Syllabus
EPP 531-06 Intro to Python Analysis Short Course, Summer 2019 University of Tennessee, Knoxville

Course sections: EPP 531-006 85367
Meeting Time: MTWThF 9:00am - 12:00pm (August 5th-9th Only)
Meeting Place: Ellington Plant Sciences, Rm 123
Course Credit Hours: 1
Course website: https://github.com/statonlab/introtopython/wiki
Primary Instructor:

Meg Staton   Email: mstaton1@utk.edu
Assistant Professor   Office: PBB 154
Entomology and Plant Pathology   Office hours: daily 3:00-4:00pm
                                        (or can be scheduled by email)

The instructor reserves the right to revise, alter or amend this syllabus as necessary. Students will be notified by email of any such changes.

Co-instructors:
Matt Huff, Research Associate in Bioinformatics, Entomology and Plant Pathology
Jiali Yu, PhD student in Genome Science and Technology

I. Course Description
This one-credit course meets for ONE WEEK, August 5th-9th. Students will learn the basics of the python programming language, with a focus on coding examples from biology and genomics. Basics such as working with text and files, lists and loops, functions, conditional tests, regular expressions and dictionaries will be covered.

II. Value Proposition
Biological research is increasingly driven by big data (from sensors, from omics, from imaging, and more), and biologists need skills in data science to perform analysis, automate tasks, and fully query and integrate these data sets. Programming is one of the most powerful skills to advance an individual researchers independence and capabilities in data science. This course will provide students with an introduction to Python, one of the most popular computational languages in bioinformatics research.

III. Student Learning Outcomes/Objectives
- Students will have a conceptual framework of programming, including recognizing a text file as computer code and understanding how code is executed by a computer.

- Understand the fundamentals of Python "parts of speech", such as variables, lists, strings, functions, methods, conditional statements, and loops.
- Students will be able to effectively continue learning Python (or another language) by leveraging online tutorials and resources.

IV. Learning Environment

Class meets MTWThF, 9:00am to 12:00pm in EPS 123. Classes will have a combination of lectures, guided labs, and short group/class exercises. As we have three instructors who will be in the classroom throughout the course, please utilize them to get help at any point. I also like to hear any and all questions, during lectures or afterward. Students should complete any unfinished labs after the class is over and plan to attend office hours if they are falling behind or confused about any class material.

A classroom is a collaborative environment, and both the instructor and the students have a shared responsibility to ensure a successful learning experience.

- **Student's responsibility**: Students should be prepared for all classes, be respectful of others, actively contribute to the learning activities in class and abide by the UT Honor Code.
- **Instructor's responsibility**: All instructors will be prepared for all classes, evaluate learners fairly and equally, be respectful of all students, create and facilitate meaningful learning activities and follow University codes of conduct.

V. Course Communication

Outside of class and the website, the instructors will utilize email to communicate course information, such as changes to the syllabus, answering questions relevant to all students, etc. All students are responsible for checking their university email accounts and reading all emails regarding the class.

Students are welcome to drop in for office hours (3:00-4:00 the week of classes) or email to schedule an appointment.

VI. Texts/Resources/Materials

We will be following the textbook 'Python for Biologists' (https://pythonforbiologists.com/). It's a great resource, so please consider purchasing! However, we will only cover material available for free through the website. The course website will be used to distribute any additional reading materials, links to references, lecture slides (https://github.com/statonlab/introtopython/wiki).

VII. Required Equipment
Students are required to bring their own laptops (and power cord if needed) to class.

VIII. Course Evaluation
The final grade for each student will be on an A-F scale:

A   93-100
B+   88-92
B   80-87
C+   77-79
C   70-76
F   below 70

Points will be accrued from three assignments, with the following weight:
- Attendance (5 points per day, up to 25 points total for the class)
- Daily email of "What did I learn today?" (5 points per day, up to 25 points total for class)
- Final project script **OR** a journal article review (up to 50 points)
- Extra credit: Course survey completion (5 points)

