CMPS 203: Programming Languages
Winter 2010 (53305)

Lecture times:
MWF 3:30-4:40, Engr. II, Room 192.
No permission codes; come to class. We can go over 35.

Moodle:
http://moodle.soe.ucsc.edu/course/view.php?id=37

Instructor:
Prof. Allen Van Gelder (avg @ cse.ucsc.edu)
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Office: 355 Engineering II
Office Hours: Mon., Wed. 2:00-3, plus drop-in or appt.

Teaching Assistant:
Caitlin Sadowski (supertri @ soe.ucsc.edu)
Office: 397 Engineering II
Office Hours: after class, by appt., TBA

Tutor:
Jaeheon Yi (jaeheon @ soe.ucsc.edu)
Office: 397 Engineering II
Office Hours: TBD

Learning goals
CMPS 203 is designed to enable graduate students to gain a deeper understanding of the theoretical foundations underpinning programming languages. By the end of the quarter, successful course participants will learn enough basic Programming Languages theory and terminology to make papers in this area more approachable, understand how to prove properties of programs, learn to write better programs by exploiting modern language features such as higher-order functions and pattern matching, and understand why different languages and paradigms exist. For more information, please see the course description posted in Moodle.

Course prerequisites
The prerequisites for this course are programming and mathematical experience. The ideal programming experience is practical exposure to several different programming languages, such as Scala, Ocaml, Python, Prolog and Java. The ideal mathematical experience is knowledge of mathematical logic and ability to construct rigorous proofs (in particular by structural induction). None of these prerequisites are strict. However, your desire to be exposed to this material is very important. In the past a small number of undergraduates have been able to complete the course.

Primary (Required) Textbook:
Semantics with Applications: An Appetizer
by Nielson and Nielson, Springer 2007

http://www.soe.ucsc.edu/classes/cmps203/Winter10/syllabus.html
Readable online (http://www.springerlink.com/content/um24t4/) through the Science Library from computers on campus, or through the Library's Off Campus Access. If you are authorized you will see a PDF logo under each chapter title. You must click the PDF logo, NOT the title.

Optional Textbooks:
The Formal Semantics of Programming Languages: An Introduction
Glynn Winskel, MIT Press, 1993 ($43.45 from amazon), with a partial Google Books preview.

Types and Programming Languages
Benjamin Pierce, MIT Press, 2002. Available online from the library

Moodle
This class will use Moodle course management software (at http://moodle.soe.ucsc.edu/) to submit homework, schedule readings, conduct quizzes, etc. You need to register for a Moodle account, add a user picture, and add cmps203W10 to your Moodle account. See the general moodle website (http://moodle.org) for generic Moodle help, but be sure to register at the soe moodle site.

Grading
You will be evaluated on class participation, short summaries of readings, online quizzes, homework assignments, and a final project. The homework assignments will often be mathematical in nature, and will also include some small programming assignments. The final project is intended to give hands on experience with the material taught in the course and also to allow you to explore in more depth a topic of your own interest. The final project will involve both writing a paper and giving a short presentation.

Academic Integrity
Any confirmed academic dishonesty including but not limited to copying programs or homeworks or cheating on exams, will result in a failing grade. Presenting work as your own when you did not actually do it is dishonest (academically, professionally and socially) and is called plagiarism. Always attribute (give credit for) anything done by someone else; then you cannot be guilty of plagiarism. Normally it is not necessary to attribute materials provided by the instructor for the class, or contained in assigned reading for the class, when you use them in class work; however, you would need to attribute them if you used them outside the context of the class or for the final project. Permitting another student to copy your work is also academic dishonesty, except as part of a group project. Students are expected to exercise reasonable caution that their own work is not copied improperly by another student. Please go to http://www.ucsc.edu/academics/academic_integrity/ to see the full text of the University's policy on Academic Integrity.

Disability Resource Center
If you qualify for classroom accommodations because of a disability, please get an Accommodation Authorization from the Disability Resource Center (DRC) and submit it in person outside of class (e.g. office hours) within the first two weeks of the quarter. Contact DRC at 459-2089 (voice) 459-4806 (TTY) or http://drc.ucsc.edu/ for more information on the requirements and/or process.

Last modified Tuesday, 05-Jan-2010 18:30:19 PST.