

HIMT 345: Programming and Software Development

Course Description

Fundamental concepts of programming using a contemporary data analysis language. Topics include variables, conditional execution, functions and methods, iteration, strings, files, and data structures. Applications will be taken from the Healthcare Information Systems.

Course Objectives

- Learn the structures utilized in programming languages for decision making and repeated operations.
- Understand the need for differing types of data and the ramifications emerging from that need.
- Realize and experience the value of the re-use of code, from both efficiency of operation and of maintenance points of view.
- Make use of programming strategies to answer data inquiries posed by healthcare professionals.

HIM Curriculum Competencies

While not addressing any competencies directly, the course provides critical foundation knowledge for the program's management courses and prepares students for health care management and administration courses at the master's degree level.

Course Materials

Required Textbook

Course Outline

These are the units of the course:

- Introduction and Preparation
- Introduction to Programming
- Introduction to Python
- Conditionals
- Tasks
- Iteration
- Strings

- Files
- Lists
- Dictionaries
- Tuples
- Application #1
- Application #2
- Application #3
- Final Exam

Course Activities and Assessments

Activities include textbook readings and video presentations. To assess your understanding of the materials, the following types of assessments will be used:

- Quizzes (in Brightspace D2L; immediate scoring)
- Self-review exercises (not submitted for evaluation)
- Lab assignments (programming in Python)
- Final Exam

Examinations

There will be a comprehensive final examination.

An early or makeup final exam will not be given unless there are extraordinary circumstances, as determined by the instructor. You **must** contact the instructor **before** the examination in order to be considered. Failing to do so will result in receiving a zero for that grade component.

Course Policies

The News tool in D2L will be used as a means of communication. Please check it on a regular basis to keep current. The syllabus, schedule, and assignments are all subject to change. Any changes or need for additional information affecting the course as a whole will be communicated here.

Assignment and quiz grades will be available to you in the Grades tool of D2L.

Any necessary communication regarding assignments placed in the Dropbox will be posted through Dropbox feedback.

Legitimate emergencies do occur and may prevent the completion of course work by the designated time. Please inform your instructor as soon as possible when emergency situations occur and indicate your plans for completing the work. Extension of the completion time will be considered on an individual basis.

Grading

Your final grade will be based on your performance in the following activities:

Quizzes	30%
Homework Assignments	50%
Final Exam (comprehensive)	20%
Total	100%

Grading Scale

90–100%	A
80–89%	B
70–79%	C
60–69%	D
0–59%	F

Course Calendar

Module	1	Week of Tuesday,	Due Date (11:59pm)
	Activity	Introduction to HIMT 345 / Prepare your computer for Python Programming	
	1	Introduce yourself in the appropriate D2L Discussion Forum	
	2	View the “Welcome Video” from Prof Gibbs	
	3	Read the course syllabus and course outline (and print if you wish)	
	4	Download and Install PyCharm educational version	
	5	ASSESSMENT: Prepare and submit Hwk01 to D2L Dropbox	
	6	Watch the Introduction to Python video provided with PyCharm edu ("GETTING STARTED with PyCharm Educational Edition ")	
	7	ASSESSMENT: D2L Discussion Forum – Describe installing Python and coding “Hello World!”	
Module	2	Week of Monday,	Due Date (11:59pm)
	Activity	Introduction to Programming	
	1	Download the Severance textbook	
	2	Read Ch 1: <i>Why should you learn to write programs?</i>	
	3	View the video lecture for Ch 1 (see youtube playlist)	
	4	Complete the Ch 1 Exercises 1.1 - 1.9 (pp 16-17) [not submitted]	

