CS 160
ORIENTATION TO COMPUTER SCIENCE
Fall 2008

INSTRUCTOR: David R. Becker
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Office Hours: M/W 11:30-12:30, Tu: 2:00–3:00; or by Appointment.

COURSE DESCRIPTION: CS160 introduces the field of computer science and programming. It covers binary encoding of data, logic, computer organization, operating systems, programming languages, algorithms, software engineering, and data and file organization.

CLASS TIME: U/H 12:30-1:50 NSH-110

PREREQUISITE: CIS 125 Introduction to Software Applications.
Math 065 Elementary Algebra

TEXT BOOK:
Brooksheer, J., Computer Science an Overview, 10th Edition Addison/Wesley

MATERIALS: Internet access and USB Drive.

COURSE OBJECTIVES: On completion of this course, students will be able to:
1) Understand the concept of abstraction.
2) Understand the science and role of algorithms in the field of computer science.
3) Write and interpret short machine code expressions.
4) Write algorithms in pseudo code and a programming language to solve given problems
5) Describe in detail the duties and functions of an operating system.
6) Describe basic variable types and data structures
7) Describe the various differences between object oriented and procedural/traditional programming languages.

GRADING: Final grades will be assigned based on the percentages of the weighted total points.

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
<th>Grade Range</th>
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</thead>
<tbody>
<tr>
<td>Homework</td>
<td>30%</td>
<td>90%-100% ....A</td>
</tr>
<tr>
<td>Quizzes</td>
<td>30%</td>
<td>80%-89% ....B</td>
</tr>
<tr>
<td>Programming Project</td>
<td>20%</td>
<td>70%-79% ....C</td>
</tr>
<tr>
<td>Robotic Project</td>
<td>20%</td>
<td>60%-69% ....D</td>
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<td></td>
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<td>below 60% ..F</td>
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COURSE REQUIREMENTS:

QUizzes:
ax) Quizzes will be given the last class period of each week with the exception of Weeks 1, 7, 9, and 10.
b) Missed quizzes cannot be made-up without instructor consent PRIOR to the quiz.
c) The lowest quiz score will be dropped.
d) **NO MIDTERM EXAMS OR FINAL WILL BE GIVEN** - weekly quizzes will take the place of midterms and two (an individual and group) projects will be given in place of the final.

**HOMEWORK:**
A number of written assignments from your text book will be given throughout the quarter and **WILL BE ANNOUNCED IN CLASS.** All assignments must be turned in at the beginning of the class period on the date due. Late Assignments will receive a deduction of **20% of the total possible points.** This deduction will be added to any subtracted points after the assignment is graded. Late assignments **will not be accepted** after the next class period following the due date. Please **SHOW YOUR WORK** on all mathematical calculations.

**NOTE:** The LAST DAY to turn in Assignments is 5:00pm, Tuesday, December 9, 2008. No assignments will be accepted after that date.

**PROGRAMMING and ROBOTICS PROJECT:**
Further details and guidelines for these assignments will be given during the seventh week of the course.

**MISSED CLASSES/HOMEWORK/QUIZZES:**
In case of absence from class, students are responsible for announcements made (**HOMEWORK ASSIGNMENTS**) and materials covered. If an absence results in a missed quiz, that quiz will be treated as the low score which is discarded when total points are calculated at the end of the term.

**INDEPENDENT WORK:**
All students are encouraged to discuss assignments and course materials in general terms with other students. However, each student is expected to work independently on all assignments. The work you turn in to be graded must be your own work. If you need help with exercises, see the instructor for further assistance and guidance. The penalty for turning in work done by another student will range from a 0 grade on the assignment to a failing grade in the course.

**TUTORS:** Tutors are usually available for this and other computer science classes. Check with the instructor and/or the Learning Center if you feel you need further assistance with this course.

**CELL PHONES:** Cell phones can be very disruptive. If you carry a cell phone or pager, make sure they are in “vibrate” mode while you are in class.

**“Y” GRADE:**
A “Y” grade **will not** be issued for this course to any student who attends beyond the second week of instruction. Should you find yourself in a situation which compels you to withdraw from the course, see the Registrar’s office and officially withdraw prior to the end of the seventh week of the quarter.

**Office of Disability Services:**
Students who may need accommodations due to documented disabilities, who have medical information which the instructor should know, or who need special arrangements in an emergency, should **speak with the instructor during the first week of class.** If you have not accessed services and think you may need them, **please contact Disability Services, 917-4789.** If you have documented your disability, remember that you must complete a Request for Accommodations form every term in order to receive accommodations.
COURSE OUTLINE AND SCHEDULE

Week 1: **Introduction:** History of Computing, Intro to Algorithms, Abstraction  
*Sep 30-Oct 3*  
binary system, hexadecimal system, ASCII, Unicode  
Reading: Chap 0, 1

Week 2: **Data Storage:** Storing integers, storing fractions, two’s complement notation,  
*Oct 6-10*  
storing floating point numbers, logical operators  
Reading: Chap 1  
QUIZ 1

Week 3: **Data Manipulation:** Two’s complement & floating point (cont.), Data Compression,  
*Oct 13-17*  
Communication, Errors, **Computer Architecture**  
Reading: Chap 1, 2  
QUIZ 2

Week 4: **Computer Architecture** (cont.), Machine Language, Program  
*Oct 20-24*  
Execution, ALU, Other Architectures  
Reading: Chap 2  
QUIZ 3

Week 5: **Operating Systems:** Evolution of Operating Systems and Security  
*Oct 27-31*  
**Networking and the Internet:** Network Fundamentals, Protocols, Security  
Reading: Chap 3, 4  
QUIZ 4

Week 6: **Algorithms:** Network Fundamentals (cont.), representation, discovery, structures  
*Nov 3-7*  
Reading: Chap 4, 5  
QUIZ 5

Week 7: **Program Languages:** Algorithms (cont.), historical view of programming, concepts,  
*Nov 10-14*  
procedural languages, object oriented languages  
Reading: Chap 6  
**Programming Project Assignment and Robotic Teams Formed**  
November 11 is a Holiday: Veteran’s Day

Week 8: **Software Engineering:** Program Languages (cont.), life cycle, modularity,  
*Nov 17-21*  
maintenance  
**Data Abstraction:** fundamentals  
Reading: Chap 7, 8  
QUIZ 6  
**Programming Project Due Noon, Friday, November 21**

Week 9: **Robotics Project**  
*Nov 24-28*  
November 27 is a Holiday: Thanksgiving Day

Week 10: **Robotics Project**  
*Dec 1-5*