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Course Description

This course is a survey course covering a broad range of technology topics at a high level. The course is aimed at students with no prior technical skills other than the general use of a computer. Really! When you look at the topics - they may seem daunting - but the entire design of the course is focused on student mastery of the topics. We want you to succeed in the course and then use the knowledge you learn to do many wonderful things in the rest of your academic and professional career.

Required Book

Most of the course material will be from online sources and materials produced for the course. There is one book that covers the programming aspects of the course.

Python for Informatics: Exploring Data
Author: Charles Severance
Purchase: https://www.createspace.com/4430203
Web Site: http://www.pythonlearn.com/

The book can be purchased for $9.99 from the Amazon CreateSpace. There are free EPUB, MOBI, Kindle, PDF, iBooks, and HTML versions of the book online. If you use the iBooks version and find issues or problems with the book, please send feedback to mpubibook@umich.edu
Course Outline
The course moves rather quickly through a lot of material. The first few weeks focus on programming and work from the textbook – the later weeks will use materials that are provided and available from the world-wide web.

Note: There are no discussions the first week of class.

<table>
<thead>
<tr>
<th>WEEK</th>
<th>(Monday)</th>
<th>LECTURE TOPIC</th>
<th>REQUIRED READING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>September 2</td>
<td>Programming And Computers</td>
<td>Py4In: 1</td>
</tr>
<tr>
<td>2</td>
<td>September 9</td>
<td>Variables and flow of control</td>
<td>Py4In: 2,3,4,</td>
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<tr>
<td>3</td>
<td>September 16</td>
<td>Loops, Strings, and Files</td>
<td>Py4In: 5,6,7,</td>
</tr>
<tr>
<td>4</td>
<td>September 23</td>
<td>Collections and Data Structures</td>
<td>Py4In: 8,9</td>
</tr>
<tr>
<td>5</td>
<td>September 28</td>
<td>Tuples and Regular Expressions</td>
<td>Py4In: 10,11</td>
</tr>
<tr>
<td>6</td>
<td>October 7</td>
<td>Internet History</td>
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<tr>
<td>7</td>
<td>October 14</td>
<td>Practical Midterm Exam (no discussions)</td>
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<tr>
<td>8</td>
<td>October 21</td>
<td>Internet Structure</td>
<td></td>
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<tr>
<td>9</td>
<td>October 28</td>
<td>The Web: HTTP</td>
<td>Py4In: 12</td>
</tr>
<tr>
<td>10</td>
<td>November 4</td>
<td>Web Services and Data Formats</td>
<td>Py4In: 13,15</td>
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<tr>
<td>11</td>
<td>November 11</td>
<td>Databases</td>
<td>Py4In: 14</td>
</tr>
<tr>
<td>12</td>
<td>November 18</td>
<td>Searching</td>
<td>Py4In: 15</td>
</tr>
<tr>
<td>13</td>
<td>November 25</td>
<td>Thanksgiving (no lectures or discussions)</td>
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</tr>
<tr>
<td>13</td>
<td>December 2</td>
<td>Security</td>
<td></td>
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<td></td>
<td>December 13-20</td>
<td>Online Final Exam</td>
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Note: Schedule and topics may be changed as the semester progresses.

Reading
The reading assignments cover the topics of each week's lecture. So in week 1 (the very first class meeting), we will cover Chapter 1 of the book. You do not have to read the assigned material before lecture unless you want to. One approach that many find successful is to read the material quickly/lightly before lecture so you can get more out of the lecture. Often when learning technical/abstract material several light reads through the material is more effective than reading the material and trying to gain full understanding of paragraph as you read it. You may even find that going back and reading a previous week's material again a few weeks later to be very helpful. Multiple light passes through the material help build a "big picture" of what is going on.

Exams
The midterm for the course will be a timed practical programming exercise. Students who do poorly on the practical exam will be given an opportunity to take a written make-up midterm exam. The final exam for this course will be online and you will be able to take it anytime during the scheduled period. Once you start the online exam – you have three hours to finish the exam. You will need a computer and access to the Internet to complete the final exam.
Lecture Sections
The general pattern of the course will be to introduce new topics in lecture and give an assignment on that topic in a week and then discuss the topic and work on the homework assignment in the following week in the discussion section.

Discussion Sections
Your discussion section is a very important part of SI502. The size of your discussion section is kept small to insure that you have adequate time to get individual questions answered and get help on the material in the course and get help your homework. All of the grading of your homework and exams in the course will be done in your discussion section. Since the course moves quickly from topic to topic (often a topic is only one week) it is important to attend discussion every week.

Learning Objectives
The purpose of this course is to provide incoming SI Students with an understanding of the kinds of technology that students will encounter during their time as an SI student as well as in their employment once they graduate from SI. The course covers a wide range of topics, spending 1-2 weeks on each topic and then moving on.

The Learning Objectives for SI502 are to give the student competency in:

- Computer Architecture
- Programming
- Software Development
- Internet Technologies
- Web Technologies
- Service Oriented Architecture
- Database Modeling
- Web Search Technology
- Security of Information Systems

After completing SI502 successfully, the student should (a) be comfortable in courses with a technical focus and be well prepared to extend your knowledge in the topic areas of the course, (b) be able to participate as a team member in the analysis, design, development, and deployment of software and technology for an organization, and (c) be able to act as a facilitator between technical and non-technical staff within an organization or project.

