**Stanford University ♦ School of Engineering**

# Computer Science
# Theory Track
# 2008-2009 Program Sheet

***Final version of program sheet due to the department no later than one month prior to the last quarter of senior year.***

***Follow all requirements as stated for the year of the program sheet used.***

Name: _____ SU ID: _____

Email: _____ Local Phone: _____

Date: _____ Date B.S. expected: _____

**Mathematics and Science Requirement** *(Delete courses and units not taken)*

| Dept | Course | Title | Transfer/AP Approval | | | Unit | Grade |
|---|---|---|---|---|---|---|---|
| | | | ✓ if Transfer | Initials | Date | | |
| *Mathematics (26 units minimum)* | | | | | | | |
| MATH | 41 | Calculus (see note 1) | | | | 5 | |
| MATH | 42 | Calculus | | | | 5 | |
| CS | 103 | Mathematical Foundations of Computing (see note 2) | | | | 5 | |
| CS | 109 | Introduction to Probability for Computer Scientists (see note 3) | | | | 5 | |
| *Plus two electives (see note 4)* | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | *Mathematics Unit Total (26 units minimum)* | | |
| *Science 11 units minimum)* | | | | | | | |
| PHYSICS | 41 | Mechanics | | | | 4 | |
| PHYSICS | 43 | Electricity and Magnetism | | | | 4 | |
| | | Elective (see note 5) | | | | 3 to 5 | |
| | | | | | *Science Unit Total (11 units minimum)* | | |
| | | | | | *(37 units min. Math/Sci combined)* | | |
| **Technology in Society Requirement** *(1 course required; see UGHB Figure 3-3 for approved list; see note 13)* | | | | | | | |
| | | | | | | | |
| **Engineering Fundamentals** (13 units minimum) | | | | | | | |
| CS | 106 | Programming Abstractions (B or X) | | | | 5 | |
| ENGR | 40 | Introductory Electronics | | | | 5 | |
| | | Elective (see note 6) | | | | 3 to 5 | |
| | | | | | *Engineering Fundamentals Total (13 units minimum)* | | |

**NOTES**

* This form is available as an Excel file at <http://ughb.stanford.edu/>. The printed form must be signed by the departmental representative. Changes must be initialed in ink.

* All courses listed on this form must be taken for a letter grade if offered by the instructor.

* Minimum Grade Point Average (GPA) for all courses in Engineering Fundamentals and Computer Science Core, Depth, and Senior Project (combined) is 2.0.

* Transfer and AP credits in Math, Science, Fundamentals, & TIS must be approved by the SoE Dean's Office. Transfer credits in Computer Science Core, Depth and Senior Project must be approved by the Computer Science undergraduate program office.

* All courses listed on this form may only be included under one category. Delete courses not taken.

( 1 ) Math 19, 20 and 21 may be taken instead of Math 41 and 42 as long as at least 26 math units are taken.

( 2 ) Students who have taken either CS 103X or CS 103A, B are considered to have satisfied the CS 103 requirement. Students who took CS 103X are required to complete one additional unit in their depth courses (I.e., 27 units minimum for track and elective courses).

( 3 ) Students who complete STATS 116, MS&E 120, or CME 106 in *Winter 2008-09 or earlier* may count that course as satisfying the CS 109 requirement. These same courses taken in *Spring 2008-09 or later* cannot be used to satisfy the CS 109 requirement.

( 4 ) The Mathematics electives list consists of: Math 51, 103, 104, 108, 109, 110, 113; CS 156, 157, 205A; Phil 151; CME 100, 102, 104. Completion of Math 52 and 53 will (together) count as one Math elective. Restrictions: Math 51 and Math 103, or Math 51 and CME 100, or Math 103 and Math 113, or CS 157 and Phil 151, may not be used in combination to satisfy the Math electives requirement.

( 5 ) Any course of 3 or more units from the SoE Science List (Fig. 3-2 in the UGHB), plus Psych 30 or 55. AP Chem also meets this requirement. Either of the physics sequences 21/23 or 61/63 may be substituted for 41/43 as long as at least 11 science units are taken.

