

# BA in Biological Sciences

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The Bachelor of Arts (BA) in Biological Sciences is designed to provide a flexible degree option for students who wish to combine their interests in the biological sciences with those in other specialty areas such as the arts, the liberal arts, business, or biomedical engineering. This degree is appropriate for students on the pre-medical track, as well as multiple other career tracks.

## Marketable Skills

1. Communication: Reach mutual understanding through the effective exchange of information, ideas, and feelings.
2. Critical thinking: Analyze and evaluate issues to solve problems and develop informed opinions.
3. Organization: Use resources effectively and efficiently to stay focused on different tasks.
4. Problem-solving: Find solutions to difficult or complex issues.
5. Research: Be able to search, investigate and critically analyze information in response to a specific research question.
6. Time management: Prioritize goals and organize time to be more productive and efficient.

## Learning Outcomes

1. Students will develop critical thinking skills and apply those skills to solve problems of scientific relevance.
2. Students will carry out basic experiments in the laboratory, understand experimental controls, and analyze data to make rational conclusions.
3. Student identification as scientists and teachers by using methodology and technology to address biological questions in their discipline of study.

Compared to the Bachelor of Science (BS) in Biological Sciences, the BA has both a language and a Minor-track coursework requirement, both completed in programs outside of the College of Science. The degree also has fewer specific courses required for the major. Students in the BA program may thus avail themselves of additional major coursework or choose to pursue additional interdisciplinary instruction outside of the biological sciences.

Requirements for the BA degree in Biological Sciences have the general College of Science requirements plus the following specific requirements:

## Major Requirements

Thirty- four semester hours found on the BA in Biological Sciences degree plan.

## Language Requirements

Six semester hours drawn from a menu of approved linked language option courses (SPAN, FREN, GERM, LATN, PORT) listed on the BA in Biological Sciences degree plan.

## Minor Requirements

Eighteen semester hours, at least nine of which must be in upper-division courses that fulfill the Minor Field requirements in one of the following academic programs/departments: Art/Design, Biomedical Engineering, Business, Communications, Intelligence and National Security Studies, Women's Studies. The requirements for each are specified by the respective units, and may vary slightly. A minimum GPA of 2.0 must be achieved for these 18 semester hours.

## Other Electives

Twenty-two semester hours, at least ten of which must be in upper-division coursework chosen by the student in consultation with their advisor as appropriate for the student's career/professional goals.

## Fast Track

The Fast-Track Program (<http://catalog.utep.edu/admissions/undergraduate/fast-track/#text>) enables outstanding undergraduate UTEP students to receive both undergraduate and graduate credit for up to 15 hours of UTEP course work as determined by participating Master's and Doctoral programs.

Not all undergraduate programs have elected to participate in the Fast Track option, so students should see their departmental graduate advisor for information about requirements and guidelines. A list of courses that have been approved for possible use at the graduate level is found here (<http://catalog.utep.edu/admissions/undergraduate/fast-track/#fasttrackcoursestext>).

## Degree Plan

Code	Title	Hours
<b>This degree plan requires a minor</b>		<b>18</b>
This program requires the selection of a minor.		
<b>Biology Designated Core (All courses require a grade of C or better)</b>		
Required Courses: <sup>1</sup>		

CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305	
CHEM 1306 & CHEM 1106	General Chemistry and Laboratory for CHEM 1306	
MATH 1411	Calculus I	
<b>Math Sequence:</b>		
Select one of the following:		3-4
MATH 1312	Calculus II	
STAT 2480	Elementary Statistical Methods	
<b>University Core Curriculum</b>		
Complete the University Core Curriculum requirements. (p. 3)		42
<b>Biology Major</b>		
Required Courses:		
BIOL 1305 & BIOL 1107	General Biology and Topics in Study of Life I <sup>C</sup>	4
BIOL 1306 & BIOL 1108	Organismal Biology and Organismal Biology Laboratory <sup>C</sup>	4
BIOL 3192	Professional Development Sem.	1
<b>Upper-Division Electives:</b>		
Select seventeen hours from the following: <sup>2</sup>		17
BIOL 3115	Molecular Cell Biol Laboratory	
BIOL 3117	Ecology Laboratory	
BIOL 3314	Molecular Cell Biology	
BIOL 3316	Ecology	
BIOL 3320	Genetics	
BIOL 3321	Evolution	
BIOL 3342	Plants and People	
BIOL 3375	Forensic Pathobiology	
BIOL 4195	Advanced Methods in Biology	
BIOL 4198	Special Problems	
BIOL 4225	Field Biology	
BIOL 4298	Special Problems	
BIOL 4319	G Protein-Coupled Recept Biol	
BIOL 4320	Endocrinology	
BIOL 4321	Developmental Biology	
BIOL 4324	Animal Behavior	
BIOL 4325	Field Biology	
BIOL 4327	Animal Ecology	
BIOL 4330	Cancer Biology	
BIOL 4370	History/Philosophy-Biology	
BIOL 4388	Mammalian Physiology	
BIOL 4390	Biological Practicum	
BIOL 4395	Topics in Biology	
BIOL 4398	Special Problems	
BOT 3330	Comparative Plant Morphology	
MICR 3144	Pathogenic Microbiology Lab	
MICR 3146	Microbial Physiology Lab	
MICR 3343	Pathogenic Microbiology	
MICR 3345	Microbial Physiology	
MICR 4154	Immunology Laboratory	
MICR 4329	Epidemiology	
MICR 4351	General Virology	
MICR 4353	Immunology	

MICR 4355	Medical Mycology	
ZOOL 4384	Cellular Neuroscience	
<b>Electives</b>		
Complete twenty-two hours of which nineteen must be upper division.		22
<b>Foreign Language</b>		
Complete six hours of foreign language (language must be in a sequence) <sup>3</sup>		6
<b>Total</b>		<b>120</b>

<sup>1</sup> Although the UTEP choice is larger, these choices satisfy the requirements of both the core and the major.

<sup>2</sup> BIOL 3320 Genetics is recommended

<sup>3</sup> French and Spanish majors must fulfill this requirement in a language other than their major

C Course requires a grade of C or better

## University Core Curriculum (A program may recommend specific courses. All courses require a C or better.)

### I. Communication (six hours)

Code	Title	Hours
Courses in this category focus on developing ideas and expressing them clearly, considering the effect of the message, fostering understanding, and building the skills needed to communicate persuasively. Courses involve the command of oral, aural, written, and visual literacy skills that enable people to exchange messages appropriate to the subject, occasion, and audience. Course objectives for this component are: Critical Thinking Skills, Communication Skills, Teamwork, and Personal Responsibility.		
Select six hours of the following:		6
For students whose secondary education was in English:		
COMM 1611	Written and Oral Communication	
ENGL 1313	Writing About Literature	
RWS 1301	Rhetoric & Composition I	
RWS 1302	Rhetoric & Composition 2	
RWS 1601	Rhetoric, Composition & Comm	
For students whose secondary education was not in English:		
ESOL 1311	Expos Engl Compos-Spkr Esl	
ESOL 1312	Res & Crit Writng Spkr Esl	
<b>TOTAL HOURS</b>		<b>6</b>

### II. American History (six hours)

Code	Title	Hours
Courses in this category focus on the consideration of past events and ideas relative to the United States, with the option of including Texas History for a portion of this component area. Courses involve the interaction among individuals, communities, states, the nation, and the world, considering how these interactions have contributed to the development of the United States and its global role. Course objectives for this component are: Critical Thinking Skills, Communication Skills, Social Responsibility, and Personal Responsibility.		
HIST 1301	History of U.S. to 1865	3
HIST 1302	History of U.S. Since 1865	3
<b>TOTAL HOURS</b>		<b>6</b>

### III. Language, Philosophy & Culture (three hours)

Code	Title	Hours
Courses in this category focus on how ideas, values, beliefs, and other aspects of culture express and affect human experience. Courses involve the exploration of ideas that foster aesthetic and intellectual creation in order to understand the human condition across cultures. Course objectives for this component are: Critical Thinking Skills, Communication Skills, Social Responsibility, and Personal Responsibility.		
Select one of the following:		3
ANTH 2325	Language in Culture & Society	
AFST 2300	Intro-African Amer Studies	
CHIC 2302	Latina/o Presence in the U.S.	
ENGL 2311	English Literature	

