

**Stanford University ♦ School of Engineering  
Computer Science  
Graphics 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: \_\_\_\_\_  
 Email: \_\_\_\_\_  
 Date: \_\_\_\_\_

SU ID: \_\_\_\_\_  
 Local Phone: \_\_\_\_\_  
 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		
<b>Mathematics (26 units minimum)</b>							
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	
<i>Plus two electives (see note 4)</i>							
<i>Mathematics Unit Total (26 units minimum)</i>							
<b>Science 11 units minimum</b>							
PHYSICS	41	Mechanics				4	
PHYSICS	43	Electricity and Magnetism				4	
		Elective (see note 5)				3 to 5	
<i>Science Unit Total (11 units minimum)</i>							
<i>(37 units min. Math/Sci combined)</i>							
<b>Technology in Society Requirement</b> ( <i>1 course required; see UGHB Figure 3-3 for approved list; see note 13</i> )							
<b>Engineering Fundamentals (13 units minimum)</b>							
CS	106	Programming Abstractions (B or X)				5	
ENGR	40	Introductory Electronics				5	
		Elective (see note 6)				3 to 5	
<i>Engineering Fundamentals Total (13 units minimum)</i>							

**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.

## Computer Science Program Sheet (continued)

**Graphics 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			Unit	Grade	
			✓ if Transfer	Initials	Date			
<b>Core (14 units minimum)</b>								
CS	107	Computer Organization and Systems (see note 7)				5		
CS	110	Principles of Computer Systems (see note 8)				5		
CS	161	Design and Analysis of Algorithms				4		
<b>Depth; Track and Electives (26 units and seven courses minimum)</b>								
CS	248	Introduction to Computer Graphics (Track Requirement A)				5		
		Track Requirement B (see note 9)				3 to 5		
CS		Track Requirement C (see note 10)				3 or 4		
CS		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						
<b>Senior Project (1 course required)</b>								
CS		At least 3 units of 191, 191W, 194, 294 or 294W (see note 13)				3		
<i>Computer Science Core, Depth and Senior Project Total (43 units minimum)</i>								

### 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 205A; CME 104, 108; Math 52, 113. (CS 205A is strongly recommended as a preferred choice. Note that students taking CME 104 are also required to take its prerequisite course, CME 102.)
- ( 10 ) Track Requirement C: Any two of CS 164, 178, 205B, 223B, 268, 348A, 348B, 448
- ( 11 ) Track Electives: At least three additional courses selected from the Track Requirement B list, C list, the General CS Electives list (see note 12), or the following- Art Studio 60, 70, 179; CS 48N, 326A; CME 302, 306, 324; EE 262, 264, 278, 368; ME 101; Psych 30, 221; STS 14.
- ( 12 ) General CS Electives: CS 108, 121 or 221\*, 124, 140, 142, 143, 144, 145, 147, 148, 154, 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, 249A, 249B, 255, 256, 258, 261, 262, 270, 271, 272, 273A, 274, 276, 277, 295; CME 108; EE 108B, 282 \*(Students may not count both CS121 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).