Course Syllabus (updated 2/14/2017)
ISTM 3119 Introduction to Programming
Spring 2017

Instructor: Yixin Lu (yixinlu@gwu.edu)
Lectures: Monday, 4:00--6:30 PM
Lecture Room: DUQUES 351
Office Hours: Monday 3PM-4PM (or by appointment)
Room: Funger 506

Teaching Assistant: Eric Huang (erichuang@gwmail.gwu.edu)
Office Hours: Thursday 1PM-2PM (or by appointment)
Room: Funger 515H

Course Description

With the proliferation of Web 2.0, individuals, firms and the entire society have generated massive trails of data as the by-product of their various activities. In virtually all business sectors, decision-making is increasingly data-driven. *Introduction to Programming* (ISTM 3119) is an introductory course that teaches you how to write computer programs using Python to collect, analyze, and interpret data from real-world applications.

Throughout the course, we will focus on the basic concepts and principles of programming. The (tentative) topics we plan to cover in this course include:

- Basic programming concepts
- Installing and running Python programs
- Variables, expressions and statements
- Control flow: branch and repetition
- String operations
- Functions in Python
- Lists, dictionaries and tuples
- File operations
- Basic concepts in Object Oriented Programming
- Data Visualization
Prerequisites

This course is designed for absolute beginners and will build the skills from scratch. Therefore, no prior knowledge or programming experience is required. However, students are expected to have basic computer skills.

Contact Hours

Students will spend 2.5 hours per week in class, and an average (per week) of 1.5 hours reading and 4.5 hours working on assignments and projects out of class. Over the course of the semester, students will spend 35 hours in instructional time and 85 hours on assignments and preparing for class. Instructional time includes discussions and hands-on activities in class.

Course Objectives

• Understand the basic programming concepts
• Understand the basic syntax and semantics of the Python language
• Understand the primitive data types built into Python
• Understand the control structures and repetition structures
• Understand the principles of data storage and manipulation
• Be able to design, write and debug simple programs to handle real-world data

Recommended Textbooks

**Python for Everybody**

Access Options:
• Buy from Amazon:
  https://www.amazon.com/Python-Everybody-Exploring-Data/dp/1530051126
• Download the free PDF:

Software

Throughout the course, we will use *Python 3*. The latest version can be downloaded from
https://www.python.org/downloads/.

For team project, you can also try to use Spyder (Scientific Python Development Environment):
https://pythonhosted.org/spyder/
Useful Resources

Beginner
- The Python Tutorial. This is the official tutorial which covers the basics of Python. 
  https://docs.python.org/3/tutorial/index.html
- Online Python Tutor. This is a useful online tool which gives you a visual step-by-step representation of how your program runs. 
  http://pythontutor.com/
- Learn Python the Hard Way. This is a wonderful beginner’s guidebook to Python. It is particularly useful for those who have no prior programming experience. 
  https://learnpythonthehardway.org/book/

Intermediate & Advanced
- Pro Python. This is good reference book for those who are looking to further develop their programming skills. 
  http://propython.com/
  https://www.packtpub.com/application-development/expert-python-programming

Course Guidelines

The following guidelines will be applied during the course. Please read them carefully. If you have any questions, please contact the instructor after looking at the paragraph about communication.

Course Setup

4:00-5:30 Basic Concepts and Principles
5:30-5:45: Break (Q&A)
5:45-6:30: Practice Tips/Tutorials/Quizzes

This course is primarily lecture-based: for each session, we will focus on the basic concepts and principles during the first one and half hour and then proceed to hands-on exercises.

Assignments

There will be six individual assignments and one group assignment (team project).
- The individual assignments are designed to reinforce your understanding of the concepts and practical “tips/tricks” covered in the class. All the individual assignments should be completed independently¹. Each individual assignment consists of both multiple-choice questions and coding tasks.

¹ Students can use books, lecture notes and other online resources to complete the individual assignments. However, it is not allowed to discuss the individual assignments in groups.
• For the group assignment, students will form groups/teams\(^2\) to work on a business application case. In principle, students are free to define their team projects. However, in order to make sure that the proposed project is feasible and manageable, you are expected to submit a project proposal as early as possible, but no later than the class of Week 7. The instructor will provide feedback via email or during office hours. The final deliverables of the team project include a presentation, a report and the source code. Each team will need to submit these deliverables digitally through Blackboard.

Instructions for each assignment will be posted on Blackboard. **Assignments will not be accepted past the due date and time** unless a religious observance, a documented medical condition or other personal emergency prevent on-time submission. Please consult the instructor and submit a *written* explanation (including the supporting documents) via email in these cases; if the explanation is acceptable, we will arrange an alternative. Note: students should notify the instructor during the first week of the semester of their intention to be absent from class on their days of religious observance.

**Exams**

The 1\(^{st}\) and 2\(^{nd}\) midterm exams contain questions covering materials taught in the lectures. Apart from conceptual questions, there will be practical questions where you will be asked to write simple codes and/or identify errors in a program. Sample exam questions will be provided on Blackboard. Please study these sample questions carefully when preparing for the exams.

Both exams are closed-book. However, you can take a so-called “cheating sheet” of size 8.5 by 11 inches with you (you can write notes on both sides on this sheet). Please note that alternative times for these exams will be arranged only under university criteria for rescheduling.