ENGL 2312	English Literature
ENGL 2313	Intro to American Fiction
ENGL 2314	Intro to American Drama
ENGL 2318	Intro to American Poetry
ENGL 2325	Language in Culture & Society
FREN 2322	Making of the "Other" Americas
HIST 2301	World History to 1500
HIST 2302	World History Since 1500
LING 2325	Language in Culture & Society
PHIL 1301	Introduction to Philosophy
PHIL 2306	Ethics
RS 1301	Introduct to Religious Studies
SPAN 2340	Seeing & Naming: Conversations
WS 2300	Introduction to Womens Studies
WS 2350	Global Feminisms
<b>TOTAL HOURS</b>	<b>3</b>

#### IV. Mathematics (three hours)

Code	Title	Hours
Courses in this category focus on quantitative literacy in logic, patterns, and relationships. Courses involve the understanding of key mathematical concepts and the application of appropriate quantitative tools to everyday experience. Course objectives for this component are: Critical Thinking Skills, Communication Skills, and Empirical & Quantitative Skills.		
Select one of the following:		
MATH 1309	College Algebra	3
MATH 1310	Trigonometry and Conics	
MATH 1319	Math in the Modern World	
MATH 1320	Math for Social Sciences I	
MATH 1411	Calculus I	
MATH 1508	Precalculus	
MATH 2301	Math for Social Sciences II	
STAT 1380	Statistical Literacy	
STAT 2480	Elementary Statistical Methods	
<b>TOTAL HOURS</b>		

#### V. Life & Physical Sciences (six hours)

Code	Title	Hours
Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on experiences. Course objectives for this component are: Critical Thinking Skills, Communication Skills, Empirical & Quantitative Skills, and Teamwork.		
Required: Lecture/Lab Sequence plus Additional Lecture		
ASTR 1107	Astronomy Lab I	6
ASTR 1307	Elem Astronomy-Solar System	
ASTR 1308	Elem Astr Stars & Galaxies	
BIOL 1103	Introductory Biology Lab	
BIOL 1104	Human Biology Laboratory	
BIOL 1107	Topics in Study of Life I	
BIOL 1108	Organismal Biology Laboratory	
BIOL 1203	Introductory Biology	
BIOL 1304	Human Biology	
BIOL 1305	General Biology	
BIOL 1306	Organismal Biology	
BIOL 2111	Human Anat/Physio Lab I	
BIOL 2113	Human Anat/Physio Lab II	

BIOL 2311	Human Anat/Physiology I
BIOL 2313	Human Anat/Physiology II
CHEM 1105	Laboratory for CHEM 1305
CHEM 1106	Laboratory for CHEM 1306
CHEM 1107	Intro General Chemistry Lab
CHEM 1108	Intro Organic & Biochem Lab
CHEM 1305	General Chemistry
CHEM 1306	General Chemistry
CHEM 1307	Intro to General Chemistry
CHEM 1308	Intro Organic & Biochemistry
ESCI 1101	Environmental Sci. Lab
ESCI 1102	Non-major Lab for ESCI 1301
ESCI 1301	Intro to Environmental Sci
GEOG 1106	Laboratory for GEOG 1306
GEOG 1306	Physical Geography
GEOL 1103	Lab for GEOL 1313
GEOL 1104	Lab for GEOL 1314
GEOL 1111	Principles of Earth Sci - Lab
GEOL 1112	Laboratory for Geology 1212
GEOL 1211	Principles of Earth Sciences
GEOL 1212	Principles of Earth Science
GEOL 1230	The Blue Planet
GEOL 1231	Natural Hazards
GEOL 1313	Intro to Physical Geology
GEOL 1314	Intro to Historical Geol
HSCI 2302	Fundamentals of Nutrition
HSCI 2303	Wellness Dynamics
MICR 2330	Microorganisms and Disease
PHYS 1403	General Physics I
PHYS 1404	General Physics II
PHYS 2120	Laboratory for PHYS 2320
PHYS 2121	Laboratory for PHYS 2321
PHYS 2320	Introductory Mechanics
PHYS 2321	Introductory Electromagnetism
<b>TOTAL HOURS</b>	<b>6</b>

