

# TOHONO O'ODHAM COMMUNITY COLLEGE



## Syllabus

### **BIO 208N: Tohono O'odham Ethnobotany**

#### Course Information

Course Prefix/Number: Bio 208N

Semester: Spring 2019

Class Days/Times: MW 9-11:15 Hybrid

Credit Hours: 4 (3 lec; 3 lab periods)

Course Title: Tohono O'odham Ethnobotany

Room: GSK 5

#### Instructor Information:

Name: Martha Ames Burgess

Phone/Voice Mail: 520-907-9471

E-mail: mburgess@tocc.edu

Office location: using GSK 5 before/after class

Office hours: MW 8:30-9am, 11:15-11:45 or by appt.

**Course Description:** This course covers basic principles of botany, desert plant ecology and the diversity of ways in which plants and the uses of plants have shaped cultural and historical developments of the Tohono O'odham. In this course, students will learn the fundamentals of plant classification and identification including the Tohono O'odham names of plants. Students will learn about the traditional uses of plants and their role in health and nutrition. They will learn about traditional plant harvesting methods as well as traditional and modern practices in plant cultivation. Students will also learn about the critical roles that native plants play in the modern world and potentially into a sustainable future.

**Course Objectives:** This course aims to lay a foundation of both academic botany and Traditional Ecological Knowledge, to build upon for understanding and knowing the plants used traditionally in Tohono O'odham culture. Many ways of knowing will be used. With the outdoors as our most important classroom, we seek or listen to the plants as our teachers.

#### Student Learning Outcomes (SLOs) :

**After completion of the course students will be able to .....**

1. Describe the classification of life and the distinguishing characteristics of plants. Explain fundamental aspects of plant structural and cellular anatomy and physiology, including reproduction and key characteristics of flowers and fruits, and the anatomy of useful plant parts.
2. Identify plants to family using a dichotomous key and to species using identifying characteristics. Describe the roles of major Sonoran Desert plant families used by the Tohono O'odham for food, health, and other uses.

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3. Know the scientific, common and Tohono O'odham names of culturally important Sonoran Desert Plants.
4. Describe fundamental principles of human nutrition, health, and nutrients supplied by plants. Describe the role of traditional plants in the prevention and treatment of diabetes.
5. Describe the historical and modern uses of plants including traditional harvesting methods, origins of agriculture and plant domestication, and traditional and modern agriculture. Compare traditional and modern agricultural techniques.
6. Describe the ecological importance of plants in ecosystems such as food webs and global carbon balance. Explain the critical roles that native desert plants play in the modern world and their potential in a sustainable future. Identify possible careers in botany and biology.

## **Course Structure:**

This course is an integrated lab/lecture course where the labs are integrated into the regular class periods and the natural outdoors provides an important classroom and laboratory. This course has 5 units or areas of study. Each unit consists of: PowerPoint lectures, assigned reading, films, in-class hands-on activities, reflective writing, discussions, outdoor experience, laboratory project, and a quiz. There are three class projects performed throughout the semester: a Phenology Project, an Herbarium Project and an Ethnobotany project which culminates in a class presentation. There will be possibly 4 field trips, plus guest lectures on traditional uses of plants, and a cholla bud harvest. Since this course is based on oral history and oral tradition, students are expected to practice good listening skills and mindfulness, being fully present mentally and physically, with use of technological devices only when asked.

## **Course Assessment:**

Course assessment will be on the basis of: quizzes, discussions, short written assignments, informal in-class assessments, laboratory reports and three class projects, one of which includes a presentation. 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 will 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. Student-to-student assessments are also included in this course through peer review of group participation and written assignments. I welcome student feedback about the course anytime. I will also provide students an opportunity to give me feedback on their course experience through an anonymous mid-course and final course evaluation.

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## **Texts and Materials:**

Required Text: "Plants and Society" 7<sup>th</sup> Edition Levetin and McMahon

Textbook Link:

[http://highered.mheducation.com/sites/0073524220/information\\_center\\_view0/index.html](http://highered.mheducation.com/sites/0073524220/information_center_view0/index.html)

TOCC Plant Atlas: <http://toccatlas.plantpress.net/>

<b>Evaluation:</b>	<b>Points:</b>	<b>Percent of Total Points:</b>
Quizzes	200	20%
Labs & Field Trips	300 pts	30%
Discussions, Reflective Writing & Homework	200 pts	20%
Phenology Project	200 pts	20%
Herbarium Project	100 pts	10%
<b>TOTAL</b>	<b>1000 pts</b>	<b>100%</b>

