

**Stanford University ♦ School of Engineering
Computer Science
Biocomputation 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		
Mathematics (23 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	
STAT		One of: Stat 141, 203, 205, 215, 225				3 to 5	
<i>Mathematics Unit Total (23 units minimum)</i>							
Science 22 units minimum							
PHYSICS	41	Mechanics				4	
CHEM	31AB or X	Chemical Principles				4 or 8	
CHEM	33	Structure and Reactivity				4	
BIO 41, 42 or HUMBIO 2A, 3A		Principles of Biology or Genetics, Evolution and Ecology/Cell and Dev Biology				10	
<i>Science Unit Total (22 units minimum)</i>							
<i>(45 units min. Math/Sci combined)</i>							
Technology in Society Requirement (<i>1 course required; see UGHB Figure 3-3 for approved list; see note 12</i>)							
Engineering Fundamentals (8 units minimum)							
CS	106	Programming Abstractions (B or X)				5	
		Elective (see note 4)				3 to 5	
<i>Engineering Fundamentals Total (8 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 Depth 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 23 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., 23 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) 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)

Biocomputation Track Core, Depth and Senior Project (39 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			
Core (14 units minimum)								
CS	107	Computer Organization and Systems (see note 5)				5		
CS	110	Principles of Computer Systems (see note 6)				5		
CS	161	Design and Analysis of Algorithms				4		
Depth: Track and Electives (22 Units and seven courses minimum)								
CS		One of: CS 121, 221, 223B, 228, 229 (Track Requirement A)				3 or 4		
CS		One of: CS 262, 270, 273A, 274, 275, 278, 279 (Track Req B)				3 or 4		
CS		Track Requirement C (see note 7)				3 to 5		
		Elective (see note 8)				3 or 4		
		Elective (see note 9)				3 or 4		
		Elective (see note 10)				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 12)				3		
<i>Computer Science Core, Depth and Senior Project Total (39 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)

- (5) The name of CS 107 has changed. The previous CS 107 course titled *Programming Paradigms* also fulfills this requirement.
- (6) 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., 23 units minimum for track and elective courses).
- (7) Track Requirement C: One additional course from the Track Requirement A list, B list, or the following - CS 145, 147, 148 or 248.
- (8) Track Elective: One course selected from either the Biomedical Computation (BMC) 'Informatics' electives list (go to <http://bmc.stanford.edu> and select 'Informatics' from the elective options), or from the general CS electives list: 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, 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 CS121 and CS221, or both CS157 and Phil 151, toward their major requirements.
- (9) Track Elective: One course selected from the BMC 'Informatics' electives list.
- (10) Track Elective: One course selected from either the BMC 'Informatics', 'Cellular/Molecular', or 'Organs/Organisms' electives lists.
- (11) Track Elective: One course selected from either the BMC 'Cellular/Molecular' or 'Organs/Organisms' electives lists.
- (12) 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).