**CompSci 260: Fundamentals of the Design and Analysis of Algorithms**

* **Class Meetings** (Winter 2012)
  + *Lecture*:   M W 9:30-10:50am in DBH 1300
  + *Discussion*:   immediately following lecture, in the same room
  + **Note:** You are **required** to enroll in the discussion section as well as the lecture
  + The discussion section will be used for the following purposes:
    - Allowing a lecture to run a little long sometimes
    - Providing an additional lecture to help cover the entire course syllabus
    - Discussion of homework problems
    - Midterms may be given during the lecture, or during the discussion, or during the lecture and extending into the discussion
* **Instructor**
  + Professor Dan Hirschberg -- dan (at) ics.uci.edu  
        office hours by appointment in DBH 4226
  + Teaching Assistant**:**     this class has not been assigned any teaching assistant
* **Prerequisites**
  + CompSci 161 (Design and Analysis of Algorithms) or equivalent undergraduate algorithms course
* **Add/Drop Policy**
  + All adds and drops will be handled automatically through the Registrar's WebReg system
  + No adds or drops allowed after the second week of classes
* **Course Text**
  + **Required:** Kleinberg and Tardos, *Algorithm Design*, Addison Wesley, 2006.
  + The course will cover the first eight chapters of this book, along with a small number of supplementary readings. This book will be placed on reserve in the science library.
* **List of Topics**   
  The following schedule is approximate and may change over the course of the quarter.
  + **Week 1:** Introduction. The Stable marriage problem. [KT Chapter 1]
  + **Week 2:** Basics of Algorithm Analysis. [KT Chapter 2]
  + **Week 3:** Basics of Graph Algorithms. [KT Chapter 3]
  + **Week 4:** Greedy Algorithms. Shortest Paths. Minimum Spanning Trees. [KT Chapter 4]
  + **Week 5:** Divide and Conquer, part 1. [KT Sections 5.1-5.5]
  + **Week 6:** Divide and Conquer, part 2. [KT Sections 5.6, 13.5]. Dynamic Programming, part 1. [KT Sections 6.1-6.3]
  + **Week 7:** Dynamic Programming, part 2. [KT Sections 6.4-6.9]
  + **Week 8:** Network Flow. [KT Sections 7.1-7.7]
  + **Week 9:** Linear programming [Notes to be provided]. NP-completeness, part 1. [KT Sections 8.1-8.2]
  + **Week 10:** NP-completeness, part 2. [KT Sections 8.3-8.5]
* **Course Notes** (access password given in class)   
  Note that you are responsible for all material covered in lecture, discussion, and the relevant portions of the textbook, even if it does not appear in the lecture notes.
  + [Lecture Slides](http://www.ics.uci.edu/%7Edan/class/260/notes/)
  + A paper relevant to NP-completeness:
    - [tutorial on complexity](http://www.ics.uci.edu/%7Edan/class/260/notes/tutorialoncomplexity.pdf)
* **Grading**
  + 10% -- homework and discussion participation
  + 50% -- two midterms (25% each): tentatively scheduled during weeks 4 and 7   
    no make-up midterms will be given, so do not miss them
  + 40% -- final exam: W of week 11 (Mar 21) 8-10am
* [**Homework assignments**](http://www.ics.uci.edu/%7Edan/class/260/homework.html)
* **Masters Comprehensive Exam**
  + This course may be used as part of the comprehensive exam in the computer science masters program. To pass the comprehensive exam, students must get an A- or better on each part of the 260 Final Exam.
  + Students who wish to take the comprehensive exam but are not enrolled in the course should contact me by email before the end of week 2 of the quarter to reserve a seat in the exam. Include your full name and UCI Student ID #, and send the request from your UCI email account (to prevent identity theft). Students without reservations will not be permitted to sit for the exam.
* **Academic Dishonesty**
  + Instances of academic dishonesty will be reflected in the final grade (usually an F) because dishonesty devalues the learning experience for the whole class. Additional consequences may occur at the academic unit or the campus level.
  + Examples of academic dishonesty include, but are not limited to:
    - copying from others during an examination
    - communicating exam answers with other students during an examination
    - using unauthorized materials during an examination
    - allowing another student to copy off your work during an examination
    - tampering with an examination after it has been corrected, then returning it for more credit
  + For more complete information about academic honesty policies, consult the   
    [Academic Senate Policy on Academic Honesty](http://www.editor.uci.edu/catalogue/appx/appx.2.htm)
* **Communication**   
  If you send me email with course-related questions:
  + include the string "CompSci 260:" at the start of the subject line
  + include your name and UCI Student ID number in the message
  + if you are not writing from your official UCI email address, please cc your official UCI email address

(This protocol enables me to weed out requests for help on problems from non-UCI students.)