Stanford University ⬥ School of Engineering
Computer Science
Biocomputation Track
2011-2012 Program Sheet
Final version of program sheet due to the department 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: _____
Phone: _____   Email: _____
Today's Date: _____   Month/YrB.S. expected: _____

Mathematics and Science Requirement

Dept	Course	Title	Transfer/AP Approval by SoE			Unit	Grade
			✓ if Transfer	SoE Initials	Date		
Mathematics (23 units minimum)			✓ if Transfer				
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	
				Mathematics Unit Total (23 units minimum)			

Science (22 units minimum)

Dept	Course	Title				Unit	Grade
PHYS	41	Mechanics				4	
CHEM	31A/B or X	Chemical Principles				4 or 8	
CHEM	33	Structure and Reactivity				4	
BIO *or*	41, 42 *or*	Principles of Biology *or*				10	
HUMBIO	2A,3A,4A	Genetics, Evolution & Ecology/Cell & Dev Biology/The Human Organism				or 15	
				Science Unit Total (22 units minimum)			
				(45 units min. Math/Sci combined)			

Technology in Society Requirement *(1 course required; see UGHB Figure 3-3 for approved list; see note 12)*

Engineering Fundamentals *(8 units minimum)*

Dept	Course	Title				Unit	Grade
CS	106	Programming Methodology (B or X)				5	
		Elective (see note 4; CS 106A, B or X not allowed)				3 to 5	
				Engineering Fundamentals Total (10 units minimum)			

NOTES

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

* This printed form must be signed by the departmental representative. Changes must be petitioned (see UGHB pg 27-29) and initialed in ink.

* Minimum Grade Point Average (GPA) for all courses in Engineering Fundamentals and Computer Science Depth (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; no double-counting. 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 track or elective courses (I.e., 22 units min. 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.

CS Biocomputation Program Sheet cont.

Biocomputation Track Core and Depth *(39 units minimum)*.

Dept	Course	Title	Transfer/Deviation Approval by Dept			Unit	Grade
			✓ if Transfer	Dept Initials	Date		
Core (15 units minimum)			✓ if Transfer				
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 (see note 7)				5	
Depth (21 Units minimum)							
CS		One of: CS 121 or 221, 228, 229, 231A				3 or 4	
CS		One of: CS 262, 270, 273A, 274, 275, 278, 279				3 or 4	
CS		One of (if not selected above) CS 121 or 221, 228, 229, 231A				3 to 5	
		262, 270, 273A, 274, 275, 278, 279, 124, 145, 147, 148, 248					
		Restricted Elective (see note 8)				3 or 4	
		Restricted Elective (see note 9)				3 or 4	
		Restricted Elective (see note 10)				3 to 5	
		Restricted Elective (see note 11)				3 to 5	
Seior Project (1 course required)							
CS		At least 3 units of 191, 191W, 194, 194W, 210B, 294 or 294W *(see note 12)*				3	
		Computer Science Core and Depth Total 39 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)

(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 to complete one additional unit in their track or elective courses (i.e., 22 units minimum for track and elective courses).

(7) Students who took CS161 for 4 units are required to complete 1 add'l unit in their depth courses (I.e., 22 units min. for track/elective courses).

(8) 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), BioE 101, or from the general CS electives list: 108, 121 or 221*, 124, 140, 142, 143, 144, 145, 147, 148, 149, 154, 155, 156, 157 (or PHIL 151), 164, 205A, 205B, 210A, 222, 223A, 224M, 224N, 224S, 224U, 224W, 225A, 225B, 226, 227, 227B, 228, 228T, 229, 231A, 240, 240H, 241, 242, 243, 244, 244B, 245, 246, 247, 248, 249A, 249B, 254, 255, 258, 261, 262, 263, 270, 271, 272, 273A, 274, 276, 277, 295; CME 108; EE108B,282 *(Students may not count both CS 121 and 221 toward their major requirements.)

(9) One course selected from the BMC 'Informatics' electives list (go to http://bmc.stanford.edu).

(10) One course selected from either the BMC 'Informatics', 'Cellular/Molecular', or 'Organs/Organisms' electives lists.

(11) One course selected from either the BMC 'Cellular/Molecular' or 'Organs/Organisms' electives lists.

(12) The WIM requirement may be met by taking CS 181W as a Technology in Society course or through the Senior Project course (191W, 194W, 210B, or 294W only).