1. **Course number and name**  
   CptS 111: Introduction to Computer Programming

2. **Credits and contact hours**  
   3 credits; 2 lecture hours, 3 laboratory hours

3. **Instructor’s or course coordinator’s name**  
   Shira Broschat

4. **Textbook, title, author, and year**  
   *Programming in Python 3 with zyLabs*, an online, interactive textbook by zyBooks.  
   Other supplemental materials  

5. **Specific course information**  
   a. **Catalog description:** Elementary algorithmic problem solving, computational models, sequential, iterative and conditional operations, parameterized procedures, array and list structures and basic efficiency analysis.  
   b. **Prerequisites or co-requisites:** MATH 101 with a C or better, MATH 103 with a C or better, or higher level MATH course with a C or better, or a minimum ALEKS math placement score of 45%.  
   c. **Required, elective, or selected elective:** Elective.

6. **Specific goals for the course**  
   By the end of the course, students will be able to  
   - Decompose a problem into a series of algorithmic steps (pseudocode) (1a, 1c, 1d)  
   - Know the proper Python styling guidelines and follow them when writing your own code (3b)  
   - Understand the use of functions and know how to write them in Python (1c, 1e)  
   - Differentiate between the different Boolean logic operators and use Boolean logic in your programs (1d)  
   - Write complex conditional statements that contain one or more Boolean operations (1c, 1d)  
   - Identify when a loop is appropriate, when to use both while- and for-loops, and write applications that use these looping constructs (1c, 1d)  
   - Understand the importance of lists and dictionaries in programming and identify when it is beneficial to use either (1c, 1d)  
   - Be able to perform basic string processing and manipulation (1c, 1d)  
   - Leverage your knowledge of programming to answer complex, real-world problems (1a, 1b, 1c, 1d, 1e, 6a)
7. **Brief list of topics to be covered**

- Setting up and using Python
- Computers and binary representation of information
- Literals and different data types (int, float, str)
- Variables and identifiers
- Arithmetic operations and precedence
- Input and output
- Type conversion
- String formatting
- Assignment and simultaneous assignment
- Functions, parameter assignment, return values, and scope
- Keyword arguments
- Function stubs
- Lists and data structures
- Multidimensional data structures (lists of lists)
- Definite and indefinite loops
- References
- Strings and string methods
- Importing modules
- Reading from and writing to files
- Boolean variables and Boolean expressions
- Conditional statements and relational operators
- Dictionaries (hashes)