COMPUTATIONAL & SYSTEMS BIOLOGY MAJOR CURRICULUM

Lower Division Requirements:

**Life Sciences** 7A, 7B, 7C

**Chemistry** 14A, 14B, 14BL *OR* 20A, 20B, 20L

**Physics** 5A, 5B, 5C *OR* 1A, 1B, 1C

**Mathematics** 31A, 31B, 33A, 33B *OR* Life Sciences 30A, 30B, MATH 32T, 33A 33B

**Computer Science** (CS) 31 *OR* Program in Computing (PIC) 10A

**NOTE:**

Students following the Bioinformatics or Computers & Biosystems concentrations must also complete Computer Science (CS) 32 *OR* Program in Computing (PIC) 10B *OR* 16.

Students following the Bioinformatics, Biomedical Systems, or Systems Biology concentrations must also complete Mathematics 32A.

Methodology Core Upper Division Requirements: (6 courses total)

**Gateway I** – Intro & Survey (C&S BIOL/CS/BIOENGR M184)

**Gateway II** – Research Topics (C&S BIOL/CS M185)

**PROBABILITY:** STATS 100A *OR* MATH 170A *OR* EE 131A

**STATISTICS:** STATS 100B

**CAPSTONE:** C&S BIO/ CS/BIOENGR M186 AND C&S BIOL/CS/BIOENGR M187

Concentrations: (5 Upper Division Courses each; one concentration must be declared)

| Bioinformatics |  ▪ MCDB 100 *OR* 144  
|                |  ▪ PHYS SCI 125 *OR* MCDB 165A  
|                |  ▪ CHEM C160A/CM260A  
|                |  ▪ CS CM124  
|                |  ▪ One additional course from list of electives in CaSB handbook |

| Systems Biology |  ▪ MCDB 100 *OR* 144  
|                |  ▪ PHYS SCI 125 *OR* MCDB 165A  
|                |  ▪ PHYS SCI 166 *OR* EEB 170 *OR* BIOENGR CM102 & CM103 (Fall, Winter Sequence)  
|                |  ▪ Two additional courses from list of electives in CaSB handbook |

| Neurosystems |  ▪ NEUROSCI M101A  
|              |  ▪ NEUROSCI M101B  
|              |  ▪ NEUROSCI 102 *OR* EE 113 *OR* MATH 155 *OR* NEUROSCI M203  
|              |  ▪ Two additional courses from list of electives in CaSB handbook |

| Biomedical Systems |  ▪ BIOENGR CM102/CM202  
|                   |  ▪ BIOENGR CM103/CM203  
|                   |  ▪ MATH 151A *OR* EE 103  
|                   |  ▪ Two additional courses from list of electives in CaSB handbook |

| Computers & Biosystems |  ▪ MATH 151A *OR* EE 103 *OR* CS 170A  
|                           |  ▪ CS 180  
|                           |  ▪ MCDB 100 *OR* MCDB 144 *OR* PHYS SCI 166 *OR* BIOENGR CM102 *OR* BIOENGR CM103  
|                           |  ▪ Two additional courses from list of electives in CaSB handbook |
Admission:
- Admission to the major is by petition only and is based on successful completion of all preparation for the major courses and requirements (2.7 grade-point average in mathematics, 2.7 GPA overall, and a minimum grade of C in each preparation for the major course).

Premajor:
- Students entering UCLA directly from high school or first-term transfer students can declare the Computational and Systems Biology premajor at the time of application. Current UCLA students need to file a petition with the Undergraduate Advising Office in 114 Hershey Hall.
- All students are identified as premajors until they satisfy the preparation for the major requirements by (1) achieving a minimum 2.7 grade-point average (GPA) in all premajor mathematics courses, (2) achieving a minimum 2.7 GPA and a minimum grade of C in all premajor courses, and (3) filing a petition to declare the Computational and Systems Biology major.
- Students are allowed to repeat up to two premajor courses. Those who do not pass a course a second time are dismissed from the program.

Transfer Students:
- Transfer applicants to the Computational and Systems Biology major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one year of general chemistry with laboratory for majors, two years of calculus for majors, one year of calculus-based physics, one year of biology with laboratory for majors, and one programming course using C++, Python, or similar language.
- Transfer applicants must meet the same academic requirements as current UCLA students, based on all courses transferred from another institution that satisfy premajor requirements, and must have completed one 12-unit term of residence in regular session at UCLA.
- Refer to the UCLA transfer admission guide for up-to-date information regarding transfer selection for admission.

Honors Program:
- Students with a grade-point average of 3.5 or better in required major courses and a 3.0 cumulative GPA may apply for admission to the honors program. Honors or highest honors may be granted at the discretion of the faculty sponsor and the faculty committee to students demonstrating exceptional ability on the senior research thesis.

IT IS YOUR RESPONSIBILITY TO BE AWARE OF THE REQUIREMENTS LISTED ON YOUR DEGREE AUDIT REPORT (DAR) AND TO VERIFY THAT IT IS UP TO DATE.
FOR FURTHER ASSISTANCE, PLEASE GO TO THE UNDERGRADUATE ADVISING OFFICE: 114 HERSHEY HALL
casb@lifesci.ucla.edu