Spring 2020

GNET 742: Introduction to UNIX and Python Programming for biomedical data analysis

An introductory course designed to present the fundamentals of UNIX operating system followed by introduction to Python programming with an emphasis on analysis of bio-medical data. Class will utilize a combination of lectures complemented with practical computer instruction.

Calendar

Date (2020)		Instructor	Topic
13-Jan	M	Hemant Kelkar	Intro to UNIX
14-Jan	Tu	Hemant Kelkar	UNIX contd
15-Jan	W	Jeremy Wang	See below
20-Jan	M	MLK Day	No Class
21-Jan	Tu	Jeremy Wang	See below
22-Jan	W	Jeremy Wang	See below
27-Jan	M	Jeremy Wang	See below
28-Jan	Tu	Jeremy Wang	See below
29-Jan	W	Jeremy Wang	See below
3-Feb	M	Jeremy Wang	See below
4-Feb	Tu	Jeremy Wang	See below
5-Feb	W	Jeremy Wang	See below
10-Feb	M	Jeremy Wang	See below
11-Feb	Tu	Jeremy Wang	See below
12-Feb	W	Jeremy Wang	See below

Location and time
Time: 11 am – 12 pm, Mon-Tue-Wed
Lectures and computer lab: Biogen Idec Classroom 307, Health Sciences Library.
Materials: All learning materials will be posted on class sakai site (https://sakai.unc.edu).

Instructors

Jeremy Wang, Ph.D.
Department of Genetics
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Hemant Kelkar, Ph.D.
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Teaching Assistants for GNET742
Gaith Droby, gdroby@unc.edu

Class description

This class is designed to teach basics of UNIX operating system and Python programming using practical "hands-on" computer instruction. Target audience is biomedical scientists who are interested in manipulating, parsing, analyzing biological text format data. Prior programming experience is not expected/required to enroll in this class.

Class Syllabus

(HK) Introduction to UNIX operating system

Accessing UNIX account using the secure shell (SSH) program. Basic UNIX commands followed by navigation of the UNIX file system. Transferring files from local desktop to the UNIX server using secure file transfer protocol.

(JW) Python basics. Definition of a variable and basic uses. Understanding of data types and indentation

(JW) Operators and expressions

(JW) Understanding basic logic and program control with conditional statements and loops

(JW) Functions and Data structures

(JW) Reading and writing files

(JW) Review and knowledge application

General Class Policies

Since we are learning a new programming language, learning happens in incremental steps. If you miss a class, then you may not be able to understand material being covered next day. That said, we understand that sometimes there are unexpected emergencies. If you miss a class, please email the instructors with an explanation as soon as practical. Unexplained absences may lead to a penalty in final class grade. Programming logic is intuitive to some, whereas others may find it hard. If you think you are in the latter category, then please get in touch with an instructor early on. If you wait till the last week of class, then we will not be able to provide additional help.

Class grades (subject to change)

90 % Assignments + 10% Class Participation.

We will have at least 2 (or more) assignments and a final project. Expect the final project to build upon all you will learn in class. It may take 6-8 h of effort to complete. Assignments/Final project will contain questions that provide additional credit. These questions are NOT required for completion of assignment/project. However, you will not get the maximum possible points (required for H grade), if additional credit questions are not answered.

Class size

Class is limited to twenty (20) students.

Recommended reading

A Byte of Python (https://python.swaroopch.com/) by Swaroop, C.H.

Homework assignments

Homework assignments will be due by 6 pm on Friday of the following the week they were originally assigned in. You can generally expect to have the grades for the assignments available a week after the due date.

We encourage talking with the instructors or teaching assistant (via email may work best) if you have any questions about assignments. Searching the web for a specific question/step is acceptable but you should not copy and paste python code available on the internet.

Class Examinations

There will be **NO FINAL EXAM** for this class.

Computer Requirements

A personal laptop (PC/Mac) is highly recommended for this class. You will create an account on ITS-Research computing cluster before class starts. Instructions will be sent to do this in early January. If you want to load Python distribution for PC/macOS on your own computer, it can be downloaded for free from https://www.python.org/downloads/ (get the v.3.x).