

# TOHONO O'ODHAM COMMUNITY COLLEGE



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## Syllabus: **BIO 105N: Environmental Biology**

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*“Mother Earth is a source of life, not a resource” Arvol Looking Horse*

### Course Information

Course Prefix/Number: Bio 105N  
Semester: Fall 2016  
Class Days/Times: MW 12:30-3:15

Credit Hours: 4 (3 lec; 3 lab periods)  
Course Title: Environmental Biology  
Room: Main Building Science Lab

### Instructor Information:

Name: Teresa Newberry, Ph.D.

Phone/Voice Mail: 520-275-2855 (text only)

E-mail: [tnewberry@tocc.edu](mailto:tnewberry@tocc.edu)

Office Location : Ed Division ; Room 107

Office hours: MW 3-4:30; TTh 1-2 or by appt.

**Course Description:** Fundamentals of ecology and their relevance to human impact on natural ecosystems. Includes ecosystem structure and function, population dynamics, and human impacts on air, water, land, and biodiversity.

### Student Learning Outcomes (SLOs) :

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

1. Synthesize ecological principles into an understanding of how the Earth functions.
2. Apply ecological principles to understand human impact on the environment.
3. Evaluate scientific basis of environmental issues.
4. Describe possible causes and analyze potential solutions to current environmental issues.
5. Demonstrate skills necessary for life-long learning, critical examination, and personal decisions relative to environmental biology.

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**Course Structure:**

This course is an integrated lab/lecture course where the labs are integrated into the regular class periods. This course consists of ten units. Each unit consists of PowerPoint lectures, assigned reading, films, in-class activities, discussions, an article review, laboratory project and an exam. This course also includes three field-based, place-based projects which integrates culture, math and ecology.

**Course Assessment:**

Course assessment consists of exams, discussions, short written assignments, informal in-class assessments, laboratory reports and a collaborative service learning project which includes a paper and class presentation. Study guides will be available to help you prepare for exams. In accordance with my teaching philosophy in which I believe student learning occurs primarily through hands-on, real world application of course materials, exams usually 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.

**Texts and Materials:**

Required Text: Environmental Science by Jay Withgott (iBook by Pearson Publishing 2011)  
**iTunes Account** (needed to download text and other apps)

<b>Evaluation:</b>	<b>Points:</b>	<b>Percent of Total Points:</b>
Exams & Quizzes	380 pts	38%
Labs/Field Trips	312 pts	31.2%
Viewpoint Paper	106 pts	10.6%
Discussions/Reflective Writing/Assignments	185 pts	18.5%
In-class participation and attendance	17 pts	1.7%
<b>TOTAL</b>	<b>1000</b>	<b>1000</b>

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## **Himdag Cultural Component:**

The theme of this course is the Himdag core value deep respect (*T-Pi:k*) which lays the foundation for responsible stewardship of the earth. During this course, the students have an opportunity to compare and contrast the O'odham way of knowing and scientific methodology using both a traditional story and material on Science presented in a PowerPoint. There is also a discussion on how Himdag values promote biodiversity. The Service Learning Project helps students learn to work together (*l-we:mta*) and also includes an opportunity for students to reflect on how their project supported or reflected Himdag values in their final paper.

## **Policies and expectations-**

**Course Policies Requirements:** (1) Attend class regularly; (2) Complete in-class and out-of-class assignments and submit to the instructor; (3) Attend all field trips; (4) Take all exams (5) Complete all class projects & presentations.

**Attendance:** You are expected to arrive to class on time 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 may be missed if you do not arrive to class on time. Because exams, lab work and/or other assignments potentially 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. Complete attendance is mandatory during student project presentations; otherwise presentation points will be forfeited. Four consecutive, unexcused absences may result in withdrawal. You may request to be excused from class for religious observances and practices, for illness, for travel or for personal or family emergency. If you will be absent or have been absent, please notify the instructor as soon as possible.

**Make-up policy:** Missed exams can be made up within two days of the exam date. Late assignments that can be made up will be accepted but will be penalized 25%. Laboratories cannot be made 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 this class 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.

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## **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.

## **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 and other electronic devices that distract students are not allowed in classrooms.
- 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. A mid-semester grade report will be provided to each student by October 12th.

## **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 September 29, 2016 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 October 26<sup>th</sup>, 2016 if you do not expect to complete the class, otherwise you may receive an "F" grade.

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

"I" grades are not awarded automatically. The student must request an "I" from the instructor who will judge the student's ability to complete the course on his or her own. Generally the student must have completed over 80% of the course requirements with at least a "C" grade. An "I" requires a written contract between the student and the instructor listing work to be completed as well as how and when the work will be done. If the work is not completed within the contract period, the "I" grade automatically reverts to an "F." "I" grades will not be re-evaluated during the final two weeks of the semester when class activities are normally at their most intense.

## **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.

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**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.

Students submitting assignments through the mail or by email are advised to make copies for their own protection.

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

GOOD LUCK!

