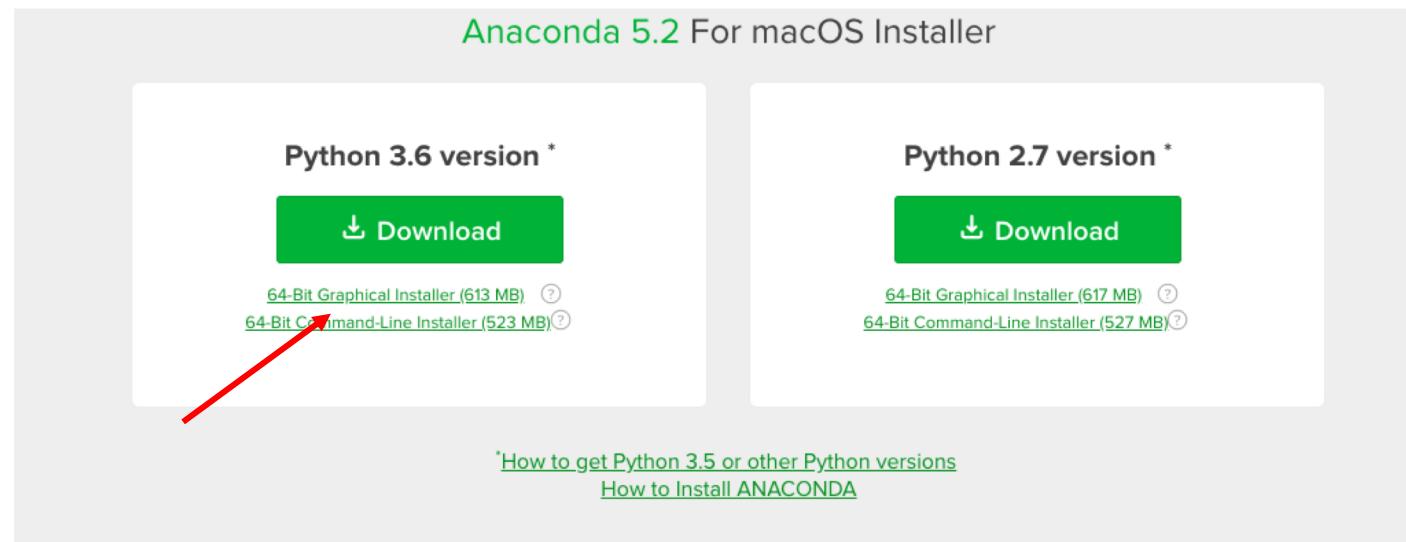




Getting set up

Download from <https://www.anaconda.com/downloads/>
(make sure to download the 3.6 version)

- The graphical installer is easiest and can be used for mac and PC





Getting set up

Find where you downloaded the Anaconda installer and start the installation process

- The graphical installer it is likely on the downloads folder, just double click it.
- Allow Anaconda to prepend paths, this is likely an unselected checkbox



Homework Logistics

- Due: Before the next class
- Turn-in: Camino (or via email if Camino is not setup)
- Extension Policy:
 - With prior approval only.
- Late Grading Policy:
 - Don't be late! But, if you have, you must have prior approval, or have an excused absence.
- Questions on a grade:
 - Message the Instructors Privately



Homework 1.1

- Install Anaconda on your machine
 - Instructions here:
 - https://github.com/denisvrdoljak/OMIS30_Fall2018/blob/master/AnacondaInstallation.pdf
- Submit a short introduction to yourself and what you hope to learn from this course (1 paragraph max)
 - email to dvrdoljak@scu.edu
- Survey:
 - <https://goo.gl/forms/T6EBefwNIvG4EiAN2>



Reading Assignment 1.1

Learning Python: Chapter 1