Class Topics and Schedule

October 2014

SU	MONDAY	TU	WEDNESDAY	TH	FR	SA
12	13	14	15	16	17	18
	Course Overview Logging onto the Cluster Exercises: Using ssh and scp		Introduction to UNIX Working from the Command-Line Exercises: Command-Line Exercises			
19	20	21	22	23	24	25
	QUIZ 1 Working from the Command-Line Text Editors Exercises: Emacs		Working from the Command-Line Awk and Sed Exercises: Awk and Sed One-Liners			
26	27	28	29	30	31	
	QUIZ 2 Shell Programming – Bash Exercise: Bash Exercises		Shell-Programming – Bash Flow-Control Statements Exercise: Flow-control statements to create and move files			

November 2014

SU	Monday	TU	Wednesday	TH	FR	SA
2	3	4	5	6	7	8
	QUIZ 3 Using the cluster Exercise: Job scripts		Programming Languages: Interpreted vs Compiled Introduction to Python; Interactive Mode; Running Simple Scripts			
9	10	11	12	13	14	15
	QUIZ 4 Python – Data Types and Data Structures; Object-oriented programming		Python – I/O and Parsing Regular Expressions			
16	17	18	19	20	21	22
	QUIZ 5 Python – Flow Control Statements; Using Pseudocode		Python – Open			
23	24	25	26	27	28	29
	QUIZ 6 Good Programming Practices Exercises: Commenting and Documentation; Working with Git		Introduction to R			

December 2014

SU	Monday	TU	Wednesday	TH	FR	SA
	1	2	3	4	5	6
	QUIZ 7 Programming in R – Data I/O; Data Structures; Data Management		Programming in R -- Plotting			

PROGRAMMING FOR BIOLOGISTS
BIOL 6297, Fall 2014

Instructor and Contact Information:

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Office Hours: After class on Monday and Wednesdays, or by appointment

Course Goals:

This course will introduce students with no prior background to computing. It will enable students to get their feet wet with computational analyses. We will learn about diverse tools to accomplish computational tasks, including shell scripts, UNIX one-liners, scripting languages (Python), and languages for data visualization and statistical analysis (R). This course is intended to provide students who have no prior programming experience with the basic skill set needed to undertake computational projects as part of their research training.

Course Grading:

Grades will be based upon the following:

10% Attendance
30% Class Participation (in-class exercises)
60% Quizzes/Homework

Attendance: To receive credit, you must arrive on time and stay until the end.

Class Participation: Most classes will involve working exercises and practice problems. To receive credit for participation, you must copy your answers to the in-class problems over to the designated directory on xanadu by the end of class.

Quizzes: We will have a short quiz at the start of each week, covering the previous week's topics. Quiz material will be very similar to the practice exercises of the preceding week. **Your two worst quiz grades will be dropped.** For this reason, however, there will be NO make-ups for quizzes under any circumstances. Occasionally, we may do a homework assignment in lieu of a quiz.

Grading Scale:

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

Policy on Academic Dishonesty: An important part of being a programmer is learning to solve problems, write correct code, logically step through a script, and to recognize mistakes and debug your own code. For this reason, I expect that you will do your own work. On homework assignments, you may discuss approaches with classmates as pseudocode (meaning, you may describe your general approach in plain English), but you are not permitted to provide any specific syntax to one another. You may not consult others, including experienced programmers, for help on homework assignments – rather, you should see me first if you are having difficulties. For in-class assignments and homework (only), you may use Google, online user forums, or any other online resource to help you solve the problems – in fact, doing so is strongly encouraged. Quizzes will be closed book / no online resources, unless otherwise specified.