



LOUISE DILWORTH DAVIS
COLLEGE of
SCIENCE & ENGINEERING
Department of Biology

2027 Advising Guide for the Biology BS Degree with Molecular Biology, Cellular Biology, and Biotechnology (MCB) Emphasis (catalog years of 2026 or later)

This guide provides students with information regarding the specific degree requirements associated with completion of the Biology BS degree with MCB Emphasis. Official degree requirements, including core course requirements, may be found in the TCU Undergraduate Catalog.

Program and Emphasis Description: The BS degree offers an expanded study of the biological sciences and includes associated requirements that provide a broader knowledge of the physical sciences. The Biology BS with MCB emphasis provides a flexible degree option that allows students to tailor coursework to their specific interests and career goals. Required courses within the BS degree with MCB emphasis will meet many prerequisites of health-related professional programs (especially PA school) as well as research-oriented graduate programs.

Students pursuing the Biology BS degree select an emphasis track, either Molecular Biology, Cellular Biology, & Biotechnology or Ecology, Evolution, & Environmental Biology, that aligns with their interests. The Biology BS at TCU requires the successful completion of **120 total hours**. Of these hours, a minimum of 36 credit hours in Biology and 15-16 credit hours of associated courses are required.

Molecular Biology, Cellular Biology, and Biotechnology (MCB) Emphasis

Required Biology Courses

BIOL 10503 Unity and Cells	BIOL 10513 Diversity and Organisms
BIOL 10523 Introduction to Biological Investigation	BIOL 30603 Cellular, Molecular, and Developmental Biology
BIOL 41000 Senior Assessment (taken in the last semester)	

In addition to the courses above, **24 additional upper-division hours in Biology** are required including:

- 1 credit hour selected from:

BIOL 40110 Topics in Medicine	BIOL 40101 Current Res Biol Seminar
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- 15 hours in MCB coursework selected from:

BIOL 30304 Microbiology	BIOL 30414 Human Anatomy	BIOL 30463 Intro Neuroscience
BIOL 30803 Human Parasitology	BIOL 40123 Genetics	BIOL 40131 Mol. Biotech. Lab Tech.
BIOL 40133 Mol. Basis Human Disease	BIOL 40183 Eug, Race, & Modern Bio.	BIOL 40203 Histology
BIOL 40224 Developmental Biology	BIOL 40254 Immunology	BIOL 40273 Genomics
BIOL 40403 Human Physiology	BIOL 40453 Principles of Toxicology	BIOL 40473 Vertebrate Endocrinology
BIOL 40513 Fun. Biochemistry	BIOL 40523 Struct. Biol. Drug Design	BIOL 40603 Virology
BIOL 40703 Global Perspect. in Health	BIOL 50123 Biostatistics	BIOL 50133 Biochemistry I
BIOL 50143 Biochemistry II	BIOL 50463 Functional Neuroanatomy	BIOL 50502 Biochemistry Laboratory
- At least two courses with a laboratory (LAB) component.
- At least one course designated as literature intensive (LIT).
- A maximum of 4 hours and one laboratory will be granted within the 15 hours of MCB coursework for the combination of both BIOL 20204 and 20214
- A maximum of 6 hours in research courses (BIOL 40900, 40910, 40903, 40933)
- A maximum of 6 hours in teaching of biology courses (BIOL 40820, 40830)

Associated Requirements*

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| <ul style="list-style-type: none"> • 8-9 hours General Chemistry <table border="0"> <tr> <td>CHEM 10113 General Chemistry I</td> <td></td> </tr> <tr> <td>CHEM 10122 General Chemistry II Lab</td> <td></td> </tr> <tr> <td>CHEM 10123 General Chemistry II</td> <td></td> </tr> <tr> <td>or 20123 Quantitative Analysis</td> <td></td> </tr> </table> • 3 hours Statistics <table border="0"> <tr> <td>MATH 10043 Elementary Statistics</td> <td></td> </tr> </table> | CHEM 10113 General Chemistry I | | CHEM 10122 General Chemistry II Lab | | CHEM 10123 General Chemistry II | | or 20123 Quantitative Analysis | | MATH 10043 Elementary Statistics | | <ul style="list-style-type: none"> • 4 hours Organic Chemistry or Physics <table border="0"> <tr> <td>CHEM 30123 Organic Chemistry I</td> <td></td> </tr> <tr> <td>and 30121 Organic Chemistry I Laboratory</td> <td></td> </tr> <tr> <td>or</td> <td></td> </tr> <tr> <td>PHYS 10154 General Physics I w/ Laboratory</td> <td></td> </tr> </table> | CHEM 30123 Organic Chemistry I | | and 30121 Organic Chemistry I Laboratory | | or | | PHYS 10154 General Physics I w/ Laboratory | |
| CHEM 10113 General Chemistry I | | | | | | | | | | | | | | | | | | | |
| CHEM 10122 General Chemistry II Lab | | | | | | | | | | | | | | | | | | | |
| CHEM 10123 General Chemistry II | | | | | | | | | | | | | | | | | | | |
| or 20123 Quantitative Analysis | | | | | | | | | | | | | | | | | | | |
| MATH 10043 Elementary Statistics | | | | | | | | | | | | | | | | | | | |
| CHEM 30123 Organic Chemistry I | | | | | | | | | | | | | | | | | | | |
| and 30121 Organic Chemistry I Laboratory | | | | | | | | | | | | | | | | | | | |
| or | | | | | | | | | | | | | | | | | | | |
| PHYS 10154 General Physics I w/ Laboratory | | | | | | | | | | | | | | | | | | | |

