CSC 111 Introduction to Computer Science  
Syllabus  
Spring 2017  
Stan Thomas

Office Location: Manchester 228  
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Office Hours: M, W 3-4:30PM (location TBD) & selected evenings

Class meeting times: T, R 2-3:15pm + R 3:30-4:45

Course Description from Wake Forest Bulletin, 2016-2017:

111. Introduction to Computer Science. (4h) Lecture and laboratory. Introduction to the basic concepts of computer programming and algorithmic problem solving for students with little or no programming experience. Recommended as the first course for students considering a major or minor in computer science; also appropriate for students who want computing experience applicable to other disciplines. Lab—2 hours. (D)

Course Learning Objectives:

In this course, students will learn the fundamentals of computational problem-solving. They will learn how to write logical sequences of statements that constitute an algorithm. They will develop algorithms and implement them in a particular programming language (in this case, Java). As they write programs, students will learn how to use variables, constants, assignment statements, conditions, loops, input and output statements, arrays, functions, objects, classes, and inheritance. They will learn to write programs that use both textual and graphical user interfaces. Students will also gain experience with an integrated development environment (an IDE) — the programming environment that provides them with an editor, compiler, run-time environment, debugger, and plug-ins. They will learn how to write, compile, and debug programs in the given IDE (in this case IntelliJ). By the end of the semester, students will be able to develop and implement algorithms to solve simple to moderately difficult problems.

Course Topics:

**Problem Solving**  
The concept of an algorithm  
Algorithmic problem-solving and problem-solving strategies  
Structured decomposition and top-down design  
Debugging strategies  
Introduction to unit testing

**Fundamental Constructs**  
Basic syntax and semantics of a higher-level language, Java  
Variables, types, expressions, and assignment statements  
Simple input and output  
Conditional and iterative control structures  
Recursion
Functions and parameter passing
Scope of identifiers
Call by value vs. call by reference

Data Representation, Data Types, and Data Structures
Binary and hexadecimal base systems
Primitive types such as character, integer, and floating point numbers
Arrays (1D and 2D) and array lists
Strings and string methods
References

Object-Oriented Programming
Introduction to object-oriented design
Classes and objects and an introduction to inheritance
Encapsulation, data protection, and information-hiding

Other Topics
The compile/link/run process
Types of errors:
  - compiler vs. linker
  - syntax vs logical vs run-time

Tools and Skills:
How to use an IDE effectively, including the debugger
File structure fundamentals (directories and subdirectories)

Honor System
Wake Forest is an academic community that subscribes to an honor system. By accepting membership in this community, each student assumes the obligation to be trustworthy in all pursuits. Violations may be referred to the Judicial Council for investigation and determination of appropriate sanctions.

Special Needs
If you have a disability that may require an accommodation for taking this course, then please contact the Learning Assistance Center at (758-5929) within the first two weeks of the semester.

<table>
<thead>
<tr>
<th>Grading Scheme</th>
<th>Grading Scale</th>
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<tbody>
<tr>
<td>30% Labs/Projects</td>
<td>91-100 A</td>
</tr>
<tr>
<td>35% Tests (2)</td>
<td>90 &lt; 91 A-</td>
</tr>
<tr>
<td>5% Quizzes</td>
<td>89 &lt; 90 B+</td>
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<tr>
<td>10% Participation</td>
<td>81 &lt; 89 B</td>
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<tr>
<td>20% Final Exam</td>
<td>80 &lt; 81 B-</td>
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<tr>
<td>79 &lt; 80 C+</td>
<td>71 &lt; 79 C</td>
</tr>
<tr>
<td>70 &lt; 71 C-</td>
<td>69 &lt; 70 D+</td>
</tr>
<tr>
<td>61 &lt; 69 D</td>
<td>60 &lt; 61 D-</td>
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<tr>
<td>&lt; 60 F</td>
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Online Textbook
In this course, you will be using the zyBooks online textbook. To register for your own subscription of zyBook, you will need to:
1) Sign up at zyBooks.com
2) Enter zyBook code: **WFUCSC111ThomasSpring2017**
3) Click Subscribe

Instructional Video: https://vimeo.com/135692064
The cost of the text is $67; any applicable returning student discounts will be applied automatically. The student subscriptions will be valid through 05/17/17. You will be expected to register by the second class. Before each class, you will be expected to complete at least 90% of the assigned reading in zyBooks and complete the associated “Participation Activities” and “Challenge Activities”. In addition to in-class participation, completing the assigned reading and “Participation Activities” will determine your Participation Grade (see previous section).

