

# TOHONO O'ODHAM COMMUNITY COLLEGE



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## Syllabus: **ANR 186N Water Resources**

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### Course Information

Course Prefix/Number: ANR 186N  
Semester: Fall 2018  
Class Days/Times: TR 12:30 PM - 3:15  
PM (Tuesdays and Thursdays)

Credit Hours: 4  
Course Title: Water Resources  
Room: Main Science Lab

### Instructor Information:

Name: Dr. Melanie Lenart  
Phone/Voice Mail: 520-465-6877  
(mobile, texts OK)  
Phone/Office : 520-383-0071  
E-mail: mlenart@tocc.edu

Office location: Ha Mascamdah Ha-Ki, 101  
Office hours:

- 11 a.m. - Noon on Tuesdays
- 3:30 - 4:30 p.m. on Thursdays
- Also by appointment.

### Important Phone Numbers:

For short questions concerning subject matter or to schedule an appointment: 465-6877.  
For general information about Tohono O'odham Community College: 383-8401.

### Course Description:

This course aims to instill a basic understanding of the hydrological cycle and provide an overview of the processes that control water supplies to natural ecosystems and humans, giving students the knowledge they need to participate in informed decisions about water resources. The course will emphasize information and activities that are useful in the practice of agriculture and water conservation, including an introduction to rainwater harvesting principles. Topics will include the scientific method, precipitation, evaporation, runoff, water harvesting, erosion, groundwater aquifers, traditional Tohono O'odham water use and water harvesting practices, water quality and the Southern Arizona Water Resources Settlement Act (SAWRSA). Whenever possible, these topics will be addressed using examples relevant to the Tohono O'odham Nation.

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

1. Describe the various phases and effects of the hydrologic cycle, including:
  - precipitation and evaporation,
  - runoff and erosion,
  - streamflow and
  - groundwater storage.
2. Understand rainwater harvesting practices, such as directing water flowing on the landscape toward desired vegetation and collecting rooftop water for plants and people.
3. Recognize how local climate and weather influence the hydrologic cycle on the Tohono O'odham Nation, the U.S. Southwest, and around the globe.
4. Discuss water issues and practices as they relate to the Tohono O'odham Nation, including relevant vocabulary, traditional water harvesting practices, SAWRSA and other applicable water laws.

## **Course Structure:**

Course assessment will consist of homework, laboratories, papers and exams. In general, each week will cover a different topic.

## **Course Assessment:**

Material will be available to help you prepare for exams. In order to facilitate ongoing faculty-student feedback and provide formative assessment, there will be frequent homework and laboratory assignments that will be graded and returned promptly, as long as everyone has handed them in. 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 survey and final course evaluation.

## **Texts and Materials:**

Required Textbook: Brad Lancaster, 2013. *Rainwater Harvesting for Drylands and Beyond: Guiding Principles (Volume 1, 2<sup>nd</sup> Edition)*. Rainsource Press.

Other supplemental materials will be handed out in class or accessed on the internet.

# TOHONO O'ODHAM COMMUNITY COLLEGE

<b>Evaluation:</b>	<b>Points:</b>	<b>Percent of Total Points:</b>
Exams and quizzes	300	30%
In-Class Work and Labs/P&A	400	40%
Research Paper, Homework	300	30%

## **Himdag Cultural Component**

This course will enhance Tohono O'odham Himdag by improving students' understanding of the role that water plays in their environment and by covering the ways in which O'odham traditionally use features of their environment to find and use water. This knowledge will enable people to better manage rangeland and water resources and better understand the relationship between O'odham cultural roots and the physical environment.

## **Policies and expectations**

### **Course Policies Requirements**

- 1) Attend class regularly.
- 2) Complete in-class and out-of-class assignments, including laboratories, and submit to the instructor in a timely fashion.
- 3) Attend any field trips.
- 4) Take all exams and quizzes.
- 5) Complete all class projects and presentations.

### **Attendance**

You are expected to arrive to class on time and actively participate each class period. Quizzes and exams typically are given out at the beginning of class time. Field trips and class activities often begin at the start of class and may be missed if you do not arrive to class on time.

Points are given for work done in class, so students who attend regularly likely will do well in the course. The opposite is also true. Because exams, labwork 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. The instructor will provide missed assignments if it is possible to make them up. Generally, points will be lost for handing in assignments late.

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. See above for email and phone contact information. Text messages are fine, as long as the student includes their name and the course title in the text.

# TOHONO O'ODHAM COMMUNITY COLLEGE

## **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 there may be a loss in points for lateness. 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.

## **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, pagers and other electronic devices that distract students are NOT allowed in classrooms. Telephones, iPads, etc. should be turned off during class.
- 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, typically within a week after assignments are received. 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 12<sup>th</sup>, either in person or via the electronic system. Watch your TOCC email account for reports.

## **Instructor Withdrawals**

Students who have missed four consecutive classes, not submitted any assignments nor taken any quizzes by the 45<sup>th</sup> day census report due on October 5, 2018, are assumed NOT to be participating in the class and will be withdrawn.

## **Student Withdrawals**

Students may withdraw from class at any time during the first two-thirds of the semester without instructor permission and without incurring any grade penalty. However, there may be financial repercussions if you are receiving financial aid. Please be sure to withdraw yourself by November 2, 2018, if you do not expect to complete the class; if you stop attending but fail to officially withdraw, you may receive an "F" grade.

## **Incomplete (I) Grade**

"I" grades are not awarded automatically. The student must request an Incomplete ("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 75% of the course requirements with at least a "C" grade in order to have an incomplete.

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.

## **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. The instructor may also send an email before that noting the grade.

## **SPECIAL NOTE TO STUDENT:**

For privacy and security reasons, instructors are advised **NOT** to give grades over the telephone. Grades will 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!**

# TOHONO O'ODHAM COMMUNITY COLLEGE

**Topics to be covered during the course:**

- I. Tohono O'odham relationships with water
- II. Introduction to the water cycle
- III. Precipitation
- IV. Evaporation
- V. Infiltration
- VI. Runoff and erosion
- VII. Water harvesting: introduction
- VIII. Water harvesting: passive
- IX. Transpiration and Evapotranspiration
- X. Water harvesting: active
- XI. Streams
- XII. Groundwater
- XIII. Water balance
- XIV. Water quality and arsenic contamination
- XV. Water Law and policy/SAWRSA

Course Specific Outcomes	Assessment/Measures
1. Describe the various phases of the hydrologic cycle, including precipitation and evaporation, runoff and erosion, streamflow and groundwater storage.	Lab assignments, exams.
2. Create rainwater harvesting plans, such as by directing water flowing on the landscape toward desired vegetation and collecting rooftop water for plants and people.	Lab assignments, in-class exercises and, as possible, hands-on work.
3. Recognize how local climate and weather influence the hydrologic cycle in the Tohono O'odham Nation and around the globe.	Lab assignments, in-class exercises and questions on exam.
4. Discuss water issues and practices as they relate to the Tohono O'odham Nation, including relevant vocabulary, traditional and modern water harvesting practices, SAWRSA and other applicable water laws.	Research paper and presentation

**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.