

- **Course:** Computational Models
- **Time & Place:** MWF, 11:00am to 12:10pm, Engineering 2, Room 192.
- **Discussion Sections:** TBD
- **Instructor:** Dean Bailey;
- **Contact Information:** Office: E2, 249B; Phone: 459-1339; e-mail: dbailey@cse.ucsc.edu
- **Office Hours:** Mondays, 12:15pm-1:30pm, Tuesdays 12:15pm-1:30pm
- **Teaching Assistant:** Carlos Goldsmith
- **Office Hours:** Thursdays, 3:00pm-4:00pm, Fridays, 5:00pm-6:00pm.
- **Prerequisites:** CIS 101
- **Required Textbook:** *Introduction to the Theory of Computation*, by Michael Sipser, 2nd Edition, PWS/Thompson, 2006.
- **Goal:** To cover most of the material contained in Chapters 0, 1, 2 and 3.
- **Syllabus:** The following is a tentative syllabus for the course:
 - Overview
 - Tools: Mathematical Objects and Proof Techniques
 - Deterministic Finite Automata
 - Non-deterministic Finite Automata
 - Rabin-Scott Theorem
 - Regular Languages and Regular Expressions
 - Kleene's Theorem
 - Non-regular Languages
 - Pumping Lemma
 - Myhill Nerode Theorem
 - Minimizing States
 - Push Down Automata
 - Context-free Grammars and Languages
 - Normal forms
 - Non-context-free languages
 - Pumping Lemma for context-free languages
 - Turing Machines and Recursively Enumerable Languages
 - Church-Turing Thesis
- **Evaluation:** The course work will be weighted as follows:

Final Examination	40%
One Midterm Examination	30%
Four in-class Quizzes (20 minute each)	20%
Homework Assignments	10%

A passing grade is required in *all* four categories to pass the course.

- **Examination and Quiz Schedule:**

Quiz 1:	Friday,	October 6, 2006,	11:00am-11:20am.
Quiz 2:	Friday,	October 20, 2006,	11:00am-11:20am.
Midterm:	Friday,	October 27, 2006,	11:00am-12:10pm.
Quiz 3:	Wednesday,	November 8, 2006,	11:00am-11:20am.
Quiz 4:	Wednesday,	November 22, 2006,	11:00am-11:20am.
Final:	Monday,	December 4, 2006,	4:00pm-7:00pm.

The examination and quiz schedule is fixed. In particular, requests for changes in the schedule will not be accommodated; if you have conflicts with this schedule, please do not enroll in the class. Also, *no* time extension will be given for late arrivals on quiz day or examination day.

- **Academic Integrity:** No form of academic dishonesty will be tolerated. Incidents of academic dishonesty will be reported according to UCSC's policy on academic integrity, the full text of which can be found at <http://oasas.ucsc.edu/avcue/integrity>. Specifically, if you are caught submitting work as your own in this class, that is not solely your own, or assisting others in doing so, a formal written report will be sent to your Department, the School of Engineering, and to your Provost and academic preceptor. Furthermore you will get a failing grade for the course and the incident will be noted in your evaluation.

- **Miscellanea**

- All homework assignments are to be handed in at the beginning of Class on the due date.
- Solutions to homework problems will be presented in the discussion sections. They will not be posted.

- **Other interesting textbooks, NOT required:**

- *Introduction to Automata Theory, Languages, and Computation*, by Hopcroft and Ullman, 1st Edition, Addison Wesley, 1979.
- *Introduction to Automata Theory, Languages, and Computation*, by Hopcroft, Motwani and Ullman, 2nd Edition, Addison Wesley, 2001.
- *Automata and Computability*, by Kozen, 1st Edition, Springer-Verlag, 1997.
- *Elements of the Theory of Computation*, by Lewis and Papadimitriou, 2nd Edition, Prentice Hall, 1998.
- *Introduction to Languages, and the Theory of Computation*, by Martin, 3rd Edition, Mc Graw Hill, 2003.