



Syllabus

BIO 109N: Natural History of the Southwest

Course Information	
Course Prefix/Number: BIO 109N	Credit Hours: 4.0
Semester: Fall 2019	Course Title: Natural History of the Southwest
Class Days/Times: MW 9:00-11:30 + a full day field trip	Room: GSK 2

Instructor Information: Name: Dr. Teresa Newberry	Phone/Voice Mail: 383-0107 E-mail: tnewberry@tocc.edu Office location: Room 107 Ha-Maşcamdam Ha-Ki: Office hours: 11:30-1 p.m. M, W, Th or by appt.
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Course Description:
Study of the common plants and animals of the southwest. Includes their distribution, adaptation, behavior and ecology. Also includes physical geography and geological principles of the region.

Student Learning Outcomes
After completion of the course students will be able to
<ol style="list-style-type: none"> 1. Apply basic geological principles to interpret the physical setting of the Southwest. 2. Apply meteorological and biological principles to describe the formation of the major biotic communities in the Southwest. 3. Describe major desert adaptations and the process of natural selection. 4. Identify common plants and animals of the Southwest. 5. Demonstrate skills necessary for <u>life-long learning</u> of natural history, including conducting scientific research.

Course Structure:

The theme of this course is the O'odham Ni'oki (the language) and T-ki:dag (our home, the land). We explore and connect more deeply with T-ki:dag by learning about the plants and animals of the Sonoran desert including their habitat. We learn and reinforce O'odham Ni'oki by learning the names of plants and animals both in O'odham and in English. During this course, the students will also have an opportunity to compare and contrast the O'odham way of knowing and scientific methodology. They will also learn about indigenous taxonomy, traditional ecological knowledge and principles of ethnobiology which incorporates language, culture and biology. They will incorporate traditional knowledge into their interpretive exhibit and presentation.

This course is the integrated version of the course where the lecture and labs are taught simultaneously. Since this a field-based course, many of the labs will consist of in-class field trips as well as one all-day out of class field trip. The lecture portion of this course consists of eleven units with one to two PowerPoint lectures, a study guide and a quiz. In addition, there will be assigned readings, films, in-class activities, and discussions. This course includes two projects: an individual field research project and a class project on phenology—the study of the timing of biological events. The course also includes four identification quizzes on the names of common plants and animals of the Sonoran Desert.

Texts and Materials:

A Natural History of the Southwest by Arizona-Desert Museum
iPad (to be checked out at the library)

Web Resources:

- *TOCC Plant Atlas* (<http://toccatlas.plantpress.net/>)
- *Desert Ecology of Tucson* website by Brad Fiero: (<http://wc.pima.edu/~bfiero/tucsonecology/index.htm>)
- Online resources on CANVAS

Course Assessment:

Course assessment consists of eleven lecture quizzes, four identification quizzes, discussions, short written assignments, informal in-class assessments, laboratory reports, an independent research project and a class project. The individual research project consists of creating an interpretive exhibit and presentation on a plant or animal. The class project is a group project on phenology—the study of the timing of biological events. Study guides will be available to help you prepare for quizzes. In accordance with my teaching philosophy in which I believe student learning occurs primarily through hands-on, real world application of course materials, quizzes comprise 50% or less of the final grade (although they are still an important aspect of course assessment and your grade). In order to facilitate on-going faculty-student feedback and provide formative assessment, many class projects are divided into smaller intermediate steps such as topic choice, project proposals, and rough drafts. I welcome student feedback about the course anytime.

Evaluation and Grading & Assignments:

90 and above is an A

80 - 89 is a B

70 - 79 is a C

60 - 69 is a D

Under 60 is Failing

Your grade will be determined by the following:

Evaluation	Points	Percent of Total Points
Quizzes**	200 points (10 @ 20 points)	20%
Identification Quizzes	100 points	10%
Field Trip, Reflections, Videos	220	22%
Labs	160 (8 @ 25 points)	16%
Interpretive Project	130 points	13%
Phenology Project	130 points	15%
Attendance	40	4%
Total	1000 points	100%

**There are eleven quizzes. You may drop your lowest quiz.

Himdag Cultural Component: Tohono O'odham traditions and cultural beliefs will be discussed as relevant course topics, and only as appropriate to the Tohono O'odham Nation's traditional standards for sharing information as determined by the Himdag committee.

Policies and Expectations:

Course Policies:

- 1) Students are expected to attend each class., arriving on time, except in the case of an excused emergency.
- 2) Students are expected to contact instructor prior to absences, coming late to class or leaving early.
- 3) Unexcused late arrivals or early departures will count against attendance record.
- 4) Class participation and preparation are essential to student success. Students must read textual material, prepare for projects, complete required research as stated on the course schedule.
- 5) Students are expected to come to class prepared for class and having done any preliminary work required as per the course schedule.
- 6) Students are expected to stay in class and work diligently throughout the whole time. Sleeping, frequent/continued exiting from the class during the class period will constitute one (1) absence.
- 7) No cell phone use is allowed during class. Use of cell phones during class, unless permitted by instructor, is a violation of the T-So:son.