## VI. Political Science (six hours)

Code	Title	Hours
Courses in this category focus on consideration of the Constitution of the United States and the constitutions of the states, with special emphasis on that of Texas. Courses involve the analysis of governmental institutions, political behavior, civic engagement, and their political and philosophical foundations. Course objectives for this component are: Critical Thinking Skills, Communication Skills, Social Responsibility and Personal Responsibility.		
Required Courses:		
POLS 2310	Introduction to Politics	3
POLS 2311	American Gover & Politics	3
<b>TOTAL HOURS</b>		<b>6</b>

## VII. Social & Behavioral Sciences (three hours)

Code	Title	Hours
Courses in this category focus on the application of empirical and scientific methods that contribute to the understanding of what makes us human. Courses involve the exploration of behavior and interactions among individuals, groups, institutions, and events, examining their impact on the individual, society, and culture. Course objectives for this component are: Critical Thinking Skills, Communication Skills, Empirical & Quantitative Skills, and Social Responsibility.		

Select one of the following:		3
ANTH 1301	Intro-Phys Anth/Archeolog	
ANTH 1302	Intro-Cultural Anthropology	
ANTH 1310	Cultural Geography	
ANTH 2320	Introduction to Human Language	
ASIA 2300	Asian American Studies	
CE 2326	Econ for Engrs & Scientists	
CHIC 2311	Intro to Chicano Studies	
COMM 2350	Interpersonal Communication	
COMM 2372	Mass Media and Society	
ECON 2303	Principles of Macroeconomics	
ECON 2304	Principles of Microeconomics	
EDPC 1301	Introduction to Ed Psychology	
EDU 1342	Action Research in Classrooms	
ENGL 2320	Introduction to Human Language	
GEOG 1310	Cultural Geography	
LEAD 2300	Leadership in Action	
LING 2320	Introduction to Human Language	
LING 2340	Lang. Inside & Out: Sel Topics	
PSYC 1301	Introduction to Psychology	
SOCI 1301	Introduction to Sociology	
SOCI 1310	Cultural Geography	
<b>TOTAL HOURS</b>		<b>3</b>

### VIII. Creative Arts

Code	Title	Hours
Courses in this category focus on the appreciation and analysis of creative artifacts and works of the human imagination. Courses involve the synthesis and interpretation of artistic expression and enable critical, creative, and innovative communication about works of art. Course objectives for this component are: Critical Thinking Skills, Communication Skills, Teamwork, and Social Responsibility.		
Select one of the following:		3
ART 1300	Art Appreciation	
ARTH 1305	History of Art I	
ARTH 1306	History of Art II	
CHIC 1311	Chicana/o Fine Arts Appreciat	
DANC 1304	Introduction to Dance	
FILM 1390	Intro-Art of Motion Pict.	
MUSL 1324	Music Appreciation	
MUSL 1327	Jazz to Rock	
MUSL 2321	Music, Culture, and Society	
THEA 1313	Introduction to Theatre	
<b>TOTAL HOURS</b>		<b>3</b>

### IX. Component Area Option (six hours)

Code	Title	Hours
a. A minimum of 3 SCH must meet the definition and corresponding Core Objectives specified in one of the foundational component areas. b. As an option for up to 3 semester credit hours of the Component Area Option, an institution may select course(s) that: (i) Meet(s) the definition specified for one or more of the foundational component areas; and (ii) Include(s) a minimum of three Core Objectives, including Critical Thinking Skills, Communication Skills, and one of the remaining Core Objectives of the institution's choice.		
ANTH 1312	Science & Society	
ANTH 1313	Human Variation	
BUSN 1301	Intro to Global Business	
COMM 1301	Public Speaking	
COMM 1302	Business/Profession Comm	

CS 1310	Intro-Computational Thinking	
CS 1320	Computer Programming Sci/Engr	
EL 1301	Eng Innovation and Leadership	
ENGR 1302	Engineering Design Experience	
ENGR 1303	Applied Engineering Analysis	
KIN 1301	Physical Activity for Health & Wellness	
LEAD 1300	Introduction to Leadership	
SCI 1301	Inquiry in Math & Science	
SOCI 1312	Science & Society	
SPLP 1312	Comm. Var. Across the Lifespan	
UNIV 1301	Seminar/Critical Inquiry	
<b>TOTAL HOURS</b>		<b>6</b>

