

BIOCHEMISTRY (CH38)

Major Requirements for the **BIOCHEMISTRY B.S.** Degree Transfer Students

The Biochemistry B.S. focuses on the biochemical processes in living organisms, including the structure and function of proteins, nucleic acids, lipids, and carbohydrates. It is suitable for those planning to go to graduate school as well as medical, dental, veterinary, and other professional schools. It is also suitable at the bachelor's level for jobs in the biotechnology or pharmaceutical field.

All courses must be taken for a letter grade:

Lower Division Requirements:

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| <ul style="list-style-type: none">☐ General Chemistry (CHEM 6A, 6B & 6C or 6AH, 6BH & 6CH)☐ General Chemistry Lab (CHEM 7L or 7LM)☐ Physics (PHYS 2A, 2B & 2C or 2D)☐ Physics Lab (PHYS 2BL or 2CL or 2DL) | <ul style="list-style-type: none">☐ Calculus (MATH 20A, 20B, 20C & 20D)☐ Organic Chemistry (CHEM 41A, 41B & 41C)☐ Organic Chemistry Lab (CHEM 43A)☐ General Biology (BILD 1 and BILD 2) |
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Upper Division Requirements:

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| <ul style="list-style-type: none">☐ 1. Physical Chemistry (BCHM 126A & 126B recommended; CHEM 130, 131 & 132 acceptable)☐ 2. Biochemistry (BCHM 114A, 114B, & 114C)☐ 3. Protein Biochemistry Lab (BCHM 108)☐ 4. Recombinant DNA Lab (BCHM 109)☐ 5. Analytical Chemistry Lab (CHEM 100A)☐ 6. Three Restricted Biochemistry Electives:<ul style="list-style-type: none">a. Physical Chemistry of Biological Macromolecules (BCHM 113)b. Molecular and Cellular Biochemistry (BCHM 114D)c. Genome, Epigenome, and Transcriptome Editing (BCHM 115)d. Chemistry of Enzyme Catalyzed Reactions (BCHM 116)e. Pharmacology and Toxicology (BCHM 118)☐ 7. One Additional Elective:<ul style="list-style-type: none">a. Any 4-unit upper division course (numbered 100-191) offered by the Dept of Biochemistry & Molecular Biophysics and taken for letter grade.b. BCHM 199 may be petitioned to fulfill this elective.c. Genetics (BICD 100)d. Cell Biology (BICD 110)e. Immunology (BICD 140)f. Virology (BIMM 114)g. Microbiology (BIMM 120)h. Human Physiology I (BIPN 100)i. Human Physiology II (BIPN 102)j. Cellular Neurobiology (BIPN 140) | <ul style="list-style-type: none">g. RNA Biochemistry (BCHM 119)h. Medicinal Chemistry (BCHM 167)i. Drug Synthesis and Design (BCHM 168)j. Introduction to Glycosciences (CHEM 142)k. Structural Biology of Viruses (BCHM 164)l. 3D Electron Microscopy of Macromolecules (BCHM 165) |
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ASC Certification (optional):

- ☐ Complete CHEM 120A, CHEM 105A, and **ONE** of the following: CHEM 100B, 123, 143B, 143C, 143D, or 105B

Suggested 2-year Academic Plan for Biochemistry B.S.

This plan assumes completion of Preparatory courses	FALL	WINTER	SPRING
	THIRD YEAR – 1 ST YEAR TRANSFER		
	BCHM 114A	BCHM 114B	BCHM 114C
	MATH 10C	CHEM 100A	BCHM 108 or 109
	PHYS 1C	MATH 11	CHEM ELECTIVE
	PHYS 1CL	BILD 1	BILD 2
	FOURTH YEAR – 2 ND YEAR TRANSFER		
	BCHM 126A	BCHM 126B	BIOCHEM Elective
	BIOCHEM Elective	BCHM 108 or 109	BIOCHEM Elective

This plan assumes completion of ALL lower division	FALL	WINTER	SPRING
	THIRD YEAR – 1 ST YEAR TRANSFER		
	BCHM 114A	BCHM 114B	BCHM 114C
	BIOCHEM ELECTIVE	CHEM 100A	BCHM 108 or 109
	FOURTH YEAR – 2 ND YEAR TRANSFER		
	BCHM 108 or 109	BIOCHEM Elective	BIOCHEM Elective
	BCHM 126A	BCHM 126B	BIOCHEM Elective

IMPORTANT NOTES:

- We do not recommend taking a chemistry lab your first quarter at UCSD or taking more than one lab in a quarter.
- The plans above do not include GE/University requirements or courses required for ACS Certification.
- A minimum 2.0 major GPA is required for graduation.
- **No more than one "D" grade** is allowed in **upper-division** coursework.
- Many courses have enforced prerequisites or are only offered once per year. It is your responsibility to know which prerequisites are needed for each (course catalog).
- Most California medical or graduate schools require additional coursework *that is not part of the Biochemistry B.S.* for admission to schools or programs. Students planning to apply to those schools should meet with a pre-med or pre-health advisor from the Career Center's Health Beat advising (healthbeat.ucsd.edu) for advice on how to fit these courses into their plan.