Articulation Agreement by Major

Effective during the 2022-2023 Academic Year

To: University of California, Los Angeles 2022-2023 General Catalog, Quarter	From: De Anza College 2022-2023 General Catalog, Quarter

Bioengineering/B.S.

IMPORTANT MAJOR DETAILS

Admission to the Henry Samueli School of Engineering and Applied Science (HSSEAS) at UCLA is highly competitive. **The most important selection criteria are completion of the required preparatory courses and academic performance. All applicants must have a minimum cumulative GPA of 3.4. Preparatory courses should be completed by the end of spring term prior to fall enrollment. All major preparation courses must be taken for a letter grade. HSSEAS admits students by major and does not consider applicants for alternate majors.**

Applicants are not required to complete the HSSEAS General Education Requirements in order to be admitted, although it is beneficial for students to complete 1 course from each of the following areas: arts, humanities, social sciences, and life sciences. **Partial IGETC is NOT accepted. For more information regarding IGETC acceptance, this major and UCLA's transfer selection process, please visit** https://admission.ucla.edu. If you still have specific questions, you may email the HSSEAS admissions office at erkki@seas.ucla.edu.

PLEASE NOTE: The community college courses listed on this major agreement have been approved as substitutes to satisfy the *admission* preparation *requirements* for this major, but they may not be exact equivalents of the UCLA courses listed. In addition, upper division requirements for the major may be satisfied by lower division community college course(s) listed below, however, credit will be determined by the department after transfer.

PROGRAMMING REQUIREMENT

MATLAB is the Preferred language for this major, however, a course equivalent to UCLA's Com Sci 31 will be accepted to meet the programming requirement for this major.

ADDITIONAL GE INFORMATION

IMPORTANT NOTE: For BioEngineering, completion of one course in the Life Science 7ABC series will automatically fulfill the Life Science GE within their major requirement.

CHEM 20A - Chemical Structure (4.00) **--- And ---** **CHEM 20B** - Chemical Energetics and Change (4.00) **--- And ---** **CHEM 20L** - General Chemistry Laboratory (3.00) **--- And ---** **CHEM 30AL** - General Chemistry Laboratory II (4.00)	←	**CHEM 1A** - General Chemistry (5.00) **--- And ---** **CHEM 1B** - General Chemistry (5.00) **--- And ---** **CHEM 1C** - General Chemistry and Qualitative Analysis (5.00)
CHEM 30A - Organic Chemistry I: Structure and Reactivity (4.00) **--- And ---** **CHEM 30B** - Organic Chemistry II: Reactivity, Synthesis, and Spectroscopy (4.00)	←	**CHEM 12A** - Organic Chemistry (5.00) **--- And ---** **CHEM 12B** - Organic Chemistry (5.00)
MATH 31A - Differential and Integral Calculus (4.00)	←	**MATH 1A** - Calculus (5.00)

MATH 31B - Integration and Infinite Series (4.00)	←	**MATH 1B** - Calculus (5.00) **--- And ---** **MATH 1C** - Calculus (5.00) **--- Or ---** **MATH 1B** - Calculus (5.00) **--- And ---** **MATH 1CH** - Calculus - HONORS (5.00) **--- Or ---** **MATH 1BH** - Calculus - HONORS (5.00) **--- And ---** **MATH 1C** - Calculus (5.00) **--- Or ---** **MATH 1BH** - Calculus - HONORS (5.00) **--- And ---** **MATH 1CH** - Calculus - HONORS (5.00)
MATH 32A - Calculus of Several Variables (4.00)	←	**MATH 1C** - Calculus (5.00)
MATH 32B - Calculus of Several Variables (4.00)	←	**MATH 1D** - Calculus (5.00)
MATH 33A - Linear Algebra and Applications (4.00)	←	**MATH 2B** - Linear Algebra (5.00)
MATH 33B - Differential Equations (4.00)	←	**MATH 2A** - Differential Equations (5.00)
PHYSICS 1A - Physics for Scientists and Engineers: Mechanics (5.00) **--- And ---** **PHYSICS 1B** - Physics for Scientists and Engineers: Oscillations, Waves, Electric and Magnetic Fields (5.00) **--- And ---** **PHYSICS 1C** - Physics for Scientists and Engineers: Electrodynamics, Optics, and Special Relativity (5.00) **--- And ---** **PHYSICS 4AL** - Physics Laboratory for Scientists and Engineers: Mechanics (2.00)	←	**PHYS 4A** - Physics for Scientists and Engineers: Mechanics (6.00) **--- And ---** **PHYS 4B** - Physics for Scientists and Engineers: Electricity and Magnetism (6.00) **--- And ---** **PHYS 4C** - Physics for Scientists and Engineers: Fluids, Waves, Optics and Thermodynamics (6.00)

