

BIOCHEMISTRY (BC38)

Major Requirements for the BIOCHEMISTRY B.S. Degree

The Biochemistry B.S. focuses on the chemical 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.

The following 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 1A, 1B & 1C) *☐ Physics Lab (PHYS 1AL, 1BL, and 1CL) *☐ Calculus (MATH 10A, 10B, & 10C) **☐ Calculus Based Probability and Stats (MATH 11)** | <ul style="list-style-type: none">☐ Organic Chemistry (CHEM 41A, 41B & 41C)☐ Organic Chemistry Lab (CHEM 43A)☐ General Cell Biology (BILD 1 & BILD 2) <p>* The PHYS 2 series (PHYS 2A, 2B, 2C and 2BL or 2CL or 2DL) is also accepted.</p> <p>** The MATH 20 series (MATH 20A, 20B, 20C and 20D) is also accepted.</p> |
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Upper Division Requirements:

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| <ul style="list-style-type: none">☐ Physical Chemistry (BCHM 126A & 126B recommended; CHEM 130, 131 & 132 acceptable)☐ Biochemistry (BCHM 114A, 114B, & 114C)☐ Analytical Chemistry Lab (CHEM 100A)☐ Protein Biochemistry Lab (BCHM 108)☐ Recombinant DNA Lab (BCHM 109)☐ Biochemistry Restricted Electives (choose 3):<ul style="list-style-type: none">a. Physical Chemistry of Biological Macromolecules (BCHM 113)b. Genome, Epigenome, and Transcriptome Editing (BCHM 115)c. Molecular and Cellular Biochemistry (BCHM 114D)d. Chemical Biology (BCHM 116)e. Pharmacology and Toxicology (BCHM 118)f. RNA Biochemistry (BCHM 119)☐ One Additional Elective:<ul style="list-style-type: none">a. Must be a 4-unit upper division course offered by the Dept. of Biochemistry & Molecular Biophysics <u>OR</u> a course from the following list of courses offered by the Division of Biological Sciences: BICD 100, BICD 110, BICD 140, BIMM 114, BIMM 120, BIPN 100, BIPN 102, BIPN 140. (<i>Some biology courses will require fulfillment of prerequisites</i>).b. BCHM 199 may be petitioned to fulfill this elective. | <ul style="list-style-type: none">g. Medicinal Chemistry (BCHM 167)h. Drug Synthesis and Design (BCHM 168)i. Introduction to Glycosciences (CHEM 142)j. Bioorganic and Natural Products Chemistry (CHEM 157)k. Structural Biology of Viruses (BCHM 164)l. 3D Electron Microscopy of Macromolecules (BCHM 165) |
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ASC Certification (optional):

- ☐ CHEM 120A
- ☐ CHEM 105A
- ☐ One of the following: CHEM 100B, 105B, 123, 143B, 143C, or 143D.

Sample 4-year Academic Plan for Biochemistry B.S. Major

FALL	WINTER	SPRING
FIRST YEAR		
CHEM 6A	CHEM 6B	CHEM 6C
MATH 10A	MATH 10B	MATH 10C
	BILD 1	CHEM 7L or 7LM
SECOND YEAR		
CHEM 41A	CHEM 41B	CHEM 41C
PHYS 1A	PHYS 1B	PHYS 1C
PHYS 1AL	PHYS 1BL	PHYS 1CL
MATH 11	BILD 2	CHEM 43A
THIRD YEAR		
BCHM 114A	BCHM 114B	BCHM 114C
CHEM 100A	BIOCHEM Restricted Elective	BCHM 108 or 109
FOURTH YEAR		
BCHM 126A	BCHM 126B	BIOCHEM Elective
BIOCHEM Restricted Elective	BCHM 108 or 109	BIOCHEM Restricted Elective

Important Notes:

- Lab courses are **bolded**. We do not recommend taking a lab your first quarter at UCSD or taking more than one lab/quarter, with the exception of Physics labs.
- Courses listed above only include **major requirements**.
- No more than one (1) "D" grade is allowed in upper-division major coursework.
- A minimum 2.0 major GPA is required for graduation.