Introduction to Computer Science: Fall 2012

This is an introduction to some of the main concepts in Computer Science using the Java programming language, a so-called object-oriented, imperative programming language. No background in computing is assumed.

The final grade is computed as follows:

- 40% Homework
- 40% midterms and quizzes
- 20% final project

What's New

- Don't forget to refresh this web page (and all the ones reachable from it) every time you read it

Purchase:
Cay Horstmann's BIG JAVA, Wiley, 4th Ed., and read chapters 1 and 2.
- FAQ web page. No questions yet.

Some programming resources you may find handy.

- A 1-page outline of the imperative core of Java for novices
- A 3 page quick reference to the Java Programming language. This was written for accomplished programmers, so it's a bit advanced now, but will become handy later in the course.
- A crash course on UNIX for MAC users.
- A crash course on the EMACS program editor.

Basic Information

- Instructor's name: James Lipton
- Instructor's Office: 635 Sc
- Phone: 2188
- Email: jlipton@wes...
- TA's name:
- Email:

for all course-related correspondence: subject heading MUST contain: COMP 211 fall
Loading the course software

To follow this course you need to have

- the developer's version (jdk) of Java (the programming language we use). The best version is the most recent java 7.something release. SAt the very least you should have 6.something, or one of the version 5 releases, called Java 5.something. You should get the most recent version available, which is usually the easiest one to select. You will also need a

- program editor to write your programs.

How you get this software depends on what operating system you are using (Windows/Vista on a PC, or OSX on a Mac):

To download the java and javac programs for your own use, (as well as a program editor)

For a MAC running OSX
You're in luck! You have almost everything you need. You need to know how to open a terminal window, and type javac or java when needed.

As for a program editor, you already have a windowless version of emacs. However, this is not mouse-sensitive and a pain to use. So you will want to download Aquamacs.

For a PC running Windows
(This is not completely trivial: roll your sleeves up)

CLICK HERE.

Other web resources for JAVA

- Web page for the Textbook
- Java Tutorial online directly from the web... no messy pages to turn ;-)  
- There are programs known as IDE's or Integrated Development Environments which can be used to write, run and debug all of your programs. You just fire up the IDE and do all of your work in it. The IDE we will look at later on this course is BlueJ. You are welcome to download it at any time and use it. You just have to read the (short and well-written) manual to learn how to use it.

Syllabus
<table>
<thead>
<tr>
<th>WEEK</th>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
<th>Homework Due</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| 1    | S4-6  | Introduction to the language and the Course. Using objects. Types and | • Ch. 1,2 (Big Java)  
• Slides on Getting started in this course, and what Computer Science is about. | Turn in student info sheet    | Evening slots for labs and review sessions location: Exley Science Tower 72 (in the basement, i.e. on the floor marked "G" in the elevator).  
• Tuesdays 7-8:30 (sec.1)  
• Thursdays 7-8:30 (sec.2)  
Sample Programs from the first 2 weeks of lectures. |
| 2    | S11-13| • Objects and Methods (non-static)  
• Using and implementing classes.  
• Static Methods. (8.6)  
• Strings. Scanners (taking inputs from the user). | • Ch. 2,3, 8.6.  
• Handout on taking input from the user. |                                | • labs: A crash course on Graphics (2.11-2.13)  
• Some slides on creating graphics in Java.  
More examples of classes |
| 3    | S18-20| • Implementing Classes (Cont)  
• Fundamental Data Types.  
• Branching: the if statement.  
• More on Strings and inputs. | Ch. 4, 5.1 | HW 0 due Sept. 18 at 5:00pm. | • Some remarks on Fundamental Data Types. |
<table>
<thead>
<tr>
<th>Week</th>
<th>Date Range</th>
<th>Topics</th>
<th>Reading</th>
<th>Homework Due Date</th>
<th>Notes</th>
</tr>
</thead>
</table>
| 4    | S25-27     | • Nested conditionals.  
• Boolean Expressions.  
• Iteration (looping): `while` and `for` | Ch. 5,6. | HW 1 due Oct. 2, at 5:00pm | Some programs illustrating iteration discussed in class. |
| 5    | Oct. 2-4   | • More on loop algorithms.  
• Nested Loops.  
• Arrays and Array lists.  
• The `for each` statement  
• Searching and Sorting (part I) | Ch. 7    |                    | Some programs using Arrays and Array Lists discussed in class. |
| 6    | O9         | • Loop Invariants.  
Preconditions.  
Class Invariants  
• Random numbers.  
Throwing darts at the unit square.  
Plotting histograms. | Ch. 6. 8.5 | HW 2 due Oct. 9, at 5:00pm |       |
| Thu. Oct. 11 |            | **Midterm I**                                                        |         |                    |       |
| Tue. Oct. 16 |              | **FALL BREAK**                                                      |         |                    |       |
| 7    | O 18       | Interfaces and Polymorphism.                                         |         | HW 3 due Oct. 23, at 5:00pm | **lab: Listeners and Events**  
**Handout** on Events |
| 8    | Oct. 23-    | Inheritance                                                          | Ch. 10  |                    | Some **simple examples of** |

http://jlipton.web.wesleyan.edu/courses/fall2012/web/index.html
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Oct.30-Nov.1</td>
<td>Ch. 13</td>
<td>Some programs using inheritance.</td>
</tr>
<tr>
<td></td>
<td>Recursion</td>
<td></td>
<td>HW 4 due Oct. 30</td>
</tr>
<tr>
<td>10</td>
<td>N6-8</td>
<td>Ch. 14</td>
<td>Some programs illustrating the use of Recursion.</td>
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<tr>
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<td>Searching and Sorting (part II)</td>
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<td></td>
<td>Complexity of Algorithms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>N13-15</td>
<td>Ch. 15.1-2, 16.1</td>
<td>HW 5 due Nov. 20, 5:00pm.</td>
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<tr>
<td>Tue., Nov. 20</td>
<td></td>
<td></td>
<td><strong>Midterm II</strong></td>
</tr>
<tr>
<td>Thu. Nov. 22</td>
<td></td>
<td></td>
<td><strong>THANKSGIVING BREAK</strong></td>
</tr>
<tr>
<td>13</td>
<td>N 27-29</td>
<td>Ch. 18</td>
<td>Possible topics for final projects.</td>
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<td></td>
<td>I/O and Exceptions (cont.)</td>
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<tr>
<td></td>
<td>Graphical User Interfaces</td>
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<tr>
<td>14</td>
<td>D 4-6</td>
<td>Ch.</td>
<td></td>
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