LOWER DIVISION MAJOR REQUIREMENTS

CHEM 20A - Chemical Structure (4.00) **--- And ---** **CHEM 20B** - Chemical Energetics and Change (4.00) **--- And ---** **CHEM 20L** - General Chemistry Laboratory (3.00) **--- And ---** **CHEM 30AL** - General Chemistry Laboratory II (4.00)	←	**CHEM 1A** - General Chemistry (5.00) **--- And ---** **CHEM 1B** - General Chemistry (5.00) **--- And ---** **CHEM 1C** - General Chemistry and Qualitative Analysis (5.00)
--- And ---		
CHEM 30A - Organic Chemistry I: Structure and Reactivity (4.00) **--- And ---** **CHEM 30B** - Organic Chemistry II: Reactivity, Synthesis, and Spectroscopy (4.00)	←	**CHEM 12A** - Organic Chemistry (5.00) **--- And ---** **CHEM 12B** - Organic Chemistry (5.00)

MATH 31A - Differential and Integral Calculus (4.00)	←	**MATH 1A** - Calculus (5.00)
MATH 31B - Integration and Infinite Series (4.00)	←	**MATH 1B** - Calculus (5.00) **--- And ---** **MATH 1C** - Calculus (5.00) **--- Or ---** **MATH 1B** - Calculus (5.00) **--- And ---** **MATH 1CH** - Calculus - HONORS (5.00) **--- Or ---** **MATH 1BH** - Calculus - HONORS (5.00) **--- And ---** **MATH 1C** - Calculus (5.00) **--- Or ---** **MATH 1BH** - Calculus - HONORS (5.00) **--- And ---** **MATH 1CH** - Calculus - HONORS (5.00)
MATH 32A - Calculus of Several Variables (4.00)	←	**MATH 1C** - Calculus (5.00)
MATH 32B - Calculus of Several Variables (4.00)	←	**MATH 1D** - Calculus (5.00)
MATH 33A - Linear Algebra and Applications (4.00)	←	**MATH 2B** - Linear Algebra (5.00)
MATH 33B - Differential Equations (4.00)	←	**MATH 2A** - Differential Equations (5.00)
PHYSICS 1A - Physics for Scientists and Engineers: Mechanics (5.00) **--- And ---** **PHYSICS 1B** - Physics for Scientists and Engineers: Oscillations, Waves, Electric and Magnetic Fields (5.00) **--- And ---** **PHYSICS 1C** - Physics for Scientists and Engineers: Electrodynamics, Optics, and Special Relativity (5.00) **--- And ---** **PHYSICS 4AL** - Physics Laboratory for Scientists and Engineers: Mechanics (2.00)	←	**PHYS 4A** - Physics for Scientists and Engineers: Mechanics (6.00) **--- And ---** **PHYS 4B** - Physics for Scientists and Engineers: Electricity and Magnetism (6.00) **--- And ---** **PHYS 4C** - Physics for Scientists and Engineers: Fluids, Waves, Optics and Thermodynamics (6.00)
The CCC Physics courses listed have been approved to satisfy the UCLA Physics sequence required for this major unless otherwise stated.	←	No Course Articulated

ENGCOMP 3 - English Composition, Rhetoric, and Language (5.00)	←	**EWRT 1A** - Composition and Reading (5.00) **--- Or ---** **EWRT 1AH** - Composition and Reading - HONORS (5.00)
--- And ---		
Select 1 Course(s) from the following		
One additional course in English composition	←	**COMM 9** - Argumentation: Analysis of Oral and Written Communication (5.00) **--- Or ---** **EWRT 1B** - Reading, Writing and Research (5.00) **--- Or ---** **EWRT 1BH** - Reading, Writing and Research - HONORS (5.00) **--- Or ---** **EWRT 1C** - Literature and Composition (5.00) **--- Or ---** **EWRT 2** - Critical Reading, Writing and Thinking (5.00) **--- Or ---** **PHIL 3** - Critical Thinking and Writing (5.00)
--- And ---		
Select 1 Course(s) from the following		

One course in MATLAB is Preferred, however a course equivalent to UCLA's CS 31 meets this programming requirement.	←	**CIS 27** - Programming in C++ for C/Java Programmers (4.50) **--- Or ---** **CIS 29** - Advanced C++ Programming (4.50)

STRONGLY RECOMMENDED COURSES

COM SCI 31 - Introduction to Computer Science I (4.00)	←	**CIS 22A** - Beginning Programming Methodologies in C++ (4.50) **--- Or ---** **CIS 22BH** - Intermediate Programming Methodologies in C++ - HONORS (4.50) **--- Or ---** **CIS 27** - Programming in C++ for C/Java Programmers (4.50) **--- Or ---** **CIS 22B** - Intermediate Programming Methodologies in C++ (4.50) **--- Or ---** **CIS 29** - Advanced C++ Programming (4.50)
--- Or ---		
C&EE M20 - Introduction to Computer Programming with MATLAB (4.00) Same-As: MECH&AE M20	←	No Course Articulated
EC ENGR 100 - Electrical and Electronic Circuits (4.00)	←	**ENGR 37** - Introduction to Circuit Analysis (5.00)

LIFESCI 7A - Cell and Molecular Biology (5.00)	←	**BIOL 6B** - Cell and Molecular Biology (6.00)
--- And ---		
LIFESCI 7C - Physiology and Human Biology (5.00)	←	**BIOL 6A** - Form and Function in the Biological World (6.00)

END OF AGREEMENT