**CPSC 101: Introduction to Computers**

**Spring 2009**

**Instructor:** Dr. Jane Ingram  
**Office Hours:** Monday/Wednesday: 2:00 - 3:30 pm  
Tuesday/Thursday: 1:30 - 2:30

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**Phone:** 375-2446

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**Course Web Site:** [http://cs.roanoke.edu/Spring2009/CPSC101A](http://cs.roanoke.edu/Spring2009/CPSC101A)


**Course Objectives:** This course is a "liberal arts" introduction to computers designed to give students a general understanding of the fundamental concepts underlying computers and the discipline of computer science. The objectives are for the student (a) to have a basic understanding of how computers and the Internet work; (b) to understand the basic concepts underlying computer systems (logic, information representation, and algorithms); (c) to be able to apply these concepts in becoming a more knowledgeable user of computers; (d) to increase his/her ability to think logically and design algorithms to solve problems; (e) to increase his/her ability (and comfort) in using the computer as a problem-solving tool; and (f) to understand some of the ethical, social, and technical challenges posed by the computer and its pervasive use.

There will be hands-on experience in using personal computers running the Windows XP operating system. Applications will include writing Web pages and programming in JavaScript.

Students who have received credit for a computer science course above the 101 level may not receive credit for this course.

**Attendance Policy:** Class attendance is a very important aspect of a student's success in this course. The student is expected to attend every class and is accountable for any missed classes. **Attendance at one Department of Mathematics, Computer Science, and Physics co-curricular event is required (there will be several options).** (Also see notes below about missed labs and quizzes!)

**Grading Policy:** The course grade will be based on 3 tests, weekly quizzes, several graded assignments and in-class labs, a co-curricular activity, and a comprehensive final examination with weights as follows:

<table>
<thead>
<tr>
<th>Grade Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Tests (3)</td>
<td>45%</td>
</tr>
<tr>
<td>Quizzes (best 7 of 9)</td>
<td>10%</td>
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<tr>
<td>----------------------</td>
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<tr>
<td>Assignments &amp; Labs</td>
<td>18%</td>
</tr>
<tr>
<td>Co-curricular</td>
<td>2%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
</tr>
</tbody>
</table>

**Test Dates:**
- Test #1: Wednesday, February 4
- Test #2: Friday, February 27
- Test #3: Friday, April 3
- Final Exam: Wednesday, April 22 (8:30 - 11:30 am)

**Grading Scale:**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>93-100</td>
</tr>
<tr>
<td>B</td>
<td>83-86</td>
</tr>
<tr>
<td>C</td>
<td>73-76</td>
</tr>
<tr>
<td>D</td>
<td>63-66</td>
</tr>
<tr>
<td>A-</td>
<td>90-92</td>
</tr>
<tr>
<td>B-</td>
<td>80-82</td>
</tr>
<tr>
<td>C-</td>
<td>70-72</td>
</tr>
<tr>
<td>D-</td>
<td>60-62</td>
</tr>
<tr>
<td>B+</td>
<td>77-79</td>
</tr>
<tr>
<td>C+</td>
<td>67-69</td>
</tr>
<tr>
<td>D+</td>
<td>60-69</td>
</tr>
<tr>
<td>below</td>
<td>below 60</td>
</tr>
</tbody>
</table>

**Make-up Policy:** Everyone is expected to take tests, quizzes, and the exam at the scheduled time. Make-ups will be given only for legitimate, documented absences and, if given, may be oral. **No** makeup quizzes will be given (a zero will be given for a missed quiz); however, the lowest two quiz grades made during the semester will be dropped in the calculation of the quiz average. In-class labs missed must be made up ***by the time they are due (often before the next class period).*** Graded in-class labs missed without a legitimate excuse and not turned in on time will receive at most one-half credit.

**Special Needs:** If you are on record with the College's Special Services as having special academic or physical needs requiring accommodations, please meet with me as soon as possible. We need to discuss your accommodations before they can be implemented. Also, please note that arrangements for extended time on exams and testing in a semi-private setting must be made at least one week before the exams. If you believe you are eligible for accommodations but have not yet formally contacted Special Services, please call 375-2248 or drop by the Office of Academic Services in the Library.

