Python and UNIX Scripting
Spring 2014

"Computer Scientists develop the tools that allow others to make a difference in the world." Fred Brooks

Instructor:

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Office hours:

M-F 8:30-9:30, 1:00-1:30 TTh 11:00-12:00

Text:

Practical Computing for Biologists, Haddock and Dunn. **We will frequently be using the text in class.**

Class Learning Outcomes:

- Students will be able to use UNIX and Python scripting as tools to perform basic tasks
  - Navigate the UNIX command-line operating system; Use regular expressions for data transformation; UNIX scripts to automate tasks; Basic Python scripting along with an introduction to more advanced topics such as BLAST interaction, database access, GUI design, and Image processing,
- Students will gain an understanding of how these tools can be used in a science context
- Students will gain practice working with people in other disciplines

Course Organization:

Lectures and Labs:

Class time will be divided fairly evenly between lecture and lab. Some days will be all lab, some all lecture, and some days will be split.

Lectures: Cover the highlights of chapters assigned – not a substitute for reading. Student versions of the lecture slides can be obtained from Canvas. These slides will contain homework assignments and due dates.

Labs: Labs will occur approximately once a week. Labs are to be completed on an individual basis unless otherwise stated. Points for lab assignments that look too similar will be divided between the participants. **When working in groups, all group members must be at all lab meetings where the lab is worked on.**

Project: Science students will be responsible for determining and presenting a potential project in their discipline which can be solved using the tools presented in the class. Groups of science and computing students will work together to solve the project during the last few weeks of class. Computational students will be responsible for providing technical guidance. Grade will be based on progress, individual contributions, and presentations. Topics might involve simulations, image processing, BLAST interaction, creating a GUI front end for a command line program.

Homework, in-class assignments and 3 minute interdisciplinary presentations: Should be completed on an individual basis unless otherwise stated. Points for homework assignments that look too similar will be divided between the participants. The expectation is that **everyone will do at least one 3 minute presentation with peers providing a ranking, comments, and a summary**. The 3 minute presentation is a presentation on something in your discipline, directed to people not in your discipline, providing a "just enough" understanding of a topic in words they can understand.

Exams: There will be 2 exams. If you will miss an exam for a school function, you must arrange to take it in advance. **If you ever miss an exam without giving me prior notice, there is a good chance you will receive a zero unless, of course, there was clearly an emergency.** Exam content can include material from lectures, the

textbook, labs, and 3 minute presentations**.** Exam 1 is scheduled for **Feb. 13.** It will cover chapters 1 – 6 in your textbook. Exam 2 is scheduled for **April 1** and will emphasize chapters 7-10 in your textbook.

Final Exam: Your culminating experience will be the presentation of your project. This presentation is scheduled for **Tuesday of finals week at 10:30 AM**.

Grading:

Homework	15%	Labs	30%
Exams	40%	Final Project	15%

Final grades will be determined as follows:

100-93%	A	80-82%	B-	67-69%	D+
90-92%	A-	77-79%	C+	63-66%	D
87-89%	B+	73-76%	C	60-62%	D-
83-86%	B	70-72%	C-	0-59%	F

Attendance:

Attendance is expected at each class section. In the event of an absence you are responsible for the material covered in class and the assignments given that day. See the Point Loma Nazarene University Catalog for a statement of the university's policy with respect to attendance. Remember that missing more than one and a half week's worth of classes can result in a failing grade.

Academic Accommodations:

While all students are expected to meet the minimum academic standards for completion of this course as established by the instructor, students with disabilities may require academic accommodations. At Point Loma Nazarene University, students requesting academic accommodations must file documentation with the Disability Resource Center (DRC), located in the Bond Academic Center. Once the student files documentation, the Disability Resource Center will contact the student's instructors and provide written recommendations for reasonable and appropriate accommodations to meet the individual needs of the student. This policy assists the University in its commitment to full compliance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities (ADA) Act of 1990, and ADA Amendments Act of 2008, all of which prohibit discrimination against students with disabilities and guarantees all qualified students equal access to and benefits of PLNU programs and activities. **Students with learning disabilities who may need accommodations should discuss options with the instructor during the first two weeks of class.**

Class Enrollment:

It is the student's responsibility to maintain his/her class schedule. Should the need arise to drop this course (personal emergencies, poor performance, etc.), the student has the responsibility to follow through (provided the drop date meets the stated calendar deadline established by the university), not the instructor. Simply ceasing to attend this course or failing to follow through to arrange for a change of registration (drop/add) may easily result in a grade of F on the official transcript.

Academic Honesty

The Point Loma Nazarene University community holds the highest standards of honesty and integrity in all aspects of university life. Academic honesty and integrity are strong values among faculty and students alike. Any violation of the university's commitment is a serious affront to the very nature of Point Loma's mission and purpose. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. Such acts include plagiarism, copying of class assignments, and copying or other fraudulent behavior on examinations.

A student who is caught cheating on any item of work will receive a zero on that item and may receive an "F" for the semester. See the PLNU Catalog for a further explanation of the PLNU procedures for academic dishonesty.