

## Advising Guide for Biology Majors

**Advisors: Biology Track (non-Pre-Health):** Appointment sign-up sheets are in the Biology office (WIN 401).

Dr. John Horner	Ph. 817-257-6181	WIN 435
Dr. Michael Sawey	Ph. 257-6175	WIN 360A
Dr. Dean Williams	Ph. 817-257-6172	WIN 433

**Pre-Health Biology Majors:** Appointment sign-up at on-line at [http://www.prehealth.tcu.edu/advising\\_calendars.asp](http://www.prehealth.tcu.edu/advising_calendars.asp)

Dr. Giri Akkaraju	WIN 416	Molli Crenshaw	WIN 360C	Dr. Laura Luque	WIN 432
Dr. Matt Chumchal	WIN 405	Dr. Mark Demarest	WIN 431	Dr. Shauna McGillivray	WIN 414
Dr. Mike Chumley	SWR 342	Dr. Matt Hale	WIN 436A	Dr. Mike Misamore	WIN 417
Dr. Meredith Curtis	WIN 426	Dr. Marlo Jeffries	WIN 506	Dr. Mikaela Stewart	WIN 521
		Dr. Clark Jones	SWR 317	Stephanie Wallace	WIN 360B

Biology is available as a major or minor on the B.A. and B.S. degrees.

The BA is provided for the student who has a strong interest in the biological sciences but who desires a broader-based area of study or who is interested in pursuing multiple majors. The degree is appropriate for students interested in graduate or health-related professional schools but may require additional coursework to fulfill certain prerequisites. The BS degree offers an expanded study of the biological sciences and includes associated requirements that provide a broader knowledge of the physical sciences. Required courses within the BS degree will meet many prerequisites of graduate and health-related professional schools.

B.A. degree: 26 hours Biology + Minor + Foreign Language = 124 hours total  
B.S. degree: 35 hours Biology + Chemistry (15) + Math (3) + Physics (8) = 124 hours total  
Biology Minor: 21 hours (including a minimum of 3 upper division courses).

### Requirements for the B.A. degree with a major in Biology.

A minimum of 26 semester hours in Biology as follows:

- (1) **BIOL 10501,10503 and BIOL 10511,10513** (Intro. Biology I & II lectures, labs)
- (2) **BIOL 30403** (Ecology & the environment)
- (3) **BIOL 30603** (Cell, Molecular & Developmental Biology)
- (4) **Major Field Test** in Biology taken Sr. Year
- (5) **12 additional hours** in biology: including a minimum of two courses with laboratories (excluding BIOL 40033, 40803, 40900). A maximum of 3 hours, of the 12 additional hours, will be allowed for any combination of the following courses: BIOL 40033, 40300, 40320, 40330, 40803, 40900. A maximum of four hours and one laboratory for completion of both BIOL 20204 and 20214 is permitted within the additional 12 hrs.

**Minor:** Any minor is acceptable. **Foreign Language:** competency in a foreign language equivalent to the completion of 4<sup>th</sup> semester (Intermediate II) course. -Students without credit for a high school course in chemistry are encouraged to take two semesters of college chemistry. One year of high school or two semesters of college physics is also advised.

### Requirements for the B.S. degree with a major in Biology.

A minimum of 35 semester hours in Biology as follows:

- (1) **BIOL 10501,10503 and BIOL 10511,10513** (Intro. Biology I & II lectures, labs)
- (2) **BIOL 30403** (Ecology & the environment)
- (3) **BIOL 30603** (Cell, Molecular & Developmental Biology)
- (4) **Major Field Test** in Biology taken Sr. Year
- (5) **21 additional hours in biology**, including a minimum of three courses with laboratories. A maximum of 6 hours in independent research courses (BIOL 40033, 40803 or 40900) is permitted within the 21 additional hours. A maximum of 6 hours in teaching of biology courses (BIOL 40320, 40330) is permitted within the additional 21 hours. A maximum of 8 hours for any combination of the following courses will be permitted within the 21 additional hours (BIOL 40033, 40320, 40330, 40803 or 40900). A maximum of 4 hours and one laboratory for completion of both BIOL 20204 and 20214 is permitted within the additional 21 hours.
- (4) **Associated Requirements:** CHEM 10113, 10125 or 10123/20123; CHEM 30123, 30121 and 30133; PHYS 10154, 10164; MATH 10043 or 10524; -Additional courses in mathematics, computer science or statistics are encouraged.

**Additional Guidelines-** See TCU Undergraduate Catalog for official listings of all degree requirements

**Pass/No Credit** – two courses (up to 8 hr.) may be taken P/NC. No course applied toward major/minor or associated requirements may be P/NC. **Transfer credits** – 12 hrs maximum after enrolling at TCU. After 54 hr, courses must be taken at 4 yr university. Academic action form must be filed with CS&E prior to taken summer courses.

**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 42 hrs of coursework at 30000 level or above must be taken at TCU.

