Work through the following sections. Seek assistance whenever needed. From http://schmidt.nuigalway.ie/cs102/python files with Python programs can be downloaded. Present your results to one of the demonstrators, so that a record of your achievements can be kept.

4. True or False?

1. The best way to write a program is to immediately write down some code and then debug it until it works.
2. An algorithm can be written without using a programming language.
3. Programs no longer require modication after they are written and debugged.
4. Python identfiers must start with a letter or underscore.
5. Reserved words make good variable names.
6. Expressions are built from literals, variables, and operators.
7. In Python, `x = x + 1` is a legal statement.
8. Python does not allow the input of multiple values with a single statement.

5. Multiple Choice.

1. Which of the following is not a step in the software development process?
   (a) Specification
   (b) Testing/Debugging
   (c) Fee setting
   (d) Maintenance
2. What is the correct formula for converting Celsius to Fahrenheit?
   (a) $F = \frac{9}{5}C + 32$
   (b) $F = \frac{5}{9}C - 32$
   (c) $F = B^2 - 4AC$
   (d) $F = \frac{212-32}{100-0}$
3. The process of describing exactly what a computer program will do to solve a problem is called
   (a) design
   (b) implementation
   (c) programming
   (d) specification
4. Which of the following is not a legal identifier?
   (a) `text` (b) `tExt` (c) `2text` (d) `text4U`
5. Which of the following are not used in expressions?
   (a) variables
   (b) statements
   (c) operators

(d) literals

6. A fragment of code that produces or calculates a new data value is called
   (a) identifier
   (b) expression
   (c) productive clause
   (d) assignment statement

6. Programming Exercises.

1. In the following copy of the `chaos.py` program, identify the parts of the program as follows:
   - Circle each identier.
   - Underline each expression.
   - Put a comment at the end of each line indicating the type of statement on that line (output, assignment, input, loop, etc.)

```
# File: chaos.py
# A simple program illustrating chaotic behavior.

def main():
    print "This program illustrates a chaotic function"
    x = input("Enter a number between 0 and 1: ")
    for i in range(10):
        x = 3.9 * x * (1 - x)
        print x

main()
```

2. A user-friendly program should print an introduction that tells the user what the program does. Modify the convert.py program to print an introduction.
3. Modify the avg2.py program to find the average of three exam scores.
4. Modify theconvert.py program with a loop so that it executes 5 times before quitting (i.e., it converts 5 temperatures in a row).
5. Write a program that converts temperatures from Fahrenheit to Celsius.
6. Write a program that converts distances measured in kilometers to miles. One kilometer is approximately 0.62 miles.
7. Write a program that converts feet and inches into centimetres. Find a suitable formula on the internet, e.g., on the Wikipedia page on imperial units at http://en.wikipedia.org/wiki/Imperial_unit.
8. Write a program to perform a unit conversion of your own choosing. Make sure that the program prints an introduction that explains what it does.