## 4-Year Sample Degree Plan

### BA Biological Sciences (Starting with Calculus)

Code	Title	Hours
<b>BA BIOLOGICAL SCIENCES (STARTING WITH CALCULUS)</b>		
<b>FRESHMAN</b>		
<b>Fall</b>		
BIOL 1305 & BIOL 1107	General Biology and Topics in Study of Life I	4
MATH 1411	Calculus I	4
RWS 1301	Rhetoric & Composition I	3
UNIV 1301	Seminar/Critical Inquiry	3
<b>Spring</b>		
BIOL 1306 & BIOL 1108	Organismal Biology and Organismal Biology Laboratory	4
CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305	4
RWS 1302	Rhetoric & Composition 2	3
Social and Behavioral Science		3
<b>SOPHOMORE</b>		
<b>Fall</b>		
CHEM 1306 & CHEM 1106	General Chemistry and Laboratory for CHEM 1306	4
HIST 1301	History of U.S. to 1865	3
Creative Arts		3
Foreign Language		3
Lower Division Elective		3
<b>Spring</b>		
COMM 1301	Public Speaking	3
HIST 1302	History of U.S. Since 1865	3
Upper Division Biology Elective		3
Language, Philosophy and Culture		3
Foreign Language		3
<b>JUNIOR</b>		
<b>Fall</b>		
POLS 2310	Introduction to Politics	3
STAT 2480 or MATH 1312	Elementary Statistical Methods Calculus II	3-4
Upper Division Biology Elective		3
Upper Division Elective		
Course in the Minor		3

**Spring**

BIOL 3192	Professional Development Sem.	1
POLS 2311	American Gover & Politics	3
Upper Division Biology Elective		3
Upper Division Elective		3
Upper Division Elective		3
Course in the Minor		3

**SENIOR****Fall**

Upper Division Biology Elective		3
Upper Division Elective		3
Upper Division Elective		3
Course in the Minor		3
Course in the Minor		3

**Spring**

Upper Division Biology Elective		3
Upper Division Biology Elective		3
Upper Division Elective		3
Upper Division Elective		3
Course in the Minor		3
Course in the Minor		3

**Total Hours****120-121****BA Biological Sciences (Starting with Pre-Calculus)**

Code	Title	Hours
<b>BA BIOLOGICAL SCIENCES (STARTING WITH CALCULUS)</b>		
<b>FRESHMAN</b>		
<b>Fall</b>		
RWS 1301	Rhetoric & Composition I	3
UNIV 1301	Seminar/Critical Inquiry	3
MATH 1508	Precalculus	5
BIOL 1305 & BIOL 1107	General Biology and Topics in Study of Life I	4
<b>Spring</b>		
RWS 1302	Rhetoric & Composition 2	3
Social and Behavioral Science		3
BIOL 1306 & BIOL 1108	Organismal Biology and Organismal Biology Laboratory	4
MATH 1411	Calculus I	4
<b>SOPHOMORE</b>		
<b>Fall</b>		
HIST 1301	History of U.S. to 1865	3
Creative Arts		3
CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305	4
Lower Division Elective		3
Foreign Language		3
<b>Spring</b>		
HIST 1302	History of U.S. Since 1865	3
COMM 1301	Public Speaking	3
CHEM 1306 & CHEM 1106	General Chemistry and Laboratory for CHEM 1306	4
Language, Philosophy and Culture		3



Upper Division Biology Elective		3
<b>JUNIOR</b>		
<b>Fall</b>		
POLS 2310	Introduction to Politics	3
Upper Division Biology Elective		3
Upper Division Elective		
Upper Division Elective		3
Course in the Minor		3
Foreign Language		3
<b>Spring</b>		
POLS 2311	American Gover & Politics	3
Upper Division Biology Elective		3
Upper Division Elective		3
STAT 2480 or MATH 1312	Elementary Statistical Methods Calculus II	3-4
BIOL 3192	Professional Development Sem.	1
Course in the Minor		3
<b>SENIOR</b>		
<b>Fall</b>		
Upper Division Biology Elective		3
Upper Division Elective		3
Upper Division Elective		3
Course in the Minor		3
Course in the Minor		3
<b>Spring</b>		
Upper Division Biology Elective		3
Upper Division Biology Elective		3
Upper Division Elective		3
Upper Division Elective		3
Course in the Minor		3
Course in the Minor		3
<b>Total Hours</b>		<b>125-126</b>