**Graduate and health professions programs may require additional CHEM and PHYS courses beyond those included as Associated Requirements of the Biology BS degree*

Special considerations for all students

Pass/No Credit: Two courses may be taken P/NC. No course applied toward the major/minor or associated requirements may be P/NC.

Transfer credits: BIOL 10503 may not be transferred to TCU. BIOL 10513, 10523, 30403, and 30603 may not be transferred to TCU after enrolling at TCU. Up to four courses may be transferred after enrolling at TCU.

GPA: A cumulative 2.0 GPA at TCU and a cumulative 2.0 GPA in biology courses is required for graduation.

Upper Division: At least 36 hours of coursework at 30000 level or above must be taken at TCU.

Research: BIOL 40911 may be required for students conducting research with some faculty, but does not count toward the major





Schedule of Biology Course Offerings for the Biology BS Degree with MCB Emphasis

(catalog years of 2026 or later)

Spring 2027 Scheduled Course Offerings

Fall 2027 Anticipated Course Offerings

Year 1	Success in Biology and Pre Health (10101) Biology Recitation (10970) Unity of Life: Molecules to Cells (10503) Diversity of Life: Organisms to Ecosystems (10513) Introduction to Biological Investigation (10523)	Success in Biology and Pre Health (10101) Biology Recitation (10970) Unity of Life: Molecules to Cells (10503) Diversity of Life: Organisms to Ecosystems (10513) Introduction to Biological Investigation (10523)
Year 2	Cellular, Molecular & Developmental Biol (30603)	Ecology and the Environment (30403) Cellular, Molecular & Developmental Biol (30603)
Years 3 and 4	Lecture Courses Introductory Neuroscience (30463) Hormones and Behavior (30593) Human Parasitology (30803) Genetics (40123) Human Physiology (40403) **SPRING ONLY** Biochemistry II (50143) Functional Neuroanatomy (50463) Lab and/or Literature-Intensive Courses Anatomy & Physiology I* (LAB) Microbiology (LAB) (30304) Introduction to Marine Science (LIT or LAB) (30324) Human Anatomy (LAB) (30414) Natural History (LAB) (30613) Biology of Cancer (LIT) (40001) Conservation Genetics (LAB) (40153) Histology (LAB) (40203) Developmental Biology (LAB) (40224) Immunology (LIT or LAB) (40254) Structural Biology of Drug Design (LIT and LAB) (40523) Virology (LIT) (40603) Spatial Ecology (LAB) (40720) Biostatistics (LAB) (50123) Biochemistry Lab (LAB, W) (50502) Anthropogenic Disturbance of Wildlife (LIT) (50533) Other Courses Topics in Medicine (40110, 0.5 hrs) - Overview of Healthcare Careers I/II - Building a Resilient Career I/II - Becoming a Great Applicant Senior Assessment (41000; taken in the last semester) Summer 2027: Global Perspectives in Health (SA) (40703)	Lecture Courses Introductory Neuroscience (30463) Genetics (40123) Fundamentals of Biochemistry (40513) Biochemistry I (50133) Lab and/or Literature-Intensive Courses Anatomy & Physiology II* (LAB) Invertebrate Biology (LAB) (30104) Microbiology (LAB) (30304) Human Anatomy (LAB) (30414) Natural History (LAB) (30613) Biotechnology Lab Techniques (LAB) (40131) Molecular Basis of Human Disease (LIT) (40133) Immunology (LIT) (40254) Biostatistics (LAB) (50123) Other Courses Current Research in Biology (40011) Topics in Medicine (40110, 0.5 hrs) - The Practice of Medicine - Introduction to Healthcare Professional Development in Biology (40701) Oncology and Community Health (50901) Senior Assessment (41000; taken in the last semester) Special Problems/Projects Courses (both semesters; 1-3 credit hours) Teaching of Introductory Level Biology (40820) Teaching of Advanced Biology (40830) Biological Research & Writing (W, LIT) (40903) Intro to Independent Research (LAB) (40900) Advanced Independent Research (40910) Discussions in Biological Research (40911) Senior Honors Research (W, LIT) (40933)

LAB = Upper-level Lab Course

W = Writing Emphasis Course

LIT = Literature-Intensive Course

SA = Study Abroad Course

*The combination of BIOL 20204 & 20214 counts as 4 hours of upper-division Biology hours and 1 lab course

Course offerings are subject to change; students are to consult the official course schedule to confirm course availability