## **Himdag Cultural Component:**

This course will focus on the core value of T-Apedag and include Tohono O'odham Niok (language) thus strengthening the Himdag and teaching science from a holistic and indigenous point of view. This course involves students in the study of plants which are a critical part of Tohono O'odham life. Knowledge shared about the uses and benefits of Sonoran desert plants will be of great benefit to community members. Knowledge will be shared between the instructor, students, and a Tohono O'odham facilitator to address specific cultural content areas. In addition, the inclusion of O'odham plant names will help strengthen the Tohono O'odham Niok (language). This course will also enhance T-apedag (wellness), since it covers the importance of traditional plants in human nutrition and health. Respect for each other, for the plants we study, and for our Elders' knowledge (T-Pi:k Elida) are an important component of everything we do in class. Classmates will support each other and often work together in pairs or teams on projects (I:We:mta). Food security and a sustainable healthy life-style were the way of traditional Desert People. By knowing and using the desert plants in ways Traditional Ecological Knowledge teaches, we can live sustainably, gently, and well-provided within the desert/human ecosystem (T-Apedag).

## **Policies and expectations-**

**Course Policies Requirements:** (1) Attend class regularly; (2) Complete in-class and out-of-class assignments and submit to the instructor by each due date or within a week after an excused absence; (3) Attend all field trips; (4) Take all quizzes (5) Complete all class projects & presentations by finals week.

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**Attendance:** You are expected to arrive to class on time or early, and actively participate each class period. Quizzes and exams are given out at the beginning of class time. Field trips and class activities begin at the start of class and will be missed if you do not arrive to class on time. Because exams, lab work, and/or other assignments occur every class period, points potentially will be lost each class period missed. If you miss all or a portion of a class, then you are solely responsible for obtaining missed class material from fellow students or the instructor. Complete attendance is mandatory during student project presentations; otherwise presentation points will be forfeited.

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 or have been absent, please notify the instructor as soon as possible

You may request to be excused from class for religious observances and practices, for illness, for necessary travel or for personal or family emergency. If you will be absent or have been absent, please notify the instructor as soon as possible. If you have in-home responsibilities, always make sure you have back-up help on duty for each class session and field trip date so that your course-time is never interrupted by outside duties. Students must set aside a 15-minute time per week free of responsibility for observations for their Phenology Project in an undisturbed outdoor place.

**Make-up policy:** Missed quizzes can be made up within two days of the quiz date, if the missed class is due to an excused absence. Late assignments that can be made up will be accepted but will be penalized 25%. Laboratories are important to course content and sequence. They cannot be made up as they are difficult to set up. At the instructor's discretion, extra credit opportunities and optional activities may be provided.

**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 your class grade must be your own. While you may discuss assignments with other class members, the final written project must clearly be your own. 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.

## **ADA Compliance:**

Tohono O'odham Community College strives to comply with the provisions of the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. If you have a learning problem, physical disability, or medical illness that requires you to have any special arrangements, please inform your instructor at the beginning of the semester so your academic performance will not suffer because of the disability or handicap.

## **Title IX Statement**

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

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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:

## **Classroom Behavior:**

- Because of insurance limitations, non-registered visitors are not allowed at class sessions or on field trips.
- Possession of drugs, alcohol or firearms on college property is illegal.
- Food and beverages are allowed in classrooms.
- Pets, telephones, pagers, tablets, and any other electronic devices that might distract students or the learning experience are not allowed in classrooms. iPhones should be set on "off" not on vibrate and put away.
- Students creating disturbances that interfere with the conduct of the class or the learning of others will be asked to leave.

## **Course Feedback:**

All assignments, written papers and quizzes will be graded and returned to the students one week after the assignment is due. 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. Grades can be checked in Canvas on an on-going basis. It is expected that students will refer to their email and CANVAS daily for announcements, schedule changes, detailed field trip information, and additional reference material.

## **Instructor Withdrawals:**

Students who have missed four consecutive classes, not submitted any assignments nor taken any quizzes by the 45th day census report, due on February 28, 2019, are assumed NOT to be participating in the class and will be withdrawn. 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 March 29, 2019, if you do not expect to complete the class, otherwise you may receive an "F" grade.

## **Incomplete (I) grade:**

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."

## **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

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grade. "Y" grades are discouraged since they often affect students negatively. Your instructor will not award a "Y" grade without a strong reason.

**Final Grades:** Students will receive a grade transcript from the college mailed to the address given with registration materials at the end of the semester when all grades have been recorded.

**SPECIAL NOTE TO STUDENT:**

For privacy and security reasons, instructors are advised **NOT** to give grades over the telephone. Grades will only be emailed with written permission from the student.

Your instructor will make every attempt to follow the above procedures and schedules, but they may be changed in the event of extenuating circumstances. Any changes will be published on CANVAS.

