

BIOCHEMISTRY - BS

This program is designed to provide a solid background in chemistry and the physical sciences, as well as in the biological sciences.

Program Requirements

First Year

Fall		Semester Credit Hours
BICH 101/ GENE 101	Introduction to Biochemical and Genetics Research Methods ¹	1
BIOL 111	Introductory Biology I	4
CHEM 119	Fundamentals of Chemistry I	4
MATH 151 or MATH 171	Engineering Mathematics I or Calculus I	4
University Core Curriculum (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ²		3
Semester Credit Hours		16
Spring		
BICH 102/ GENE 102	Introduction to Biochemical and Genetic Techniques	1
BIOL 112	Introductory Biology II	4
CHEM 120	Fundamentals of Chemistry II	4
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 152 or MATH 172	Engineering Mathematics II or Calculus II	4
Semester Credit Hours		16
Second Year		
Fall		
BICH 201/ GENE 201	Introduction to Information Literacy and Artificial Intelligence Tools for Biochemistry and Genetics	1
Select one of the following: ¹		4
CHEM 227 & CHEM 237	Organic Chemistry I and Organic Chemistry Laboratory	
CHEM 257	Organic Chemistry I - Structure and Function	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
University Core Curriculum (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ²		3
Semester Credit Hours		15

Spring

BICH 202/ GENE 202	Biochemical and Genetic Concepts in Medicine - Case Studies	1
BICH 491	Research	1
Select one of the following: ¹		4
CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory	
CHEM 258	Organic Chemistry II - Reactivity and Applications	
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	4
University Core Curriculum (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ²		3
Semester Credit Hours		13

Third Year

Fall		
BICH 440	Biochemistry I ¹	3
BICH 404	Biochemical Calculations ¹	2
BICH 491	Research ¹	1
CHEM 321	Physical Chemistry for Life Sciences	3
GENE 303 or GENE 302	Fundamentals of Genetics or Principles of Genetics	3
GENE 314	Principles of Genetics Laboratory	1
University Core Curriculum (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ²		3
Semester Credit Hours		16

Spring

BICH 414 or BICH 432/ GENE 432	Biochemical Techniques I ¹ or Laboratory in Molecular Genetics	2
BICH 441	Biochemistry II ¹	3
BICH 491	Research ¹	1
STAT 302 or STAT 312	Statistical Methods or Statistics for Biology	3
University Core Curriculum (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ²		3
General elective ³		3
Semester Credit Hours		15

Fourth Year

Fall		
BICH 431/ GENE 431	Molecular Genetics ¹	3
BICH 491	Research ¹	1
BIOL 351	Fundamentals of Microbiology	4
Biochemistry elective ⁵		3
General elective ³		3
Semester Credit Hours		14

Spring

University Core Curriculum (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ²	6
Biochemistry elective ⁵	3
General elective ³	6
Semester Credit Hours	15
Total Semester Credit Hours	120

¹ Must make a grade of C or better.

² To be selected from the University Core Curriculum (<https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/>). Of the 21 hours shown as University Core Curriculum (<https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/>) electives, 3 must be from language, philosophy and culture, 3 from creative arts, 3 from social and behavioral sciences, 6 from American history, 6 from POLS 206 and POLS 207. The graduation requirements include a requirement for 3 hours of International and Cultural Diversity (<https://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/>) courses and 3 hours of Cultural Discourse (<https://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/>) courses which may be met by courses satisfying the Core Curriculum requirements if they are also on the approved list of international and cultural diversity courses.

³ Select from any course 100-499 not used elsewhere (except BICH 303, BICH 410-412 (<https://catalog.tamu.edu/undergraduate/course-descriptions/bich/>); MATH 100-104, 131-148 (<https://catalog.tamu.edu/undergraduate/course-descriptions/math/>); STAT 201). Often used for a minor. Students intending to pursue an advanced degree in biochemistry are strongly encouraged to use some free electives for additional upper division courses in BICH (<https://catalog.tamu.edu/undergraduate/course-descriptions/bich/>), GENE (<https://catalog.tamu.edu/undergraduate/course-descriptions/gene/>), BIOL (<https://catalog.tamu.edu/undergraduate/course-descriptions/biol/>), CHEM (<https://catalog.tamu.edu/undergraduate/course-descriptions/chem/>), MATH (<https://catalog.tamu.edu/undergraduate/course-descriptions/math/>) or STAT (<https://catalog.tamu.edu/undergraduate/course-descriptions/stat/>).

⁴ The fourth registered hour of research must be taken as writing intensive.

⁵ Hours to be selected from any 400-level course in Biochemistry with approval of student's academic advisor. BICH 404, BICH 414, BICH 431/GENE 431, BICH 432/GENE 432, BICH 440, BICH 441, or BICH 491 may not be used to satisfy this requirement.