Assignments
There will be weekly assignments throughout the course. Regular assignments allow you to learn the material in small "chunks" and to keep a close eye on how well you understand the material. Assignments will be a focus of the discussion sections. Where possible, assignments will be distributed the week before so you can work on the assignments and possibly even complete the assignment before you come to the discussion section.
Every assignment will have a due date. Assignments may be turned in up to one day late with a 30% reduction in points. Assignments turned in more than a day late will receive zero points.

**Grading**

The graded work in the course will be weighted roughly as follows to determine a final percentage grade:

- Homework: 50%
- Exams: 50%

Grades will be awarded as follows:

- A 93% and above
- A- 90% and above
- B+ 87% and above
- B 85% and above
- B- 80% and above
- C+ 77% and above
- C 70% and above
- F Below 70%

A+ grades will be awarded solely at the discretion of the instructional staff based on a student's contribution to the course, overall quality of work and other factors. A student's overall percentage must be above 93% to be considered for an A+. There will be few A+ grades awarded.

**Course Mailing List**

Much of the communication for the course will be done via email. Students are expected to read the email that comes to them from the course. The mailing list is also a place to get help in the class. It is completely acceptable for a student in the course to attempt to help another student over the mailing list. The Instructor will read all mail and correct any incorrect advice that one student gives another. All students have permission to post to the class-wide mailing list. There will also be mailing lists for each of the discussion section instructors to communicate with their discussion sections.

**Required Tools**

The software used for the course is 100% free software. All necessary software will be available for both the PC and Macintosh.

**Accommodations**

If you think you need an accommodation for a disability, please let me know at your earliest convenience, but as soon as possible. Some aspects of this course, the assignments, the in-class activities, and the way I teach may be modified to facilitate your participation and progress. As soon as you make me aware of your needs, we can work with the Office of Services for Students with Disabilities (SSD) to help us determine appropriate accommodations. SSD (734-763-3000; http://www.umich.edu/~sswd/) typically recommends accommodations through a Verified
Individualized Services and Accommodations (VISA) form. I will treat any information you provide as private and confidential.

**Giving and Receiving Assistance**
The first time you learn technical material it is often challenging. We are going to cover a wide range of topics in the course and we will move quickly between topics. Because it is my goal for you to succeed in the course, I encourage you to get help from anyone you like, especially in the portion of the course before the midterm and even for the completion of assignments.

However, you are responsible for learning the material, and you should make sure that all of the assistance you are getting is focused on gaining knowledge, not just on getting through the assignments. If you receive too much help and/or fail to master the material, you will crash and burn at the midterm when all of a sudden you must perform on your own.

If you receive assistance on an assignment, please indicate the nature and the amount of assistance you received. If the assignment is computer code, add a comment indicating who helped you and how. If you are a more advanced student and are willing to help other students, please feel free to do so. Just remember that your goal is to help teach the material to the student receiving the help. It is always appropriate to ask for and provide help on an assignment via the course-wide mailing list.

It is never appropriate to hand in someone else’s work and represent it as your own. The safest approach is to clearly acknowledge the sources and nature where someone has helped you create your work in a significant way.

**Plagiarism**
At the University of Michigan and in professional settings generally, plagiarism is an extremely serious matter. All individual written submissions must be your own, original work, written entirely in your own words. You may incorporate excerpts from publications by other authors, but they must be clearly marked as quotations and properly attributed. You may obtain copy editing assistance, and you may discuss your ideas with others, but all substantive writing and ideas must be your own or else be explicitly attributed to another, using a citation sufficiently detailed for someone else to easily locate your source.

All cases of plagiarism will be officially reported and dealt with according to SI policies. There will be no warnings, no second chances, no opportunity to rewrite; all plagiarism cases will be immediately reported to SI’s Dean of Academic Affairs. Consequences can range from failing the assignment (a grade of zero) or failing the course to expulsion from the University. For additional information about plagiarism, see the "Academic and Professional Integrity Policy Statement" in the SI Master’s Student Handbook, the Rackham pamphlet on Academic Integrity, and the Plagiarism document from the UM Libraries. If you have any doubts about whether you are using the words or ideas of others appropriately, please discuss them with the instructional staff of the course.

**Success in the Course**
This is a fast-paced course and it covers a lot of interesting topics. The course is designed for students with no prior HTML or programming experience. If you stick with the course and invest the necessary time, you will be amazed at how much you will learn in 15 weeks.

If you do not have any programming experience, some concepts will take some time to sink in. Do not worry too much if you feel like you are in a fog at times. The assignments are the best way to track your progress through the material.

Usually the biggest problem students encounter in the course is trying to do everything in a few hours right before an assignment is due or right before an exam. If you only think about the course a few hours each week, you will get some of the details but they will not mesh together to provide the big picture. Programming and web sites are easy once you get the big picture. The textbooks will become easily scanned references for you once you know what to look for and why you are looking for it.

Cramming does not work very well when dealing with the material in this course. This is because the material in the course is actually very easy once you "get it" – once you understand some basic principles. No amount of memorization will make up for not having the big picture. Try not to get stuck on any one thing – it is all easy once you "get it." If you do get stuck on something and feel like you are going in circles, ask for help, look at something else, or come at the problem from a different direction.