

**Undergraduate Research  
BIOL 4100-029  
Fall 2018**

BIOL Room 217

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**COURSE INFORMATION**

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**Course Description:** This course focuses on the approaches, techniques, and methodologies required to examine plant physiological and terrestrial ecosystem responses and feedbacks to the environment. The specific tools taught will be dependent on student interest, but may include literature review, experimental design, measurements of plant and soil gas exchange and environmental manipulation, regional- and global-scale modeling, as well as large data extraction, analysis, and dissemination.

**Expected Learning Outcomes and Objectives:** Upon completion of this class, students are expected to be able to:

- 1) Read, review, and discuss past and present scientific literature
- 2) Design a scientific experiment(s)
- 3) Disseminate scientific ideas

**Responsibilities of the Student:** Each student is expected to:

1. Perform ~1-2 hours of lab/office work a week per credit hour
2. Attend the 1 hour lab meeting each week if your course schedule allows
3. Attend the 30 min individual/small group meeting each week in BIOL 215 (time TBD).
4. Maintain an electronic laboratory notebook
5. Adhere to the safety instructions at all times

**Tentative schedule**

<b>Week</b>	<b>Topic</b>
Week 1	Intro to lab – who, what, where, how?
Week 2	The big picture: why do this research?
Week 3	The big picture: why do this research?
Week 4	Literature review and question development
Week 5	Literature review and question development
Week 6	Literature review and question development

Week 7	Experimental design and skills training
Week 8	Experimental design and skills training
Week 9	Experimental design and skills training
Week 10	Experimental design and skills training
Week 11	Experimental design and skills training
Week 12	Experimental design and skills training
Week 13	Writing and dissemination
Week 14	Writing and dissemination
Week 15	Writing and dissemination

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### GRADING / Evaluation of the Student

Attendance and participation	50%
Lab notebook	25%
Final Report	25%

**Methods of Assessment:** Attendance at assigned times is mandatory except when an excused absence is requested and approved in advance (or due to unforeseen circumstances). Every Friday after 4 pm, your electronic lab notebook will be checked to ensure that it is up-to-date. The content of the lab notebook will vary by week. Each week, a brief oral report of work done is required. In weeks where data is taken, methods, data, and metadata should be uploaded to the lab notebook. Enough information must be written in the laboratory notebook to enable independent reproduction and use of the data.

**Final report:** The final report will consist of a project proposal for a project to be carried out in a subsequent semester. In some cases, a research manuscript may be substituted for the project proposal if the student carries out an independent research project.

Score (Percent)	Grade
97 – 100	A+
94 – 96.9	A
90 – 93.9	A-
87 – 89.9	B+
84 – 86.9	B
80 – 83.9	B-
77 – 79.9	C+
74 – 76.9	C
70 – 73.9	C-
60 – 69.9	D
< 60	F

- Due to unforeseen circumstances or events, changes may be made to the above schedule of topics, in which case you will be notified as soon as possible.

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## ADDITIONAL INFORMATION

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### NO EXTRA CREDIT IS OFFERED

#### **ADA Statement (OP 34.22):**

<http://www.depts.ttu.edu/opmanual/OP34.22.pdf> - Any student who, because of a disabling and/or medical condition, requires some special accommodation in order to satisfy course requirements should contact the instructor at the beginning of the semester so that the necessary arrangements can be made. Students will need to present appropriate verification from Student Disability Services. For information regarding Student Disability Services, accommodations, laws, and expectations please see the website - <http://www.depts.ttu.edu/sds/aboutus.php>, visit their office at 335 West Hall, or contact them by phone – 806-742-2405 or email – [sds@ttu.edu](mailto:sds@ttu.edu). The policy of Texas Tech University is to make its programs, services, and activities accessible to students, faculty, staff, and the general public who visit or attend a campus-sponsored event, with disabilities. Please note, as an instructor, we are not allowed to provide classroom accommodations for a student until appropriate verification from Student Disability Services is provided. There is no legal requirement for accommodations to be made prior to completion of this official university process. You can find a list of services available to qualified disabled students on the Campus Resources page.

(<http://www.depts.ttu.edu/passxl/CampusResources.php>).

**Withdrawal/Dropping the class (OP 34.05):** Students may officially drop a course through the 45<sup>th</sup> class day of a long semester or the 15<sup>th</sup> class day of a summer term and receive the grade of **W** regardless of their progress in the class. Students must determine the deadline for dropping this semester. After the deadline, the student must complete the course for a grade. The full regulation appears in OP 34.05, and can be viewed at the following sites

<http://www.depts.ttu.edu/opmanual/OP34.05.pdf>

<http://www.depts.ttu.edu/officialpublications/catalog/GenInfo.pdf>

**Incomplete (OP 34.12,34.05):** Grades of **I** may be applicable when circumstances beyond the student's control, such as illness or impairment due to an accident, prevent the student from completing course requirements. The instructor assigning the grade will stipulate in writing at the time the grade is given the conditions under which the **I** may be removed. The assigned work and a change of grade must be

recorded within one calendar year from the date of the I. Failure to do so results in an F for that course. See OP 34.12 on Grading Procedures at <http://www.depts.ttu.edu/opmanual/op34.12.pdf> .

**Approved absences:** Any student who, because of recognized religious holidays or university-sponsored activities, will miss class lectures and/or exams should notify the instructor at the **beginning of the semester** so that alternative arrangements can be made. According to OP 34.19, **approved religious absences** are holy days “observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code §11.20.” Students will not be penalized for approved absences, however excuses should be provided in advance when possible or the day of returning to class in cases such as medical emergencies. Emergency excuses not provided at the time of returning to class will only be accepted on a case-by-case basis.

