PHYSICS 1130 SYLLABUS – 1S2017

Meeting Schedule
[We meet on a standard summer schedule, Monday through Thursday at 13:30–15:10 in 226 Richards Hall. Monday 29 May is when the Memorial Day holiday is observed, and there will be no class held on that day.]

Goals
[After completing this course, you should be able to write useful programs in three common technical computer languages. You should be familiar with common data formats and manipulation techniques, and be able to produce charts and plots useful in data interpretation and presentation.]

[Process
We will learn the use of three programming languages used by scientists, MATLAB, Mathematica, and Python through examples, in-class exercises, and by using them for projects.]

Evaluation
[There will be homework assignments/exercises assigned throughout the course, typically due on Monday and Thursday. There will be no final, but instead a computing project. Guidelines for the project are below. Every Thursday class a student will present a short presentation on a “data” topic, usually something from the news. Grades for the course will be based on the following breakdown:

Homework 40%
Project 35%
Data reports 25%

Grades for the project and data reports will include the class presentation and discussion.

Final grades will be assigned based on the following scale:

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<tr>
<th>Grade</th>
<th>Percentage</th>
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<td>A</td>
<td>92 – 100</td>
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<td>A-</td>
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<td>B+</td>
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<td>B</td>
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Contact Information

| Instructor name: George Alverson
Office: [115 RI]
Tel: [(617) 373-2938]
e-mail: [g.alverson@northeastern.edu]

Office Hours

Office hours are tentatively scheduled for Wednesdays and Thursdays at 15:30-16:30. If there is a strong preference for different times from the class, these may be shifted. I may be available at times outside office hours, ask! You can also send e-mail with questions.

Academic Integrity

Please remember that in this class we have VERY STRICT STANDARDS for borrowing code: if you borrow anything for use in your project, your homework, or your data reports, you must have a citation. A good guideline is that if you take more than three lines of code from some source, you must include the information on where it came from. A URL or a notation (e.g., ‘MATLAB help files’) is fine. If it is an entire subroutine, note it at the beginning of the code segment and include any original credit information. For general questions concerning plagiarism and other issues of academic integrity, please refer to the NU policy located at [http://www.northeastern.edu/osccr/academichonesty.html](http://www.northeastern.edu/osccr/academichonesty.html).

Text

[There is no assigned text for the course. Recommended resources are listed under Course Material on Blackboard.]

Project

Project topics are chosen by the student in consultation with the instructor. After the midterm, status updates will be presented in class (probably weekly), and will be discussed by the class and instructor. The overall project grade will be determined by both the quality of the final program/program output and the status updates.

Topic Coverage

Topics may be adjusted to meet the needs and abilities of the class. Below is a tentative timetable based on the material covered previously. Students are invited to offer topics for consideration useful for their own scientific interests:

- Week 1.
  L3/L4: Quick glance at Mathematica, MATLAB, and Python; notebooks;
- Week 2.
  L7/L8: Part II: Writing more complex functions. Libraries.
- Week 3.
  L9/L10: MATLAB toolboxes: pseudorandom number generators; Simulations
L11/L12: More simulations/coding:decoding strings

• Week 4.
L13/L14 Memorial Day/regular expressions
L15/L16 Slicing and dicing; databases in more detail (design); data structures

• Week 5.
L17/L18 More data formats: XML, JSON, HTML
L19/L20 Dealing with text: regular expressions; more Unicode

• Week 6.
L21/L22 Tying it all together: getting programs to talk to share data
L23/L24 Special topic 0: the esthetics of data presentation; the genome

• Week 7.
L25/L26 Special topic 1: animating data—Mathematica, MATLAB/Python+matplotlib/…; symbolic manipulation
L27/L28 Special topic 2: geographical information plotting; combining data

• Week 8. No Final (M/Tue)]

Dates to remember
• Last day to drop without a W: 21 May
• Last day to drop: 25 June

Miscellaneous policies

University Academic Integrity Policy
The university’s academic integrity policy at OSCCR (http://www.northeastern.edu/osccr/academic-integrity-policy) discusses actions regarded as violations and their consequences for students.

Title IX
The University strictly prohibits sex or gender discrimination in all university programs and activities. Information on how to report an incident of such discrimination (which includes sexual harassment and sexual assault) is located at http://www.northeastern.edu/titleix.

Students with Disabilities
Students who have disabilities who wish to receive academic services and accommodations should follow the standard Disabilities Resource Center (DRC) procedures, http://www.northeastern.edu/drc/getting-started-with-the-drc.

College of Science Policies

Alverson, George 4/13/2017 4:18 PM
Comment [10]: Good to note. Also include the dates of the final and major exams, if known. It may be advisable to remind students not to schedule any travel near the end of the semester until exact final dates are known.

Alverson, George 4/13/2017 4:19 PM
Comment [11]: It is recommended to list all policies in first year courses. The link to COS policies should be in all syllabi.

Alverson, George 4/19/2017 9:06 AM
Comment [12]: COS course policy document. Check for current URL!