**Class Participation**

Active class participation is extremely important for your final grade. The grade we assign for class participation is based on a holistic assessment of your contribution to classroom learning. These contributions include but not restricted to:

• Attend class on time.
• Raise questions that inspire your classmates think.
• Participate in class discussions.
• Respond to general and individual questions.
• Share relevant and useful materials on a subject matter during the class.

Emphasis is placed on the quality of your contribution. Negative classroom comments as well as inappropriate behavior (e.g., talking to each other, eating/drinking, sleeping in the classroom, walking in/out of the class while the lecture is in process) can lower your grade. The use of electronic devices such as smartphones, tablets, or laptops for non-course purposes is **strictly forbidden**. Note: Audio or video recording of any course activity needs prior consent of the instructor.

\(^2\) Each team consists of 4 students. It will be the students’ responsibility to form the teams.
Grading

Your final grade will be composed as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage of Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Participation</td>
<td>5%</td>
</tr>
<tr>
<td>Individual Assignment</td>
<td>2.5% *4 = 10%</td>
</tr>
<tr>
<td>Team Project</td>
<td>10% (presentation) + 10% (report) + 20% (codes) = 40%</td>
</tr>
<tr>
<td>Exam 1</td>
<td>20%</td>
</tr>
<tr>
<td>Exam 2</td>
<td>25%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

The Following table gives you the list of letter grades corresponding to your total score.

<table>
<thead>
<tr>
<th>Total Score</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score&gt;=95</td>
<td>A</td>
</tr>
<tr>
<td>90 &lt;= Score &lt; 95</td>
<td>A-</td>
</tr>
<tr>
<td>85 &lt;= Score &lt; 90</td>
<td>B+</td>
</tr>
<tr>
<td>80 &lt;= Score &lt; 85</td>
<td>B</td>
</tr>
<tr>
<td>75 &lt;= Score &lt; 80</td>
<td>B-</td>
</tr>
<tr>
<td>70 &lt;= Score &lt; 75</td>
<td>C+</td>
</tr>
<tr>
<td>65 &lt;= Score &lt; 70</td>
<td>C</td>
</tr>
<tr>
<td>60 &lt;= Score &lt; 65</td>
<td>C-</td>
</tr>
<tr>
<td>55 &lt;= Score &lt; 60</td>
<td>D</td>
</tr>
<tr>
<td>&lt;55</td>
<td>F</td>
</tr>
</tbody>
</table>

We do our best to ensure the unbiasedness and transparency of grading process. Students are encouraged to respect the integrity and authority of the grading. The grading criteria for individual assignments and group assignment (team project) will be made available to everyone.

In case of doubts about a grade you received, please first check the grading criteria and your assignment again. If you still believe the grade is unjustified, please send an email to the instructor and the TA explaining specifically where and why you think the grade is unjustified. Please think twice before appealing a grade: we will completely re-grade the assignment, which may result in an increase or decrease of your grade. All regrading requests of the assignments must be made within one week after the results are published. Appeals regarding exam grades are subject to the common university rules.

Communication

All course-related documents will be posted on the corresponding page on Blackboard. Please check the page regularly for updates about lecture notes, assignments, among others.

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3 In total, there will be six individual assignments. However, we will drop the two lowest and only include your top four grades for these assignments.
We encourage students to discuss the progress or any other course-related problems with the instructor and TA at any point during the semester. You can raise your questions after the class, or drop by for individual consultation during office hours. If it is not possible for you to come during the office hours, please send an e-mail so that we can schedule a time to meet. Please respect the fact that we cannot accommodate walk-in questions out of the office-hours, no matter how brief your question may be. If you decide to email us directly with your questions, please make sure to include ISTM 3119 at the beginning of the subject line so that we can immediately recognize it is from one of you. This also helps minimize the chance that the email is classified as spam and gets deleted accidentally. For all email questions, we will try to get back to you within 24 hrs during weekdays and 48 hrs during weekends and holidays.

If your question is of general interest, we also encourage you to post it to the discussion forum on Blackboard. We will check the forum regularly and provide answers for everyone's benefit. Make sure that your questions are specific and contain all relevant details. **In any case, please contact us whenever you have questions related to the course. We are here to help you!**

**Religious Holiday Policy**

The university policy regarding religious holidays is that it is the student’s responsibility to notify faculty during the first week of the semester of their intention to be absent from class on their days(s) of religious observance. The faculty continues to extend to these students the courtesy of absence without penalty on such occasions, including permission to make up examinations.

**Disability Policy**

Any student who need accommodation based on the potential impact of a disability should contact the Disability Support Services office at 202-994-8250 in the Rome Hall, Suite 102, to establish eligibility and to coordinate reasonable accommodations. For additional information please refer to gwidred.gwu.edu/dss/

**Academic Integrity Statement (Honor Code)**

Academic dishonesty is defined as cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information. For full text of the Code, see [www.gwu.edu/integrity/code.html](http://www.gwu.edu/integrity/code.html). You are responsible for ensuring that your work in this course is completed in a manner consistent with the University’s standards of academic honesty. Academic dishonesty in any aspect of your coursework (such as plagiarism, failing to cite sources in a paper, or cheating on an examination) could result in significant penalties, including, but not limited to, failure for the assignment, failure for the course, or other academic penalties as allowed under University regulations. In all cases, papers and assignments must represent original work that you have done for this class. Carefully review the George Washington University Code of Academic Integrity and strictly comply with all aspects of it. For additional information refer to [http://studentconduct.gwu.edu/code-academic-integrity](http://studentconduct.gwu.edu/code-academic-integrity) and the GWU Guide to Student Rights and Responsibilities.