	5	ASSESSMENT: Prepare and submit Hwk02 to D2L Dropbox Hwk 02 Ch 1 Exer 5 and 7	9/17/2017
	6	ASSESSMENT: Complete the D2L online quiz for Ch. 1	9/17/2017
Module 3	Week of Monday, September 18, 2017		Due Date (11:59pm)
		Introduction to Python NOTE: 2.2 and 2.3 are included as "worked exercises" in the video list.	
	1	Read Ch 2: <i>Variables, expressions, and statements</i>	9/24/2017
	2	View the video lecture for Ch 2 (see youtube playlist)	9/24/2017
	3	Complete the Ch 2 Exercises 2.1 - 2.5 (p 23, p 30) [not submitted]	9/24/2017
	4	ASSESSMENT: Prepare and submit Hwk03 to D2L Dropbox Hwk 03 Variables Expressions Statements	9/24/2017
	5	ASSESSMENT: Complete the D2L online quiz for Ch. 2	9/24/2017
Module 4	Week of Monday, September 25, 2017		Due Date (11:59pm)
		Conditionals	
	1	Read Ch 3: <i>Conditional execution</i>	10/1/2017
	2	View the video lecture for Ch 3 (see youtube playlist)	10/1/2017
	3	Complete the Ch 3 Exercises 3.1 - 3.2 [not submitted] NOTE: 3.1 and 3.2 are included as "worked exercises" in the video list.	10/1/2017
	4	ASSESSMENT: Prepare and submit Hwk04 to D2L Dropbox Hwk 04 Conditional Expressions and Try-Except	10/1/2017
	5	ASSESSMENT: Complete the D2L online quiz for Ch 3	10/1/2017
Module 5	Week of Monday, October 02, 2017		Due Date (11:59pm)
		Functions	
	1	Read Ch 4: <i>Functions</i>	10/8/2017
	2	View the video lecture for Ch 4 (see youtube playlist)	10/8/2017
	3	Complete the Ch 4 Exercises 4.1 - 4.5 [not submitted]	10/8/2017
	4	View and work along with the "worked exercise" video for Exercise 4.6	10/8/2017
	5	ASSESSMENT: Prepare and submit Hwk05 to D2L Dropbox Hkw 05: Functions (and learning to Copy a Python project)	10/8/2017
	6	ASSESSMENT: Complete the D2L online quiz for Ch 4	10/8/2017
Module 6	Week of Monday, October 09, 2017		Due Date (11:59pm)
		Iteration	
	1	Read Ch 5: <i>Iteration</i>	10/15/2017

	2	View the video lecture for Ch 5 (see youtube playlist)	
	3	Complete the Ch 5 Exercises 1 - 5 (pp 261-2) [not submitted]	
	4	ASSESSMENT: Prepare and submit Hwk06 to D2L Dropbox Hwk06:	
	5	ASSESSMENT: Complete the D2L online quiz for Ch 5	
Module 7	Week of Monday,		Due Date (11:59pm)
		Strings	
	1	Read Ch 6: <i>Strings</i>	
	2	View the video lecture for Ch 6 (see youtube playlist)	
	3	Complete the Ch 6 Exercises [not submitted]	
	4	ASSESSMENT: Prepare and submit Hwk07 to D2L Dropbox Hwk07:	
	5	ASSESSMENT: Complete the D2L online quiz for Ch 6	
Module 8	Week of Monday,		Due Date (11:59pm)
		Files	
	1	Read Ch 7: <i>Files</i>	
	2	View the video lecture for Ch 7 (see youtube playlist)	
	3	Complete the Ch 7 Exercises [not submitted]	
	4	ASSESSMENT: Prepare and submit Hwk08 to D2L Dropbox	
	5	ASSESSMENT: Complete the D2L online quiz for Ch 7	
Module 9	Week of Monday,		Due Date (11:59pm)
		Lists	
	6	Read Ch 8: <i>Lists</i>	
	7	View the video lecture for Ch 8 (see youtube playlist)	
	8	Complete the Ch 8 Exercises [not submitted]	
	9	ASSESSMENT: Prepare and submit Hwk09 to D2L Dropbox	
	10	ASSESSMENT: Complete the D2L online quiz for Ch 8	
Module 10	Week of Monday,		Due Date (11:59pm)
		Dictionaries	
	1	Read Ch 9: <i>Dictionaries</i> View the video lecture for Ch 9 (see youtube playlist)	
	2	Complete the Ch 9 Exercises [not submitted]	
	3	ASSESSMENT: Prepare and submit Hwk10 to D2L Dropbox	
	4	ASSESSMENT: Complete the D2L online quiz for Ch 9	

Module 11	Week of Monday,		Due Date (11:59pm)
		Tuples	
	1	Read Ch 10: <i>Tuples</i> View the video lecture for Ch 10 (see youtube playlist)	
	2	Complete the Ch 10 Exercises [not submitted]	
	3	ASSESSMENT: Prepare and submit Hwk11 to D2L Dropbox	
	4	ASSESSMENT: Complete the D2L online quiz for Ch 10	
Module 12	Week of Monday,		Due Date (11:59pm)
		Application 1 – Extracting Patient Information from a Data File	
	1	ASSESSMENT: Prepare and submit Hwk12 to D2L Dropbox	
Module 13	Week of Monday,		Due Date (11:59pm)
		Application 2 – Querying Patient Data Files ASSESSMENT: Prepare and submit Hwk13 to D2L Dropbox	
Module 14	Week of Monday,		Due Date (11:59pm)
		Application 3 – Reflection on Applications and Posing a Data Analysis Question	
	1	ASSESSMENT: Prepare and submit Hwk14 to D2L Dropbox	
Module 15	Week of		Due Date (11:59pm)
		Completion of Final Assignment and Final Exam	
	1	ASSESSMENT: Complete the Final Exam	
	2	ASSESSMENT: Complete the online course evaluation	