

**BINF 6111/ITCS 8111 Bioinformatics Programming I  
Syllabus**

**Instructor: Ann Loraine**

This course introduces fundamentals of programming for bioinformatics using python as the teaching language. Python is a higher-level, interpreted programming language that is easy to learn and has many applications in scientific fields. Python is both a language (syntax and vocabulary) and an application (the python interpreter). Both are key elements of using python. This class will introduce both the language and the use of the language, demonstrating how the python interpreter serves both as a useful tool for writing and testing programs interactively and a powerful data analysis environment for bioinformatics.

The first weeks cover core data types, syntax, and functional programming, focusing on construction of programs from small, testable parts. Students will learn productive use of the Unix environment, focusing on Unix utilities (e.g., sort, uniq, grep) that are particularly useful in bioinformatics. The course will cover object-oriented programming, introduce analysis of algorithms and sequencing alignment methods, and introduce tools that are particularly useful in bioinformatics analysis, including R, BioPython, and Web services in bioinformatics. By the end of the class, students will have gained the ability to analyze data within the python interpreter and write well-documented, well-organized programs.

**Class Web site:** <http://teaching.transvar.org>

**Instructor:** Ann Loraine  
Email: [aloraine@uncc.edu](mailto:aloraine@uncc.edu)

**Textbooks:**  
None required.

**Requirements:**  
This class assumes *no prior experience with programming*. However, students with minimal experience in bioinformatics or programming should plan to devote extra time to completing class assignments.

**Activities & Assignments:**  
The class will feature several guided homework and lab assignments and two longer class projects. Students registered under the ITSC 8111 course number will complete a written, essay exam with questions they might encounter on a qualifying exam in bioinformatics. For many activities, students will work in pairs or small groups.

**Grading:** Grades are based on points earned from assignments and projects as shown in the table below. No late assignments will be accepted without prior arrangement.

<b>Assignment</b>	<b>Number</b>	<b>Value</b>	<b>Total</b>
Labs & Homeworks	14	50	700
Projects	2	125	250
Free points – 6111 Exam - 8111	1	50	50
<b>Total</b>			1000

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Grades will be assigned using the following scale:

<b>Grade</b>	<b>Points</b>
A	900-1000
B	700-899
C	500-699
F	<500

**Attendance Policy:**

Students must attend each class, except in case of illness or by pre-arrangement with the instructor. Students who miss class due to illness or by pre-arrangement with the instructor may hand in any assignments due in class via email, and these must be received before the *start* of the class period.

**University Integrity:**

All students are required to read and abide by the Code of Student Academic Integrity. Violations of the Code of Student Academic Integrity, including plagiarism, will result in disciplinary action as provided in the Code Definitions and examples of plagiarism are set forth in the Code. The Code is available from the Dean of Students Office or online at: <http://www.legal.uncc.edu/policies/ps-105.html>. A set of links to various resources on plagiarism and how to avoid it is available at the UNCC Library web site: <http://library.uncc.edu/display/?dept=instruction&format=open&page=920>.