( 6 ) One course required; may not be CS 106A, B or X. See Engineering Fundamentals Fig. 3-4 in the UGHB for approved list.

*program sheet continues on page 2*

# Computer Science Program Sheet (continued)

**Theory Track Core, Depth and Senior Project** *(43 units minimum) Be advised, no course may be listed twice on the sheet. No double-counting.*

| Dept | Course | Title | Transfer/AP Approval ✓ if Transfer | Initials | Date | Unit | Grade |
|---|---|---|---|---|---|---|---|
| **Core (14 units minimum)** | | | | | | | |
| CS | 107 | Computer Organization and Systems (see note 7) | | | | 5 | |
| CS | 110 | Principlets of Computer Systems (see note 8) | | | | 5 | |
| CS | 161 | Design and Analysis of Algorithms | | | | 4 | |
| **Depth; Track and Electives (26 units and seven courses minimum)** | | | | | | | |
| CS | 154 | Intro Automata and Complexity Theory (Track Requirement A) | | | | 4 | |
| CS | | Track Requirement B (see note 9) | | | | 3 | |
| | | Track Requirement C (see note 10) | | | | 3 or 4 | |
| | | Track Requirement C (see note 10) | | | | 3 or 4 | |
| | | Elective (see note 11) | | | | 3 to 5 | |
| | | Elective (see note 11) | | | | 3 to 5 | |
| | | Elective (see note 11) | | | | 3 to 5 | |
| | | Optional Elective | | | | | |
| **Senior Project (1 course required)** | | | | | | | |
| CS | | At least 3 units of 191, 191W, 194, 294 or 294W *(see note 13)* | | | | 3 | |
| | | *Computer Science Core, Depth and Senior Project Total (43 units minimum)* | | | | | |

## Program Approvals

*Departmental*

Printed Name: _____ Date: _____

Signature: _____

*School of Engineering (signature not required prior to graduation)*

Printed Name: _____ Date: _____

Signature: _____

**NOTES (continued from page 1)**

( 7 ) The name of CS 107 has changed. The previous CS 107 course titled *Programming Paradigms* also fulfills this requirement.

( 8 ) Students who complete CS108 and either CS 140 or CS 143 by Winter Quarter 2008-09 or earlier may choose to count CS 108 as satisfying the CS 110 requirement. In such a case CS 108 may not also be counted as an elective and the student will be required to complete one additional unit in their depth courses (i.e., 27 units minimum for track and elective courses).

( 9 ) Track Requirement B: Any one of CS 164, 255, 258, 261, 268, 361A, 361B, 365

( 10 ) Track Requirement C: Two courses selected from the Track Requirement B list or the following - CS 143, 155, 156, 157 or Phil 151, 205A, 228 242, 256, 259, 262, 354, 355, 357, 358, 359 (with permission of undergraduate advisor), 364A, 364B, 369 (with permission of undergraduate advisor), 374; Man Sci and Eng 310

( 11 ) Track Electives: At least three additional courses selected from the Track Requirement B list, the Track Requirement C list, the General CS Electives list (see note 12), or the following - CME 302, 305: Phil 152

( 12) General CS Electives: CS 108, 121 or 221*, 140, 142, 143, 144, 145, 147, 148, 155, 156, 157 (or Phil 151)*, 164, 205A, 205B, 222, 223A, 223B, 224M, 224N, 224S, 224U, 225A, 225B, 226, 227, 228, 228T, 229, 240, 242, 243, 244, 244B, 245, 247, 248, 249A, 249B, 255, 256, 257, 258, 261, 262, 270, 271, 272, 273A, 274, 276, 277, 295; CME 108; EE 108B, 282 *(Students may not count both CS 121 and 221, or both CS157 and Phil 151. toward their major requirements.)

( 13 ) The WIM requirement for Freshmen and Transfer students entering Fall 96 or later may be met by taking CS 181 as a Technology in Society course or through the Senior Project course (191W, 194, or 294W only).