CMPE 177
Applied Graph Theory and Algorithms
Fall 2003

Description: This is an introductory course in Graph Theory with an emphasis on classical graph algorithms and their applications to problems in connectivity, routing, matching, and graph embeddings. Topics will include: representations of graphs, bipartite graphs, Cayley’s formula, minimum spanning trees, shortest path algorithms, vertex and edge connectivity, directed graphs, network flows and cuts, Menger’s theorems, Eulerian and Hamiltonian graphs, planar graphs, matchings, and colorings.

Prerequisite: CMPS 101

Time and Place: MW 5:00 – 6:45 Baskin Engineering 156 & UCSC Extension Cupertino
Class Webpage: http://www.soe.ucsc.edu/classes/cmpe177/Fall03/
Class News Group: ucscl.class.cmpe177

Instructor: Patrick Tantalo (http://www.cse.ucsc.edu/~ptantalo/)
Email: ptantalo@soe.ucsc.edu
Office: Jack Baskin Engineering 181
Office Hours: M 10:00 – 12:00, TTh 11:00 – 1:00
Phone: 831-459-3898

Teaching Assistant: Karl Young (karly@soe.ucsc.edu)

Discussion Sections: Places and times will be posted on the webpage shortly. These secondary meetings will be used by TA to discuss homework problems and the programming project, and to help students prepare for exams. Attendance is entirely optional.

Required Text: A first look at Graph Theory by John Clark and Derek Allan Holton, published by World Scientific (1991). We will cover roughly, though not necessarily in this order, sections 1.1-1.8, 2.1-2.6, 3.1-3.4, 4.1-4.3, 5.1-5.4, 5.6, 7.1-7.3, and 8.1-8.3.

Course Work and Evaluation:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework</td>
<td>5%</td>
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<tr>
<td>Programming Project</td>
<td>30%</td>
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<tr>
<td>Midterm I</td>
<td>20%</td>
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<tr>
<td>Midterm II</td>
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<tr>
<td>Final Exam</td>
<td>25%</td>
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Homework will be taken from the exercises at the end of each section of the text, but will be graded only as to its completeness, not correctness. Its purpose is to prepare students for the midterm and final exams. There will be one Programming Project due Wednesday November 19. Midterm I will be held in class on Monday October 20, and Midterm II will be Monday November 10. The Final Exam will be held on Wednesday December 10, 7:30 – 10:30 pm. Please make arrangements now to be available on that date. The grading scale for the class will be approximately: A::90%-100%, B::80%-89%, C::70%-79%, D::60%-69%, F::0%-59%. Letter grade boundaries may be lowered at my discretion in order to eliminate some borderline cases.
**Academic Honesty:**
The Computer Engineering Department of UCSC has a zero tolerance policy for any incident of academic dishonesty. If cheating occurs, consequences within the context of the course may range from getting zero on a particular assignment, to failing the course. In addition, every case of academic dishonesty is referred to the students’ college Provost, who sets in motion an official disciplinary process. Cheating in any part of the course may lead to failing the course, suspension and/or dismissal from the university.

What is cheating? In short, it is presenting someone else’s work as your own. Examples would include copying another students’ homework or program, or allowing your own work to be copied. You may freely give and receive help with the computer facilities, editors, the UNIX operating system, and the proper use and syntax of the C/C++/Java programming languages, but you may not copy, paste, email, or in any way share source code. If you do collaborate (legitimately) or receive any form of help from anyone, you must credit them by placing their name(s) at the top of your paper.

The following is from the Fall 2003 Schedule of classes under General Information:

**Academic Integrity**
All members of the UCSC academic community have an explicit responsibility to present as their original work only that which is truly their own. Cheating, plagiarism, and other forms of academic dishonesty are contrary to the ideals and purposes of a university and will not be tolerated. Note that plagiarism includes the deliberate misrepresentation of someone else’s words and ideas as your own, as well as paraphrasing without footnoting the source. Students and faculty are jointly responsible for assuring that the integrity of scholarship is valued and preserved. The full text of the policy on academic dishonesty can be found at: http://oasas2.ucsc.edu/avcue/integrity/

**Due Process**
Students charged with academic dishonesty have the right to due process through established policies and regulations concerning student conduct and discipline. Copies of these policies and regulations can be found in the UCSC Student Policies and Regulations Handbook which is available at the offices of each college provost, the dean of graduate studies, the Vice Chancellor of Student Affairs, and at the website: http://www2.ucsc.edu/judicial/