Classroom Behavior

- Visitors may be only allowed at class sessions or on field trips with instructor approval, visitor's safety and behavior are the responsibly of the student.
- Possession of drugs, alcohol or firearms on college property is illegal.
- Food and beverages are allowed in classrooms at discretion of the instructor.

- Cellphones should be turned off during class, unless the instructor is allowing students to use their tools (calculator, internet access).
- Students creating disturbances that interfere with the conduct of the class or the learning of others will be asked to leave.
- Student behavior is also detailed in student handbook under Student Code of Conduct Violations

Make-up and Late Work Policy:

Late assignments that can be made up will be accepted but will be penalized 10% for each day of tardiness. Failure to submit a project results in a grade of zero (0). An F is a better grade! Laboratories cannot be made up except in the case of college closure. In class quizzes can only be made up if the absence is an excused absence and they must be made up before the next class period. At the instructor's discretion, extra credit opportunities and optional activities may be provided. No work will be accepted after the last day of class.

Academic Integrity:

Violations of scholastic ethics are considered serious offenses by Tohono O'odham Community College, the Student Services Department, and by your instructor. Students may consult the TOCC Student Handbook sections on student code of conduct, on scholastic ethics and on the grade appeal procedure. Copies are available at Tohono O'odham Community College.

All work done for this class must be your own, or the original work of your group. While you may discuss assignments with other class members, the final written project must clearly be original. You may use work from books and other materials if it is properly cited. Copying from a book without proper reference or from a person under any circumstances will result in an "F" for the assignment, and at the instructor's discretion, possibly an "F" for the course. If you are uncertain about proper citations ask your instructor or the librarian.

Course Feedback:

All assignments will be graded and returned to the students promptly, typically within a week after the assignment is closed for handing in. E-mail and phone messages will be returned within two days. A student or the instructor may request a student conference at any time during the semester. Quarterly grade reports will be provided to each student, either in person, by email or via the electronic system of Canvas.

Attendance Policy

You are expected to arrive to class on time and be prepared to participate in each class period. Four unexcused absences may result in withdrawal and a "W" or "Y" will be recorded. You may request to be excused from class for religious observances and practices, for illness, for school or work-related travel or for personal or family emergency. If you will be absent, please notify the instructor as soon as possible (approved by Faculty Senate April 2014).

Incomplete Policy

Incomplete (I) grades are not awarded automatically. The student must request an "I" from the instructor who can choose to award an Incomplete only if all three of the following conditions are met:

1. The student must be in compliance with the attendance policy.

2. There must be an unavoidable circumstance that would prohibit the student from completing the course.
3. The student must have completed over 75% of the course requirements with at least a "C" grade.

Incompletes are not a substitute for incomplete work due to frequent absences or poor academic performance. Incomplete grades that are not made up by the end of the ninth week of the following semester will be automatically changed to an F if the agreed upon work, as stipulated on the written form signed by the instructor and the student when the I grade is awarded, is not completed.

Instructor Withdrawals

Students who have missed four consecutive classes (or the equivalent) not submitted any assignments nor taken any quizzes by the 45th day census report, due on 10/3/2019 are assumed NOT to be participating in the class and may be withdrawn at the faculty member's discretion.

Student Withdrawals

Students may withdraw from class at any time during the first 2/3 of the semester without instructor permission and without incurring any grade penalty. Please be sure to withdraw yourself by 11/4/2019 if you do not expect to complete the class, otherwise you may receive an "F" grade.

Special Withdrawal (Y) Grade

The "Y" grade is an administrative withdrawal given at the instructor's option when no other grade is deemed appropriate. Your instructor must file a form stating the specific rationale for awarding this grade. "Y" grades are discouraged since they often affect students negatively. Your instructor will not award a "Y" grade without a strong reason

Reasonable Disability Accommodations (Americans with Disabilities Act):

TOCC seeks to provide reasonable accommodations for all qualified individuals with disabilities. The College will comply with all applicable federal, state and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to provide an equal educational opportunity. It is the student's responsibility to make known to the instructor his or her specific needs in order to determine reasonable accommodations. We will work together in order to develop an Accommodation Plan specifically designed to meet the individual student's requirements.

Title IX

Tohono O'odham Community College faculty and all staff are dedicated to creating a safe and supportive campus. Title IX and our school policy prohibit discrimination on the basis of sex- this includes sexual misconduct; harassment, stalking, domestic and dating violence and sexual assault.