Assignments for this class will be submitted in hard copy, hand-written clearly or typed. Under certain conditions if a student must submit an assignment through the mail or by email, he/she is advised to make copies for his/her own protection.

If you move during the semester, please file a change of address form with the Student Services Office, and inform your instructor.

Work hard to enjoy learning and to **enjoy** what the plants can teach us!

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## Course Outline (see schedule for specific dates):

- I. Principles of Botany
  - A. The plant body
  - B. Plant reproduction
  - C. Plant physiology
- II. Plant Classification
  - A. Characteristics and classification of life
  - B. Major plant families of the Sonoran Desert
  - C. Plant taxonomic keys
  - D. Identification of culturally important plants to the Tohono O'odham
- III. Historical perspectives
  - A. Harvesting and preparation of Sonoran desert plants by the Tohono O'odham
  - B. Agriculture
    - a. Origins of agriculture and plant domestication
    - b. Traditional Tohono O'odham agricultural methods
    - c. Modern agricultural methods
      1. Selective breeding
      2. Green revolution
      3. Agricultural biotechnology and genetic engineering
- IV. Tohono O'odham Uses of Plants
  - A. Introduction to Ethnobotany
  - B. Plants as food
    1. Human nutrition
    2. Nutritional content of traditional plants
    3. Crop plants
    4. Sustainability
  - C. Plants as medicine
    1. Role of traditional foods in prevention of diabetes
    2. Medicinal uses of plants
  - D. Other uses of plants
    1. Fiber
    2. Building materials
    3. Other uses
- V. Plant ecology
  - A. Cycling of matter and energy in ecosystems
    - a. Primary productivity
    - b. Food chains and food webs
  - B. Role of plants in global carbon cycle and global warming
- VI. Careers in Botany

**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.



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## BIO 208N—TOHONO O'ODHAM ETHNOBOTANY

TENTATIVE SCHEDULE SPRING 2019

Date	Unit	Chapters & Readings
Week 1-2 1/14-1/30	Introduction to Ethnobotany & Traditional Ecological Knowledge	Chapter 1 in <i>Plants&amp;Society Honorable Harvest</i> chapter (Kimmerer) <i>Ethnoscience—The Oldest Science</i> (Berkes) <i>Ten Principles of Ethnobiology</i> (Lepofsky & Feeny) <i>Indigenous Language &amp; Taxonomy</i> (Price) (Wehi et.)
Week 3-5 1/30-2/11	Plant Evolution, Diversity & Taxonomy/ <i>Herbarium Project</i>	Chapters 8 & 9
1/30	<i>Begin Phenology Project, continue weekly</i>	<i>Phenology websites</i>
Week 6-8 2/13-3/6 2/20	Plant Biology—The Plant Body  Youth Ag Day –class participates	Chapter 3 <i>Plants&amp;Soc.</i> text Ethnophenology & Climate Change (Nabhan)
Week 9 3/18-3/20	Plant Physiology	Chapter 4 <i>Plants &amp; Soc.</i>
Week 10 3/25-3/27	Plants as Food (Nutrition) <i>Traditional Plants Guest Lecture Nutritional Uses</i>	Chapter 10 <i>Plants &amp; Soc.</i>
<b>4/1</b>	<b>Cholla Bud Harvest</b>	
Week 11 4/3-4/8	Plants as Medicine (Diabetes) <i>Traditional Plants Guest Lecture (Medicinal Uses)</i>	Chapters 19 & 20
Week 12: 4/10-4/15	Plants & Agriculture	Chapters 11,12,13,14
Week 13: 4/17-4/22	Plant Ecology & Climate Change Earthweek begins	26
Week 14: 4/24	Careers in Botany <i>Earthweek activities</i>	
Week 15: 4/29-5/1	<i>Ethnobotany Project Presentations</i>	22-25
5/6	<i>Ethnobotany Project Presentations</i>	



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## Acknowledgment of Receipt of Syllabus

Please read, sign and return the following acknowledgment to me in class, *or* return to me at the following address:

Martha Burgess  
P.O. Box 87704  
Sells, AZ 85754

- I have received my Bio 208N syllabus (including course objectives, policies, requirements and schedule) and have read and understood all the enclosed materials
- I have no objection to receiving an occasional call from the instructor at the number given with my registration materials.
- I prefer that the instructor not call or contact me by phone anytime during the semester.

My reason(s) for taking this course:

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My background in this area includes:

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- I would like to be contacted by the instructor regarding the following concerns:

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Print Name Clearly Here

\_\_\_\_\_  
Sign Name Here

\_\_\_\_\_  
Student ID Number

\_\_\_\_\_  
Telephone Number

\_\_\_\_\_  
Current Mailing Address/City/State/Zip

\_\_\_\_\_  
E-mail Address