Stanford University ♦ School of Engineering

Computer Science

Biocomputation Track

2019-2020 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)							
MATH	19	Calculus (see note 1)					
MATH	20						
MATH	21						
CS	103	Mathematical Foundations of Computing					
CS	109	Introduction to Probability for Computer Scientists					
STAT		One of: Stat 141, 203, 205, 215					
					Mathematics Unit Total (23 units minimum)		

Science (22 units minimum)

PHYSICS	41 or 41E	Mechanics (req'd; see note 2) (or PHYS 21 or 61 or AP credit)					
CHEM	31A/B or M	Chemical Principles (or 31X or score of 5 on AP test)					
CHEM	33	Structure and Reactivity					
BIO *or*		BIO core (complete any three of Bio 81, 82, 83, 84, 85, 86)					
HUMBIO	2A,3A,4A	Genetics, Evolution & Ecology/Cell & Dev Biology/The Human Organism					
					Science Unit Total (26 units minimum)		
					(49 units min. Math/Sci combined)		

Technology in Society Requirement *(1 course req'd; see note 8 for WIM options)*

		A TiS course must be on the SoE-approved list the year you take it.					

Engineering Fundamentals *(8 units minimum)*

CS	106	Programming Methodology (B or X)					
		Elective (see note 3)					
					Engineering Fundamentals Total (8 units minimum)		

NOTES

* **All courses listed on this form must be taken for a letter grade (if offered) and can be included in only one category.**

* This printed form must be signed by the departmental representative. Changes must be petitioned (see UGHB, Petitions page) 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.

* Courses must be taken for the higher number of units offered. CS103, 106B/X, 107, 109, 110, and 161 must be taken for 5 units.

(1) Math 19/20/21 or Math 41/42 or AP credit may be used, as long as at least 23 math units are taken. AP Calculus must be approved by SoE.

(2) PHYSICS 41E (5 units) has the same content as 41 (4 units) but more contact; enrollment is via Physics diagnostic text taken before entering SU, or by application.

(3) One course required; may not be any CS 106. See ENGR Fundamentals Approved Courses list at ughb.stanford.edu

CS Biocomputation Track Program Sheet (continued)

CS 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/Deviation Approval by Dept			Unit	Grade
			✓ if Transfer	Dept Initials	Date		
Core (15 units minimum)							
CS	107 or 107E	Computer Organization and Systems					
CS	110	Principles of Computer Systems					
CS	161	Design and Analysis of Algorithms					
Depth (21 Units minimum)							
CS		One of: CS 221, 228, 229, 231A					
CS		One of: CS 235, 270, 273A, 274, 275, 279					
CS		One of (if not selected above) CS 124, 145, 147, 148, 221, 228 229, 231A, 235, 248, 270, 273A, 274, 275, 279					
		Restricted Elective (see note 4)					
		Restricted Elective (see note 5)					
		Restricted Elective (see note 6)					
		Restricted Elective (see note 7)					
Seior Project (1 course required)							
CS		At least 3 units of 191, 191W, 194, 194H, 194W, 210B, 294 or 294W *(see note 8)*					
		Computer Science Core and Depth Total (39 units minimum)					

Program Approvals

Departmental

Printed Name: _____ Date: _____

Signature: _____

School of Engineering (No action required-office use only)

Printed Name: _____ Date: _____

Signature: _____

NOTES (continued from page 1)

(4) One course selected from: CS CS 108, 124, 131, 140 (or 140E), 142, 143, 144, 145, 146, 147, 148, 149, 154, 155, 157 (or PHIL 151), 166, 168, 190, 195 (4 units maximum), 197, 205L, 210A, 217, 221, 223A, 224N, 224S, 224U, 224W, 225A, 227B, 228, 229, 229T, 230, 231A, 231N, 232, 233, 234, 235, 236, 237A, 237B, 238, 240, 242, 243, 244, 244B, 245, 246, 247 (any suffix), 248, 251, 252, 254, 254B, 255, 261, 264, 265, 269I, 269Q, 270, 272, 273A, 273B, 274, 275, 276, 278, 279, 330, 336, 348B, 348C, 348E, 348K, 352, 353, 369L, 371, 398; CME 108; EE 180, 263, 282, 364A; BioE 101; MS&E 152, 252; Stats 206, 315A, 315B; GENE 211

(5) One course selected from: CS 145, 147, 221, 228, 229, 235, 270, 273A, 273B, 274, 275, 279, 371, 373; EE 263, 364A; MS&E 152, 252; STATS 206, 315A, 315B; GENE 211

(6) One course selected from footnote 5 or ChemEng 150, 174; AppPhys 294; Bio 104, 118, 214, 230; Chem 141, 171; BIOC 241

(7) One course selected from: BioE 220; ChemEng 150, 174; CS 235, 274, 279, 371; ME 281; AppPhys 294; Bio 104, 112, 118, 158, 183, 214, 230; Chem 141, 171; BIOC 241; Dbio 210; GENE 211; Surg 101

(8) The WIM requirement may be met by taking CS 181W or 182W as a Technology in Society course or through the Senior Project course (191W, 194W, 210B, or 294W only).