**Valid reasons for missing an exam:** Illness or injury, family emergencies, certain University-approved curricular and extra-curricular activities, and religious holidays can be legitimate reasons to be excused from a scheduled examination. In the case of illness or injury, confirmation from a physician, physician's assistant, a nurse-practitioner, or a nurse is required. Barring extraordinary circumstances, confirmation must be presented prior to the missed exam. With regard to family emergencies, you must provide verifiable documentation of the emergency. Unless the emergency is critical you should notify the instructor in advance. In cases of critical emergencies, you must notify the instructor within one week of your absence. For University-approved curricular and extracurricular activities, verifiable documentation must be presented to the instructor at least one week prior to the first absence. In the case of religious holidays, notify the instructor in writing of any potential conflicts in the first three weeks of class. See OP 34.19 (<http://www.depts.ttu.edu/opmanual/op34.19.pdf>) for details.

**Late Assignment Policy:** All assignments are considered late if they are not submitted by the end of class the day they are due. For each day the assignment is late (excluding weekends), a 10% deduction will be applied to the grade.

**Academic Integrity:** According to the official Texas Tech University Catalog (p. 49, OP 34.12), “It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and a high standard of integrity. The attempt of students to present as their own any work that they have not honestly performed is regarded by the faculty and administration as a serious offense and renders the offenders liable to serious consequences, possibly suspension.” Students will be evaluated for their *individual* efforts and performances during this course. ***Cheating, plagiarism, and misconduct will not be tolerated.*** Academic misconduct is any act that may improperly distort student grades or records. If student misconduct is suspected to have occurred the instructor will notify and/or meet with the student(s) regarding the alleged act and all documentation will be submitted to the Office of Student Conduct (OSC) for review. The OSC will determine if academic

dishonesty has occurred. Students found guilty of academic dishonesty will receive a grade of zero (0) for that exam or assignment. For severe acts of dishonesty or if a second offense occurs the student will earn a grade of “F” in the course. It is the student’s responsibility to know and understand the Texas Tech rules and regulations surrounding academic misconduct and dishonesty. Please see the Texas Tech policy on Academic Integrity at the following website:

[http://www.depts.ttu.edu/senate/archives/2010-2011/reports/academic\\_integrity\\_policy%20-%20final%20draft%2002.03.11.pdf](http://www.depts.ttu.edu/senate/archives/2010-2011/reports/academic_integrity_policy%20-%20final%20draft%2002.03.11.pdf)

**Civility in the Classroom:** According to TTU Faculty Affairs, “Texas Tech University is a community of faculty, students, and staff that enjoys an expectation of cooperation, professionalism, and civility during the conduct of all forms of university business, including the conduct of student–student and student–faculty interactions in and out of the classroom. Further, the classroom is a setting in which an exchange of ideas and creative thinking should be encouraged and where intellectual growth and development are fostered. Students who disrupt this classroom mission by rude, sarcastic, threatening, abusive or obscene language and/or behavior will be subject to appropriate sanctions according to university policy. You are expected to conduct your behavior in an adult and courteous manner and to be respectful of your classmates and instructor. Please *be on time for class* and wait to be dismissed before leaving the classroom or packing your books. You have enrolled in this class to learn. If your behavior during class is contrary to this mission, you will be asked to leave. Questions, comments, and ideas are encouraged and expected. Idle chatter with your neighbor during class, however, will not be permitted. Sleeping, texting, e-mailing, web-browsing, reading newspapers, and use of materials not related to the class is NOT permitted and may result in dismissal from the classroom. Faculty members are expected to maintain the highest standards of professionalism in all interactions with all the constituents of the university. See the Web site: [www.depts.ttu.edu/studentjudicialprograms/AcademicIntegrity.pdf](http://www.depts.ttu.edu/studentjudicialprograms/AcademicIntegrity.pdf).

**Complaint Procedures:** Students may direct complaints to the head of the academic unit or department in which the complaint occurs. If it allegedly violates a specific university policy, it may be directed to the appropriate university office responsible for enforcing the policy.

**Grade Appeals:** A student may appeal a grade on the grounds that it is based on a capricious or arbitrary decision of the course instructor. Such an appeal shall follow the established procedures adopted by the department, college, or school in which the course resides.

**Ombuds Office:** The Ombuds Office serves to “assist students with a wide range of conflicts, complaints, and disputes.” Please visit their website at <http://www.depts.ttu.edu/ombuds/> for more information regarding this service. Additionally, you may find their office at 024 (East Basement) Student Union Building. Their phone number is: 806-742-SAFE.

**Resources for discrimination, harassment, and sexual violence:** Texas Tech University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from gender and/or sex discrimination of any kind. Sexual assault, discrimination, harassment, and other Title IX violations are not tolerated by the University. You should report any real or suspected violations during class times to your instructor. Report any incidents to the Office for Student Rights & Resolution, (806)-742-7233, or file a report online at [titleix.ttu.edu/students](http://titleix.ttu.edu/students). Other resources available are: TTU Student Counseling Center 24-hour Helpline, (806)-763-7273, [voiceofhopelubbock.org](http://voiceofhopelubbock.org) (24-hour hotline that provides support for survivors of sexual violence), the Risk, Intervention, Safety and Education (RISE) Office, (806)-742-2110, [rise.ttu.edu](http://rise.ttu.edu).