Sexual discrimination and sexual violence can undermine students' academic success and quality of life on campus and beyond. We encourage students who have experienced any form of sexual misconduct to talk about their experience and seek the support they need.

Confidential support and academic advocacy can be found with: Student Services

Course Outline: (see schedule for specific dates)

- I. Science
- II. Physical Geography of the Southwest
 - A. Formation
 - 1. Geological principles
 - 2. Geological history of the southwest
 - B. Climate
- III. Biotic Communities of the Southwest
 - A. The four deserts
 - B. Other biotic communities
- IV. Desert Adaptations
 - A. Natural selection as a mechanism
 - B. Plants
 - C. Animals
- V. Common Plants and Animals
 - A. Interrelationships
 - B. Identification and natural history
 - 1. Plants
 - 2. Invertebrates
 - 3. Fish, amphibians, reptiles
 - 4. Birds
 - 5. Mammals



Class Outline for BIO 109N – Natural History of the Southwest

** Changes may occur to outline. Any changes will be announced in class. Students are responsible to document changes.*

Date	Lecture Topic	Class Activity, Lab or Field Trip	Assignment Due Dates	Quizzes
Aug 19 & 21	Introduction to Class & Natural History	Pre-Class Quiz	Reflection & Discussion on TEK & O'odham Ways of Knowing	
Aug 26 & 28	Classification & Indigenous Taxonomy	Video: TEK	Observations Reflection & Discussion on Principles of Ethnobiology	
Sep 4	Introduction to Science & Principles of Ethnobiology	Introduction to Phenology Project	Reflection & Discussion on Indigenous Taxonomy (20)	
Sep 6	Plant Biology	Lab 1: Plant Taxonomy (10)		Quiz 1: Intro to Natural History, Science & Classification
Sep 10	Plant ID & Classification: Cacti, Trees, Shrubs	Lab 2: Plant Identification		
Sep 12 & 19	Plant ID & Classification: shrubs, herbs, and wildflowers	Lab 2: Plant Identification (cont'd) Intro to Interpretive Project		Quiz 2: Plant Biology & Classifications
Sep 24	Climate I: Temperature & Precipitation		Research question due for DEP	
Sep 26	Climate II: Seasons			ID Quiz 1: Plants
Oct 8	Biological Communities and Southwestern Deserts			Quiz 3: Climate
Oct 10	Biological Diversity in the Sonoran Desert	Lab 3: Vegetation Analysis		
*****Tentative Date for Sonoran Desert Field Trip 10/12*****				
Oct 15	Bird Biology & Natural History	Lab 4- Plant vegetation analysis in-class lab		Quiz 4: Biodiversity & Biological Communities
Oct 17	Mammals	"The Living Desert" Video		
Oct 22	Interrelationships & Food Webs	Lab 5: Bird Census		ID Quiz 2: Birds
Oct 24	Invertebrates, Amphibians & Reptiles	Lab 6: Build a Food Web	DEP proposal due	Quiz 5: Interrelationships & Food Webs



Tentative Class Outline for BIO 109N – Natural History of the Southwest (continued)

Date	Lecture Topic	Class Activity, Lab or Field Trip	Assignment Due Dates	Quiz
Oct 29	Adaptation Concepts	Group Work: Planning of Interpretive Project		ID Quiz 3: Mammals
Oct 31	Desert Adaptation Strategies			Quiz 6: Adaptation Concepts
Nov 5	Introduction to Interpretive Techniques Guest Lecturer: Marie Long ASDM			
Nov 7	Natural Selection, Evolution, & Adaptations	Group Work: Interpretive Projects		Quiz 7: Desert Adaptation Strategies
Nov 9	March of the Penguins video		“March of the Penguins” Video assignment	Quiz 8: Natural Selection, evolution, & adaptations
Nov 14	Plant Adaptations	Group Work: Interpretive Projects	Interpretive Naturalist Project Proposal Due	ID Quiz 4: Invertebrates, Amphibians & Reptiles
Nov 19	Plant Adaptations	Lab 7: Plant Adaptation		
Nov 21	DNA & Heredity	Group Work: Interpretive Projects		Quiz 9 (take-home): DNA & heredity
Nov 26	Geology I: Global Processes	Group Work: Interpretive Projects	Take-home Quiz 7 due: DNA & heredity	Quiz 10: Plant Adaptations
Dec 3	Geology II: Southwest Features	Lab 8: On-line Activity: Rock Cycle		
Dec 5	*****Celebration of Natural History & Life in the Desert Interpretive Projects*****			
Dec 10			Reflections on Interpretive Project Phenology Reports Due	Quiz 11: Geology

DISCLAIMER: This syllabus is designed to evolve and change throughout the semester based on class progress and interests. You will be notified of any changes as they occur.