The Midterm Will Cover Content From:

Material covered in Lectures #1-6 (up to and including functions)
Chapters 1, 2, 3 (except 3.7), 5, and 7 (except 7.7) of Python for Everybody
Tutorials 1-3
Assignments 1, 2

Important topics to ensure you understand include: variables (what they are, high level view of how they work, types), input and output, arithmetic operations and mathematical calculations, problem solving, branching control structures (if, elif, else), boolean expressions and logic operators, looping control structures (for and while), nested control structures, functions.

If you can answer and understand all of the practice questions in this document, the midterm should not be a problem for you. **Any questions regarding the midterm content, structure, practice questions, etc., should be posted in the Midterm/Exam Questions discussion board on cuLearn.**

Short answer

1. What is a variable?
2. Give 3 examples of types of data that we have seen in class so far.
3. What does the assignment statement do? Give a small example.
4. Briefly describe the difference between **syntax** and **logic/semantic** errors. Give a small example of each kind of error. (You can either give code or describe them in English)
5. What is a **boolean expression**? Give an example.
6. Python has several built-in type conversion functions. List two and show an example of each.
7. Why is indentation important in Python? What purpose does it serve?
8. Explain what **break** does when used in a loop.
9. Explain what **continue** does when used in a loop.
10. The **for** and **while** loops allow us to repeat code. Generally speaking, when would you chose one over the other.
11. List two comparison operators and give examples of how they are used.
12. Name a logical operator.

Writing Code

1. Write a Python program that asks the user for a number (an integer) and then asks for three (3) words one at a time. After receiving all three words, the program prints each of the input words if their length is a multiple of the first input number.

   For example, if the user enters 3, ‘kitten’, ‘rewards’ and ‘cat’, the program would output ‘kitten’ and ‘cat’, because their lengths are each multiples of 3. (kitten has length 6 and cat has length 3). The word rewards, with length 7, would not be printed.

2. Write a Python program that uses a loop to sum the numbers from 0 to 50 (inclusive).

3. Write a Python program that repeatedly asks the user to enter some text and then prints the text the user enters to the screen. The program should end when the user enters “quit” or “q”.

4. Write a Python program that asks the user for 3 integer values and prints out the largest of the 3 entered integers.

5. Write a program that reads 2 numbers from the user. The program should then print out whether the first number is evenly divisible by the second number.

6. Write the code for a Python function that takes 2 integer arguments. The function should return True if one of the arguments is a multiple of the other, and False otherwise.

7. Write the code for a Python function that takes 4 integer arguments representing two points in 2D space (e.g., x1, y1, x2, and y2). The function should return True if the points are identical and False otherwise.

8. Write a Python function that takes a bill subtotal (a float) and a tip percentage (integer from 0-100). The function should calculate the tip amount and return the final bill total.