**Residency** – At least 58 hrs must be from TCU and the last 30 hr must be completed at TCU.

## Summary Sheet - Biology Degree

Note: Biology courses at the 20000 level or BIOL 30613 (Natural History) do not count towards the major. The usual schedule for biology courses counting towards the major is given below.

### Every Fall

10501 - Introductory Biology Lab I  
 10503- Introductory Biology I  
 30104 – Invertebrate Biology (L)  
 30304 – Microbiology (L)  
 30324 – Intro. Marine Sciences  
 30403 - Ecology and the Environment  
 30404 - Comp Vertebrate Anatomy (L)  
 30463 – Introductory Neuroscience  
 30843 – Biomedical Imaging  
 40001 - Honors Seminar  
 40033 - Senior Honors Research (L) (WEM)  
 40254 – Immunology (L)  
 40320 - Teaching Intro. Biology  
 40330 - Teaching Advanced Biology  
 40403 - Mammalian Physiology  
 40513 – Fundamentals of Biochemistry  
 40603 – Virology (WEM)  
 40273 – Genomics (L)(WEM)  
 40803 - Biological Res and Writing (WEM)  
 40900 – Independent Research in Biol.  
 50123 – Biostatistics (L)  
 50133 – Biochemistry  
 50153 - Medicinal Chemistry  
 50303 – Evolution  
 50401 – Neurobiology of Aging  
 50910 - Biology Seminar

### Fall Odd # Years

30233 – Economic Botany  
 40453 – Principles of Toxicology (WEM)

### Fall Even # Years

30504 – Plant Biology (L)  
 50703 - Ecology of Lakes and Streams (L)

### Every Spring

10501 - Introductory Biology Lab II  
 10503- Introductory Biology II  
 30304 – Microbiology (L)  
 30603 - Cellular, Mol Dev Biology  
 30803 – Human Parasitology  
 40011 - Honors Seminar  
 40033 - Senior Honors Research (L) (WEM)  
 40123 - Genetics  
 40133 - Molecular Basis of Human Disease  
 40203 - Histology (L)  
 40224 - Developmental Biology (L)  
 40254 – Immunology (L)  
 40320 - Teaching Intro. Biology  
 40330 - Teaching Advanced Biology  
 40353 – Wildlife Ecology & Mgmt  
 40513 – Fundamentals of Biochemistry  
 40800 – Immunobiology of Disease  
 40803 - Biological Res. & Writing (WEM)  
 40900 – Independent Res. in Biol.  
 50103 – Terrestrial Ecosystems  
 50123 – Biostatistics (L)  
 50143 - Biochemistry  
 50502 - Biochemistry Lab  
 50910 - Biology Seminar

### Spring Odd # Years

40153 – Conservation Genetics (L) (WEM)  
 40313 – Biogeography  
 40473 - Vertebrate Endocrinology (L)(WEM)  
 40523 – Structural Biology Drug Design(L)  
 50903 – Tropical Biology (L) (WEM)

### Spring Even # Years

30703 – Plant Systematics (L)  
 40163 – Avian Biology (L)  
 50803 – Marine Biology of Tropics(L)(WEM)

*(L) – Laboratory course (WEM) - Writing*

Tentative Biology/Honors Seminar schedule (Biol 40001/40011)
Cancer Biology (Fall)
Stem Cell Biology (Fall)
Behavioral Ecology (Spring)
Evolutionary Medicine (Fall)
Intro. R and Excel (Fall)
Human Health & Global Change (Spring)

Biology Requirements
10503/10501 (Intro. Biology I)
10513/10511 (Intro. Biology II)
30403 (Ecology & Environ.)
30603 (Cell, Mol. & Dev.)
Completed Major Field Test in Biology
Biology Electives:
B.S: 21 additional cr. including 3 labs
B.A: 12 additional cr. including 2 labs
Assoc. requirements for B.S. Degree
Chemistry
10113 General Chem. I
10122/10123 General Chem. II
30123 Organic Chem. I
30121 Organic Chem. I Lab
30133 Organic Chem. II
Physics
10154
10164
Math
10524 (or 10043)

**Refer to TCU Undergraduate catalog for official degree requirements**

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Typical Academic Path			
Freshman Year: (28-30 credit hours) B.S. degree		Sophomore Year:	
Fall	Spring		Hrs
BIOL 10503/10501 -Bio I	BIOL 10513/10511	BIOL 30403	BIOL 30603
CHEM 10113	CHEM 10122/10123	CHEM 30123	BIOL 30603
ENG 10803	Core/Elective 3-6hr	CHEM 30121	CHEM 30133
Core/Elective 3-6hr		Core/Elective 3-6hr	**CHEM 30143
Total = 13-16	Total = 15	Total = 13-15	Total = 15-17
ENGL 20803 should be taken some time in sophomore year. **Required for some medical schools			
Junior Year			
Upper level biology courses			
<b>Physics:</b> 8 hours typically taken in the junior year or possibly in summer school.			
<b>Degree Plan:</b> Request from CSE			
Senior Year			
Upper level biology courses			
<b>Major Field Test in Biology:</b> complete during senior year			
<b>Intent to Graduate:</b> File with CSE			