Grading details:
- **Attendance Grading** – Each day of attendance will accrue 5 points.
- **Daily email of "What did I learn today?" -** At the end of each day, think about what you have learned in class and write it down, either 2-3 sentences or a mind map. This is going to help you synthesize the material into an organized framework in your brain and figure out what you are still confused about.   You will need to send a file via email to mstaton1@utk.edu to get credit.
- **Final Project Script** -On the final day of the course, we will get into groups and work on a writing a python script that integrates many of the skills learned in the course. Email the script as a plain text file to mstaton1@utk.edu.
- **Journal Article Writing Assignment –** Each student will select a peer-reviewed journal article where python programming is used as part of the methods and write a one page piece about the use of the python code, due the following **Tuesday, August 13th**. The document should cover the following topics:
    - What did the python script do? Is its functionality well described?
    - Why did the authors use a python script as part of their methodology instead of some other piece of software? (10 points)
    - Is the methodology reproducible? Can you access the script online somewhere?

- ○ If you can access, the script, what part of it do you understand? Do you think you could modify it to meet your own needs if you had a similar type of data? If you can't find it, can you speculate on what python methods or packages might be needed to write the script?
- **Give Feedback** - Fill out the end of course survey, take a screenshot of the final page saying it is completed, email to mestato@utk.edu to receive 5 bonus points.

IX. Attendance
Presence during lecture and lab is essential for students to develop an understanding of the material presented in the class. Absences due to special circumstances should be discussed with the instructor, preferably prior to the absence, via email or in person.

X. How to Be Successful in This Course
- Follow along with the exercises during the class period. The concepts and practical exercises build on the material covered in prior lessons, so it is essential to try to attend all classes and to keep up with the subject matter.
- Get help early with problems. The instructors are there to help and want you to be successful. If something is not making sense or you are unable to complete a lab exercise, seek help immediately through email and/or in-person meetings. This will prevent you from falling behind during this fast-paced class.

XI. Course Feedback
A final course evaluation will be provided to each student at the end of the course. Each student will receive an email toward the end of the semester providing a link to the survey. If you take a screenshot of the survey final web page saying you have completed it, then email that screenshot to the instructor, you will get 5 extra bonus points. **I value student feedback, and I utilize it to improve the course.**

Course Schedule
The course schedule is posted on the course website, provided above.

UNIVERSITY POLICIES Academic Integrity:
"An essential feature of the University of Tennessee, Knoxville is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the university, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity."

University Civility Statement:

Civility is genuine respect and regard for others: politeness, consideration, tact, good manners, graciousness, cordiality, affability, amiability and courteousness. Civility enhances academic freedom and integrity, and is a prerequisite to the free exchange of ideas and knowledge in the learning community. Our community consists of students, faculty, staff, alumni, and campus visitors. Community members affect each other's well-being and have a shared interest in creating and sustaining an environment where all community members and their points of view are valued and respected. Affirming the value of each member of the university community, the campus asks that all its members adhere to the principles of civility and community adopted by the campus: http://civility.utk.edu/.

Disability Services:
"Any student who feels s/he may need an accommodation based on the impact of a disability should contact Student Disability Services in Dunford Hall, at 865-974-6087, or by video relay at, 865-622-6566, to coordinate reasonable academic accommodations.

Your Role in Improving Teaching and Learning Through Course Assessment:
At UT, it is our collective responsibility to improve the state of teaching and learning. During the semester, you may be requested to assess aspects of this course either during class or at the completion of the class. You are encouraged to respond to these various forms of assessment as a means of continuing to improve the quality of the UT learning experience.

Key Campus Resources for Students:
- [Center for Career Development](#) (Career counseling and resources; HIRE-A-VOL job search system)
- [Course Catalogs](#) (Listing of academic programs, courses, and policies)
- [Hilltopics](#) (Campus and academic policies, procedures and standards of conduct)
- [OIT HelpDesk](#) **(865)** 974-9900
- [Schedule of Classes/Timetable](#)
- [Student Health Center](#) (visit the site for a list of services)
- [Student Success Center](#) (Academic support resources)
- [University Libraries](#) (Access to library resources, databases, course reserves, and services)