

CS and Mathematics/Natural Science Electives for the CS major

May 20, 2009

Listed below are courses that count as CS and Mathematics/Natural Science electives for the CS major at UC. The number of required CS electives is indicated on the Curriculum Sheet applying to students in that graduation year (or, for students electing the “transitional requirements,” on that requirements list).

General Rules On Double-Counting:

1. Except where it is *explicitly* allowed, no course may satisfy two different requirements for the CS major. So, for example, if 20-CS-454 is required for your year’s CS major, you may not also count it as an elective. (Technical exception: a course taken to satisfy a requirement does also count toward the total number of credit hours required for the degree.)
2. A single course *may* count for both a requirement in your CS major and also a requirement for your outside minor or double major (unless, of course, the outside major or minor department forbids it).
3. Two courses with significant majority overlap in content do not count *in any way* toward your college degree. At the current time the only examples in the CS program are (i) 20-CS-471 and 20-CS-671 and (ii) cross-listed courses, in Database Design (20-CS/EECE-592) and in Mathematical Logic. (Students with transfer credit in CS not designated as particular courses should check with their advisers before registering for CS electives to avoid duplication.)

Courses counting as CS electives: (But see the rules above about double-counting. We do not exclude required courses from this list because some courses are required for only some graduation classes.)

20-CS -4?? -5?? -6??	All 400-level CS courses. All 500-level CS — except Independent Study and Honors Research. All 600-level CS courses
20-AEEM-313 -360 -480	Modeling & Simulation of Physical Systems Numerical Methods in Engineering Computational Mechanics
20-EECE -326 -493 & 495 -592 -593 -617 -636 -642 -693 & 695	Computer Organization Software Engineering & Lab (Must take both; count as 1 course or 5 creds.) Database Design (cross-listed as 20-CS-592) Advanced Database Design Embedded Systems Intelligent Systems Digital Image Processing Compiler Theory & Lab (Must take both; count as 1 course or 5 creds.)

As of Summer Quarter 2009, all courses taken as CS electives must be taken for grades (not pass/fail). Courses taken pass/fail that would otherwise count as CS electives will count instead as General Electives.

(Any former ECECS- course that was converted into a CS- or EECE- course with the same number and title is treated here as being cross-listed with the current CS- or EECE- course.)

Students in the class of 2011 or earlier, (except those selecting the “Transitional Requirements”): All the above count as “*’ed electives.” You may select *up to 2* of the following courses as (non-*’ed) CS

electives:

20-MATH-363	Probability & Statistics III
-514, -515, -516	Numerical Analysis I, II, III
-524, -525	Linear Programming I, II
-526	Non-linear Optimization
-577, -578	Applied Probability & Stochastic Processes I, II
-584	Combinatorics
-588	Graph Theory

(For other students, these are some of the courses that count as Mathematics/Natural Science Electives.)

Courses counting as Mathematics/Natural Science electives. *This category applies only to students (i) in the class of 2012 or later and (ii) students in earlier classes who opted to come under the “Transitional Requirements.”*

- **in 15-MATH:** -254 (Calculus IV), -273 (Differential Equations), -352 (Linear Algebra II), -361,2,3 (Probability & Statistics I,II,III), and *all* 500-level courses.
- **in 15-BIOL:** All courses counting toward the Biology major.
- **in 15-CHEM:** All courses counting toward the Chemistry major.
- **in 15-GEOL:** All courses counting toward the Geology major.
- **in 15-PHYS:** All courses counting toward the Physics major (but see rules above about double-counting).

Note: If you take more than the required number of electives in any category, the extra ones will “roll over” to the category of General Electives, Of course, you are encouraged to choose all electives with care to meet your personal professional or intellectual goals.