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

- I. Environmental Biology
  - A. Science
  - B. Scientific method
- II. How the Earth Works
  - A. Climate and biomes
  - B. Ecology
    - 1. Ecosystem components
    - 2. Energy flow and biogeochemical cycling
    - 3. Natural selection and evolution
    - 4. Population and community ecology
- III. Humans on Earth
  - A. History
  - B. Population
  - C. Economics and politics
- IV. Human Impacts
  - A. Biodiversity
    - 1. Description and importance
    - 2. Impacts upon and management
  - B. Water
    - 1. Resources
    - 2. Uses and management
  - C. Land

**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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## CLASS OUTLINE

### Part 1: Foundations: Environmental Ethics, Ways of Knowing & Ecological Principles

#### READING

#### CLASS CONTENT

#### ACTIVITIES/LABS/DISCUSSIONS

Date	Unit	Chap #	Chapter Title		
8/15-8/24	1	1	An Introduction to Environmental Science	Introduction, Social Traps, Environmental Ethics & Activism	Social Traps Game SWNL/SLIB Surveys Reflective Writing: "Social Traps" Social Traps Discussion iPad Lab Homeland Video
8/29-9/7	2	1	An Introduction to Environmental Science	Science "Wind & Rain Story"	Ways of Knowing Reflection & Discussion Intro to Desert Ecology Project
9/12-9/19	2	4	Population Ecology	Ecology IA: Species Distribution & Interrelationships	Desert Ecology Proposal
9/21-9/26	2	4 & 5	Population Ecology; Evolution and Community Ecology	Ecology Ib: Populations & Ecology 1c: Communities	Ecology Field work
9/28-10/5	2	3	Earth's Environmental Systems	Ecology II: Ecosystems	Ecology Data Analysis & Presentation Prep Desert Ecology Presentations



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## Part 2: Sustaining Diversity of Life on Earth (Biodiversity on Kitt Peak/Iolkam)

### READING

### CLASS CONTENT

### ACTIVITIES/LABS/DISCUSSIONS

Date	Unit	Chap #	Chapter Title		
10/10-10/12	3	7	Biodiversity and Conservation	Biodiversity, Biomes and Geology of Kitt Peak Ecosystem Services	In-class Discussion: "How do the values in Himdag Promote Biodiversity & Sustainability?"
<b>FIELD TRIP TO IOLKAM (Kitt Peak)—Biodiversity, Cultural History &amp; Environmental —October 23rd</b>					
10/17-10/26	3			Environmental Policy & Law and Environmental Issues on Kitt Peak	<b>Viewpoint Report due 10/26</b>
10/31-11/2	4	8	Human Populations	Human Populations "History of Human Population" "World Population Problems"	Web Activity: Ecological Footprint Easter Island
11/7-11/16	4	14 & 15	Sustainability & Human Development	Environmental Policy & Economics	In-class Discussion: "Is Sustainable Development Achievable?"

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## Part 3: Earth, Air, Fire & Water (Climate Change, TEK, and Water )

		<i>READING</i>			<i>CLASS CONTENT</i>	<i>ACTIVITIES/LABS/DISCUSSIONS</i>
Date	Unit	Chap #	Chapter Title			
11/21-11/23	5	14	Water Resources		Water Resources Video: "Cañillac Desert—An American Niles TEK & History of Water Use by Tohono O'odham	Water Quality Lab
<b>Field Trip #2 Field Trip to Standing Rock, Water &amp; Climate Change—Friday November 16th</b>						
11/25	5	16	Global Climate Change		Global Warming Impact of Global Warming in Western Forests Video "An Inconvenient Truth	In-class Discussion: "How does global warming affect the Tohono O'odham Nation and what are some of the ways to prepare for these impacts?"
11/28	5				Climate Change, Water & Food, Renewable Energy	
11/30	5					
12/5						Viewpoint Presentations

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<b>BIO 105 FALL 2016--Grade Tracking Form</b>	<b>Points to be Earned</b>	<b>Points Earned</b>
Quiz Science	<b>10</b>	
Quiz Ecology I	<b>10</b>	
EXAM 1-Foundations & Ecology I	<b>100</b>	
Quiz-Ecology II	<b>10</b>	
Quiz-Human Populations	<b>10</b>	
EXAM 2--Ecology II & Human Populations	<b>100</b>	
Quiz-Economics & Policy	<b>10</b>	
Quiz-Water & Climate Chang	<b>10</b>	
EXAM 3--Economics, Policy, Water & Climate Change	<b>100</b>	
Reflection: Social Traps	<b>20</b>	
Reflection: Creation Stories & Environmental Ethics	<b>20</b>	
Reflection: Homeland Video (Parts 3 & 4)	<b>20</b>	
Reflection: Wind & the Rain Story	<b>20</b>	
Reflection: Sustainability & Easter Island	<b>30</b>	
Reflection: T-imigi & Interrelationship	<b>20</b>	
Lab: Biodiversity/Scientific Method	<b>20</b>	
Lab: Carbon Footprint	<b>20</b>	
Lab: Desert Ecology: Proposal	<b>16</b>	
Lab: Desert Ecology Project: Field Work	<b>16</b>	
Lab: Desert Ecology Project: Data Analysis/Prep	<b>16</b>	
Lab: Desert Ecology Project: Presentation	<b>24</b>	
Assnmt: Rule of 70	<b>10</b>	
SWNL Field Trip 1--Biodiversity	<b>80</b>	
SWNL Field Trip 1--Biodiversity Reflection	<b>10</b>	
SWNL Field Trip 2--Water Resources	<b>80</b>	
SWNL Field Trip 2--Water Resources Reflection	<b>10</b>	
Viewpoint Question	<b>10</b>	
Viewpoint Paper	<b>60</b>	
Viewpoint Presentation	<b>36</b>	
Final Class Presentation	<b>25</b>	
Ipad App Presentation	<b>35</b>	
Video: Homeland Parts 1 & 2	<b>20</b>	
Video: Birdsong and Coffee	<b>15</b>	
Video: Cadillac Desert	<b>15</b>	
Video: Inconvenient Truth	<b>15</b>	
Attendance & in class participation	<b>17</b>	
<b>Total Points Earned</b>	<b>1000</b>	