Plan in the Case of Campus Closing
Please note the following plan to be followed in the event that the Wake Forest campus is closed for an extended period of time and we are unable to have our regularly-scheduled class meetings.

In normal circumstances, please contact me through my campus email address or campus telephone number.
campus email: sjt@wfu.edu
campus telephone: (336)-758-6095

In emergency situations or situations where the campus is closed, you may also use the following contacts:
alternate email: stanjthomas@gmail.com

Course information, including a schedule of assignments, will be posted at on Sakai.
After leaving campus, you should regularly consult the schedule on Sakai for updates to the schedule.

Be sure to take your book, computer, and course notes home with you in the event that the campus is closed. We’ll continue with tests and programming assignments, communicating through the internet, email, and/or postal mail.

If internet access is available, assignments should be put into the appropriate Sakai assignment folder.

How to Succeed in this Course

This course moves fast, so I encourage you to keep up with the assigned reading and programming projects. If you get behind, it can be difficult to catch up. If you have any problems or questions, please come talk to me as soon as possible so that we can help.

There may be times when your background has holes relative to your classmates. In these situations, it is your responsibility to seek extra help. I don’t know what you don’t know.

Start on projects early. Help is much more forthcoming if you start on projects early.

Help each other learn. One of the best ways to ensure that you understand a concept is to explain that concept to another person. Note that while you are not allowed to help each other write programs, you are strongly encouraged to discuss concepts that are presented in the class and in the book.

Finally, learn to think for yourself. It is good if your program compiles, but it is great if you understand how to get the right best answer too.
**Tentative Schedule of Topics (Note: Subject to change; see Sakai for latest version)**

<table>
<thead>
<tr>
<th>Week</th>
<th>Reading</th>
<th>Topics</th>
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<tbody>
<tr>
<td>1 (1/10-1/12)</td>
<td>N/A</td>
<td>Problem Solving, Abstraction</td>
</tr>
<tr>
<td>2 (1/17-1/19)</td>
<td>1.1-1.12</td>
<td>Introduction to Java</td>
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<tr>
<td>3 (1/24-1/26)</td>
<td>2.1-2.19</td>
<td>Variables and Assignments</td>
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<tr>
<td>4 (1/31-2/2)</td>
<td>3.1-3.11</td>
<td>Branching</td>
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<tr>
<td>5 (2/7-2/9)</td>
<td>4.1-4.8</td>
<td>Loops</td>
</tr>
<tr>
<td>6 (2/14-2/16)</td>
<td>4.9-4.11</td>
<td>Loops (con’t); Review and <strong>Test 1</strong> on Ch 1.1 – 4.8</td>
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<tr>
<td>7 (2/21-2/23)</td>
<td>5.1-5.4</td>
<td>Arrays</td>
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<tr>
<td>8 (2/28-3/2)</td>
<td>5.5-5.11</td>
<td>Arrays (con’t)</td>
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<td><strong>Spring Break</strong></td>
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<tr>
<td>9 (3/14-3/16)</td>
<td>6.1-6.8</td>
<td>User Defined Methods</td>
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<tr>
<td>10 (3/21-3/23)</td>
<td>6.9-6.11, 9.1-9.5</td>
<td>User Defined Methods (con’t) Input/Output</td>
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<tr>
<td>11 (3/28-3/30)</td>
<td>7.1-7.16</td>
<td>Objects and Classes</td>
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<tr>
<td>12 (4/4-4/6)</td>
<td>16.1-16.11</td>
<td>GUIs; review and <strong>Test 2</strong></td>
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<tr>
<td>13 (4/11-4/13)</td>
<td>12.1,2,5,6,8</td>
<td>Recursion</td>
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<tr>
<td>14 (4/18-4/20)</td>
<td>15.1, 8.1-8.6</td>
<td>Enhanced loops Memory management (good prep for CSC 112)</td>
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<tr>
<td>15 (4/25)</td>
<td>TBA</td>
<td>Prep for CSC 112</td>
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<tr>
<td>9am 5/2</td>
<td>Exam</td>
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