**Quizzes:** Short quizzes will be given weekly to make sure that the student is keeping up with the reading and the daily homework. There will be a quiz **every Friday** (except in a test week). Quizzes will usually (but not always) be at the beginning of class. The lowest two quiz grades will be dropped when final grades are calculated.
**Assignments**: There will be several assignments and in-class activities or labs to be handed in for a grade. These will include "pencil and paper" exercises (problem sets generally), blogs where you post your thoughts on some ethical or social issues associated with computers (you will be given specific instructions), web page construction, and writing programs. Labs will include writing Web pages and JavaScript programs. Generally there will be work to hand in from the in-class lab (sometimes you will need to complete the lab on your own) and there will be a follow-up assignment to be handed in later. In addition to the assignments to be handed in, the student should keep up with the reading, answer the review questions and do the practice problems assigned. **Important**: The labs are designed to introduce you to a new topic or skill. The goal is for you to learn from them; consequently, you may confer with the instructor, lab assistant, and your classmates in working on labs. The assignments are for you to do **on your own** without help from classmates. See the statement on Academic Integrity below for details. **All assignments (other than blogs) must be pledged! An assignment that does not have a signed pledge will not be graded.**

**Late Policy for Assignments and Labs**: Unless otherwise specified, work is to be turned in at the beginning of class on the day it is due. Ten percent per calendar day (24 hours) will be deducted for late work; work **will not be accepted** if it is handed in more than 3 days late OR after the graded assignment or lab has been returned (whichever comes first).

**Co-Curricular Requirement**: The Department of Mathematics, Computer Science, and Physics is offering a series of lectures designed to engage the campus community in discussions of ongoing research, novel applications, and other issues that face these disciplines. You are invited to attend all of the events but participating in at least one is mandatory. Within one week of attending an event you must submit a one page paper reflecting on the discussion. If you do not turn the paper in within the one week time frame you may not count that event as one you attended.

**Academic Integrity**: Students are expected to adhere to the policies in the "Academic Integrity at Roanoke College" Handbook. In particular, all tests, exams, quizzes, programming and computer assignments, and papers are to be the work of the individual student. You are encouraged to get help from the instructor if you need help with an assignment. The work you turn in must be your own. Using someone else's work or ideas as your own is plagiarism and an academic integrity offense. Examples of academic integrity violations include copying a program or part of a program (even one line) from someone else, writing code for someone else, telling someone else how to solve a problem (such as telling someone the formula needed in a program or a spreadsheet) or having someone tell you how to solve a problem. Discussion among students should be limited to general concepts, not specific aspects of how to complete the assignment.

**Electronic Devices and Academic Integrity**: All cell phones and other electronic devices (including IPods and laptops) must be turned off prior to entering the classroom or lab. Any use of such a device during a test or quiz will be considered a breach of academic integrity. Handheld calculators may be used only with the permission of the instructor, and when permitted, may not be shared by students (each student must have his/her own).
Computer Use Policies: All students must abide by the Computer Use policies of the Roanoke College. Failure to do so will result in involuntary withdrawal from the course.

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CPSC 101 -- Topical Outline

NOTE: The order in which topics are covered may differ from this outline. Additional readings from the library and the Internet may be assigned.

1. Introduction and Overview -- Introduction to course themes, basic computer concepts and terminology, the history of computing.  
   Reading: Chapter 1 - "The Big Picture"

2. Information Representation - Place Value Number Systems  
   Reading: Chapter 2 - "Binary Values and Number Systems"

3. Information Representation - Representing Text, Audio, and Images  
   Reading: Chapter 3 - "Data Representation"

4. Introduction to HTML  
   Reading: Chapter 16, Section 16.2 "HTML"  Lab: Writing Web Pages using HTML

5. Gates, Circuits, and Logic  
   Reading: Chapter 4 - "Gates and Circuits" plus Handouts

6. How a Computer Works -- A Closer Look at Hardware and Operating Systems  
   Reading: Chapter 5 - "Computing Components"  
   Reading: Selected topics from Chapter 10 "Operating Systems" and Chapter 11 "File Systems and Directories"

7. The Internet and Network Concepts  
   Reading: Chapter 15 - "Networking"

8. The World Wide Web  
   Reading: Chapter 16 - "The World Wide Web"

9. Introduction to Programming and Programming Languages  
   Reading: Selected topics from Chapter 6 "Problem Solving and Algorithm Design," Chapter 7 "Low-Level Programming Languages," and Chapter 8 "High-Level Programming Languages"

10. Programming in JavaScript -- Basic features of JavaScript plus HTML forms  
    Reading: Handouts  
    Labs: Several lab activities

11. Issues in Computer Science  
    o Security (Selected sections from Chapter 12 "Information Systems" and Chapter 14 "Simulation, Graphics, and Other Applications"
    o Artificial Intelligence (Chapter 13 "Artificial Intelligence")
- Limitations of Computing (Chapter 17 "Limitations of Computing")