Tentative Syllabus for STAT2984: Statistical Programming I

Location   2003 Pamplin
Time   8:00-9:15
Professor   Allison N. Tegge
Office   TBD
Email   ategge AT vt.edu
Office Hours By appointment
Class website https://github.com/tegge-classroom/STAT2984-2018

Text:
No required textbooks.

Course Description:
Provide exposure to the command line environment, version control, text editing, programming in python, and obtaining and importing data from various data sources motivated by statistical concepts and methods. Basic programming and collaborating skills for introductory statistical analyses.

Grading   Homework assignments (60%), online participation (20%),
                and final project (20%)

                Grades will be based on the standard 10-point scale, i.e.
                A+ = 97% -100%
                A = 93% - 96%
                A- = 90% - 92%
                B+ = 87% - 89%
                B = 83% - 86%
                B- = 80% - 82%
                Etc.

All homework assignments will be submitted via GitHub at:
        https://classroom.github.com/classrooms/25085423-stat2984-statistical-programming-i-spring-2018

Final Project:
A final project will be required for this course. The final project will involve using several skills learned throughout the semester on a data set of the student's choosing. The final project will include a written report and oral presentation during scheduled class. Several progress reports will be included throughout the semester and count towards the homework portion of the grade.

Students with disabilities:
If you are a student with special needs or circumstances, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible during my office hours.

Honesty:
The Undergraduate Honor Code pledge that each member of the university community agrees to abide by states:

"As a Hokie, I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do."

Students enrolled in this course are responsible for abiding by the Honor Code. A student who has doubts about how the Honor Code applies to any assignment is responsible for obtaining specific guidance from the course instructor before submitting the assignment for evaluation. Ignorance of the rules does not exclude any member of the University community from the requirements and expectations of the Honor Code.

For additional information about the Honor Code, please visit: https://www.honorsystem.vt.edu/

Objectives:

Having successfully completed this course, students will be able to:
- Navigate Linux environment
- Retrieve code (and lecture notes) from a version control repository
- Run code for statistical analyses from the command line
- Program statistical analyses in Python
- Code in a collaborative environment

STAT 2984 Course Outline (Tentative)

I. Week 1: Welcome and Introductions and Getting Started with GitHub
   o Day 1 – Welcome and introductions
   o Day 2 – Getting Started with GitHub (GitHub.com)
II. Week 2: Navigating a Linux environment and Getting started with Python
   o Day 1 – Navigating a Linux environment
   o Day 2 – Getting started with Python
III. Week 3: Python Data Structures
   o Day 1 – Variables, lists, tuples, and commenting code
   o Day 2 – Dictionaries, and sets.
IV. Week 4: For loops, if/else statements, coding in groups
   o Day 1 – For loops and if/else statements
   o Day 2 – Coding in groups
V. Week 5: Creating functions
   o Day 1 – Functions part 1
   o Day 2 – Functions part 2
VI. Week 6: Importing and Using Python Packages
   o Day 1 – Python packages part 1
   o Day 2 – Python packages part 2
VII. Week 7: Using Command Line Arguments
   o Day 1 – Using Command Line Arguments
   o Day 2 – Starting group projects and workday
VIII. Week 8: Visualization
   o Day 1 – Visualization part 1
   o Day 2 – Visualization part 2
IX. Week 9: Version control
   o Day 1 – Importance of version control
   o Day 2 – Workday
X. Week 10: Classes
   o Day 1 – Classes part 1
   o Day 2 – Classes part 2
XI. Week 11: How to debug code
   o Day 1 – How to debug code
   o Day 2 – Workday
XII. Week 12: Numpy and Scipy
   o Day 1 – Numpy
   o Day 2 – Scipy
XIII. Week 13: Reusing code for efficiency
   o Day 1 – Reusing code for efficiency
   o Day 2 – Workday
XIV. Week 14: Review and workday
   o Day 1 – Review
   o Day 2 – Workday
XV. Week 15: Project Presentations