Course Syllabus

Course Title
Foundations of Information Processing in LIS

Semester
Summer 2017

Course Number
LIS452LEG

Instructor
Kevin Trainor

Class Times
Online meetings will be held on Thursdays from 6:30 PM till 9:00 PM on Blackboard Collaborate. I look forward to joining you there. Please use a headset.

Online Office Hours / Lab Session
Every Tuesday evening, I will be holding an optional Office Hours / Lab Session from 6:30 PM to 7:30 PM using the Blackboard Collaborate platform. These sessions serve as a great opportunity to discuss questions and issues regarding the class. They are also a great opportunity to get help with your programming assignments. Meet in the *Drop In Room* of the Blackboard Collaborate platform. Join the *Kevin Trainor Office Hours* breakout room. Please use a headset. Meetings on other days and times may be arranged by contacting me via email.

Catalog Description
Covers the common data and document processing constructs and programming concepts used in library and information science. The history, strengths and weaknesses of the techniques are evaluated in the context of our discipline. These constructs and techniques form the basis of applications in areas such as bibliographic records management, full text management and multimedia. No prior programming background is assumed.

Course Description
This is a first course in computer programming using the Python programming language. The overall goal of this course is to develop an information processing perspective of the world. More specifically, the objectives are:

1. To gain a broad introduction to computer programming concepts, principles, styles and techniques through lectures and discussion.
2. To develop a working proficiency in a programming language through lab sessions and hands-on assignments.
3. To nurture the ability to detect opportunities to apply programming in new scenarios.

Required Texts
Zelle, J. (2010). Python Programming: an introduction to computer science. (**SECOND edition**). Franklin, Beedle & Associates Inc.
This is a print book. It will be our main text. I recommend that you buy a copy.

Severance, C. (n.d.). Python for Everyone (http://pythonlearn.com/book.php and https://books.trinket.io/pfe/index.html).
This is available in several formats as an electronic book. It is supplementary reading. Although it is also available as a printed book, I don't recommend that you spend the money to buy it.

Technology Requirements
You will be completing coding assignments using your own computer. I recommend that you use a computer that runs Windows 10 or a recent release of MacOS. While the software that we will be using for this course does run on Linux computers, there will be less technical support available for Linux. If you want to use a Linux computer for your coursework, please contact me first.

You will be installing the following software on your computers for this class:

- The PyCharm integrated development environment (IDE) for Python
- The Anaconda open data science platform for Python
- The Git version control system

All of this software is free for your use during this class. I will publish brief instructions and detailed tutorial videos to help you download and install the software on computers running Windows 10 and recent releases of MacOS. Access to instructions and tutorial videos will be provided under the appropriate week of our Weekly Schedule:

http://courseinfo.ligent.net/2017su/_illinois/lis452leg/index.html

Course Topics
- Computers and Programs
- Writing Simple Programs
- Computing with Numbers
- Sequences: Strings, Lists, and Files
- Defining Functions
- Decision Structures
- Loop Structures and Booleans
- Simulation and Design
- Defining Classes
- Data Collections
- Algorithm Design

Course Objectives
- Understand the role that programming plays in information processing and management.
- Identify opportunities for the information worker to solve everyday work problems using programming.
- Design, code, and test procedural programs in Python that make use of object-oriented classes provided by others.
- Design, code, and test simple object-oriented classes in Python.
- Use the PyCharm integrated development environment competently.
- Use the Git source-code version control system competently.
- Complete the first phase of a personal programming project that will help you reach academic and professional goals while providing a practice environment for the future.

Review of Assignment Solutions
Weekly live sessions will typically begin with review of assignments from the prior week. Assignments are due at the start of the weekly live session. We will begin the live session by reviewing solutions to the assignments. One or two student volunteers will be asked to show their solutions each week. I will also show my solution. This part of the class will serve as a debriefing of the assignment exercise and a review of the prior week material. It will be the best opportunity to ask questions and resolve and confusion regarding past material.

Lectures
The latter part of each weekly live session will include a lecture on the topic(s) of the week. Questions from students during the lecture are encouraged. My goal is for this part of the class to be as discussion-oriented as is feasible for a technical course. At the end of the weekly live session, I will explain the coding assignments that are due at the beginning of our next class.

Tutorial Examples
I will be recording tutorial videos that illustrate the techniques that you will need to complete coding assignments. During the tutorial video, I will typically be coding a solution to a problem that is similar to (but not the same as) the one which you will need to solve in the coding assignment.

Coding Assignments
Coding assignments will give you the opportunity to practice the skills covered in the last weekly live session. Assignments will relate to skills covered during the preceding lecture. Tutorial example videos will be provided to provide support for coding assignments.

The grading rubric for assignments has been set up to encourage all students to make a good faith effort on each exercise and to submit a proper solution before the beginning of the next class. Students who do this can expect a minimum score of 85 on the assignment. Students who submit work late can expect a maximum score of 84. Assignments that are not submitted will receive a zero score.

Distinction Between 4-Credit and 2-Credit Enrollment

I recommend that you enroll in this course for 4 credits. If you enroll for 4 credits, you will be expected to submit all of the coding assignments (see above) as well as the final project (see below). I believe that this will lead to the best learning experience.

Nevertheless, you may choose to enroll for 2 credits. If you enroll in this course for 2 credits, you will be expected to submit only the coding assignments. Because I believe that the final project provides substantial value, I recommend against choosing this option.

Final Project

If you have enrolled in the course for 4 credits, you will be required to choose and complete the first phase of a programming project during the course. The project should be related to one of your professional or hobby interests. The goal is to pick a project that can be further developed even after this course is finished, to complete the first phase of the project during this course, and to articulate a plan for future development on the project. You will be asked to give a presentation on your project during the final week of classes.

Work Required of Students

You will be expected to complete all reading assignments before class. All work on coding assignments and the student project must be done independently by each student and submitted by the beginning of the next class. Collaboration among students in discussing alternatives and solving coding problems is encouraged. Nevertheless, you must submit your own work product.

You will also be expected to participate in class actively and share your own experiences (both good and bad) with the class. This will also include interrupting the lecture portion of the class to ask questions or raise issues.

Basis for Determining Grade
The various components of student work will contribute to the final grade based upon the following percentages:

- Coding Assignments   50%
- Final Project   40%
- Class Participation   10%

Letter grades will be determined as follows:

- A+: 97 - 100%;
- A : 93 - 96%;
- A- : 90 - 92%;
- B+: 87 - 89%;
- B : 83 - 86%;
- B- : 80 - 82%;
- C+: 77 - 79%;
- C : 73 - 76%;
- C- : 70 - 72%;
- D+: 67 - 69%;
- D : 63 - 66%;
- D- : 60 - 62%;
- F :   0 - 59%;

Contact Hours
This course will require approximately 54 contact hours.

Last Revised
2017-05-08