ECON 8320 – Tools for Data Analysis
Date & Time – Room: TBA

Instructor: Dustin White
MH 332M
Phone: 402-554-3303

Office Hours: TBA, and by appointment.

Materials: Python Lectures PDF from Quant-Econ.net
Course Slides (hosted on Blackboard)
Course Notes (also hosted on Blackboard)
Data Science from Scratch (ISBN: 978-1-4919-0142-7)

Prerequisites: ECON 2200 or BSAD 8150 (or equivalent); BSAD 2130 or equivalent. No previous programming experience is required.

Description: The course will cover basic principles of programming languages, as well as libraries useful in collecting, cleaning and analyzing data in order to answer research questions. The course will utilize basic Economic principles and Econometric methods as inspiration for assignments and projects throughout the duration of the course, and will do so in a way that is accessible to non-Economists. This course is intended to introduce the student to the Python programming language as a tool for conducting data analysis. While the course uses Python, the student should be able to move to other languages frequently used in data analysis using the principles taught in this course.

Course Outline:

Data Types and Documentation	approx 1 day
Functions	approx 1 day
Classes	approx 1 day
Threading	approx 1 day
Numpy and Scipy	approx 2 days
Pandas (pandasql and sqlite3)	approx 1 day
Matplotlib	approx 1 day
Statsmodels	approx 1 day

Scikit-Learn ..... approx 1 day
Regex ..... approx 1 day
Scrapy, JSON ..... approx 1 day
Geolocation API's ..... approx 1 day
Twitter API ..... approx 1 day
Dash (web apps) ..... approx 1 day

Grade Policy: Lab Completion ..... 375 points
Homework ..... 375 points
Semester Project ..... 250 points

Grades will be distributed according to the following grade scale:

Score	Letter Grade	Score	Letter Grade
A	> 939	C+	775 - 799
A-	900 - 939	C	725 - 774
B+	875 - 899	C-	700 - 724
B	825 - 874	D	600 - 699
B-	800 - 824	F	< 600

Course Objectives: After this course, students should be capable of:

1. Collecting data from websites, using API's, or from other sources, for analysis
2. "Cleaning data" by preparing the data collected for analysis
3. Analyzing data in order to draw conclusions about the real world from which decisions can be made

Grading: All assignments are to be submitted through the appropriate dropboxes on the

course website. Rubrics will be posted, and will contain detailed information on the assignment grading policy.

Homework: In order to give students as many opportunities as possible to practice the concepts being taught in class, there will be lab work as well as homework assigned for each class period (totaling 15 lab assignments and 15 homework assignments). I will not accept lab assignments from students not present in lab, in order to emphasize the importance of attending class each week. No late homework or lab work will be accepted.

Projects: The best way to learn is to do, and so we will focus on actively using the tools we discuss in class. I don't expect you to know how to code when the semester starts, but the course will be based on writing code, so I do expect you to learn as the course progresses. I will help you do so, and will make the process as painless as possible. The primary goal is to help you do data analysis. Your entire grade is based on coding projects and assignments, so please make sure that you schedule time to remain for all of class each week.

Academic Honesty: UNO's requirements for Academic Integrity and Behavior All students are required to adhere to the highest standards of academic integrity and behavior and must satisfy the UNO Academic Integrity Policy www.unomaha.edu/student-life/student-conduct-and-community-standards/policies/academic-integrity.php and Student Code of Conduct www.unomaha.edu/student-life/student-conduct-and-community-standards/policies/code-of-conduct.php. It is the student's responsibility to read, understand and abide by these policies. If I find that you have plagiarized, been dishonest in completing your assignments, or cheated an an exam or assignment, then I reserve the right to award you no points on the entire exam, project, or assignment and to report the behavior to the university. If this behavior is repeated, I reserve the right to award a failing grade, independent of your score on other assignments. Academic integrity is essential to education, and I take it very seriously.

Extra Help: Dot not hesitate to come to my office during office hours or by appointment to discuss a homework problem or any aspect of the course.