

# BASIC CONCEPTS IN WATER-RELATED APPLICATIONS

## The University of Arizona

Spring 2016 - ABE170A1

Dr. Stephen Poe – Professor, Agricultural and Biosystems Engineering

The information in this syllabus is subject to change with reasonable advance notice by the instructor.

This is an online course. There are online assignments and additional optional engagement activities (lectures, symposiums, fieldtrips, and workshops) that students may participate in to enhance the educational experience, and improve the course grade. You may take the class from any location, but there are more engagement opportunities in Tucson. You do not need to complete any of the engagement experiences, but it is highly recommended.

**The ability to follow directions and turn assignments in on-time is important for success in this class. Homework assignments may be turned in late for up to 50% credit!** Students must be able to access and post assignments in D2L. Students will be expected to create video presentations and post discussions to D2L or YouTube for evaluation.

### Catalog Data

ABE170A1 (3). This course develops an understanding of natural science concepts and ideas and how they can be used to understand and analyze processes and objects in the everyday world. Water is a central theme. Students examine how it is obtained, stored, distributed, used, polluted, and cleaned. They learn to estimate its quality, quantity, energy, and movement. It is a broad introductory course.

### Course Objectives

This course will:

1. Demonstrate the importance of physical and chemical processes and their application to events in the everyday world.
2. Cover the following major concepts:
  - a. Newton's laws governing force and motion
  - b. Laws of thermodynamics governing energy and entropy
  - c. Role of electromagnetism in nature
  - d. Atomic structure of matter
3. Be interdisciplinary and cut across departments and disciplines and integrate them so that the commonality of the scientific approach can be exemplified. To insure this interdisciplinary perspective, this course will integrate two or more of the following applications:
  - a. Engineering/Technological Sciences: The interplay between science and technology and applied science and everyday life.
  - b. Environmental Sciences: The interaction and interconnections between physical, chemical, and biological processes as they affect, and are affected by, human beings living in their environment.
4. Emphasize critical and evaluative thinking; this will include practicing peer evaluation.

## Student Learning Objectives

After taking ABE 170A1, students will be able to:

1. Understand the nature and application of physical and/or biological science.
2. Apply ideas and processes beyond the classroom.
3. Recognize and identify the complexity of many scientific issues.
4. Understand experiments, generate and analyze data and use abstract reasoning to interpret them.
5. Students will complete assignments associated with scientific topics (water-related) that contain elements of writing (and re-writing), reading and developing multimedia presentations. **Proper citation and references in all class communications are required.**
6. Appreciate the relative scale of objects, rates of change, linear and nonlinear growth.
7. Present data in tables, graphs, and charts as well as perform appropriate mathematical calculations and data analysis.
8. Read and understand scientific literature from both scholarly and popular sources such as magazines and newspapers.

## Instructor & office hours – preferred course communication is via email.

**Dr. Stephen Poe**, Professor, Agricultural and Biosystems Engineering

*Email:* [spoe@ag.arizona.edu](mailto:spoe@ag.arizona.edu) *Office:* Rm. 501A Shantz, 520-621-5879

*Office Hours:* M&W 10:30 to 11:45 or by appointment – any changes will be listed in D2L announcements.

**Kaitlin Poe-Orsburn M.S.**, Teaching Assistant & Grader

*Email:* [kpoe@email.arizona.edu](mailto:kpoe@email.arizona.edu)

## Required reading materials and online lectures

Course reading material and lecture videos will be made available each week in the D2L Content Tab, under the weekly modules.

## Communications

It is the student's responsibility to read their email and check the d2l course news announcements **daily**. Information about readings, news events, grades, assignments and other course related topics will be communicated to you through these electronic methods.

## Attendance & Late work policies

Attendance is not required – this is an online class. Assignments are due as listed in the syllabus (typically prior to 5:00 pm). Late homework is accepted up to 24 hours after due dates for a **maximum of 50% of original credit**. Please try to work ahead in order to avoid unexpected events. The dropbox closes automatically and it doesn't care if you have been trying to upload on a slow computer for an hour. If you are even a second late it will not accept papers. If you have an emergency that prevents you from working on class the entire week of an assignment, you should contact student health services to coordinate medical care and statements concerning absences. **Late discussion posts are not acceptable.**

**\*\*\*\*PLEASE NOTE\*\*\*\***

**You must complete all the material/tasks listed in the Introduction Module prior to gaining access to additional Modules.**

**Grading (approximate)**

Assignments	500 points
Paper and video	250 points
Outline and paragraph with references	(30 points)
Paper	(60 points)
Revised paper	(80 points)
Video	(80 points)
<u>Discussions</u>	<u>250 points</u>
Total	1000 points

This class will have a total of approximately 1000 points. Points may fluctuate slightly to accommodate specific assignments, since not all assignments or posts will have exactly the same point value. Some assignments may be graded for completion only, so make sure you always have something turned in. Engagement points are possible if appropriate opportunities become available (always posted in D2L news).

Grades will be distributed on approximately the following:

- > 90 %        A
- > 80 %        B
- > 70 %        C
- > 60 %        D

Engagement Activities: Completion of engagement activities and the required report can help your grade. You are limited to 100 points of engagement activity credit. A typical activity and report are worth 10 points (examples can be found in D2L/Content/Examples).

Some students don't understand how valuable engagement activities are to your overall education. According to President Hart:

“One of the central features of enhancing the student experience is the University’s 100% Engagement initiative, which is preparing our students for success through activities that deeply integrate learning and real-world application of knowledge.”

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## Tentative Schedule

Week	Subject	All homework assignments due <b>5 pm</b>	
Introduction Module: opens 1-13, 9-8	<b>You must complete introduction module in D2L before you can access additional modules.</b>		
*Meet the Professor:  Times listed in news page	Skype: Stephen.Poe		
Module 1: opens 1-18	Introduction to water	Assignment 1	1-26
Module 2: opens 1-25	How we use water	Assignment 2 & Discussion Post #1	2-2
Module 3: opens 2-1	Drinking water	Assignment 3 & Response to Post #1	2-9
Module 4: opens 2-8	Water and energy	Assignment 4 & Discussion Post #2	2-16
<b><i>Turn in descriptive paragraph and outline of paper</i></b>			<b><i>Tuesday, 2-16</i></b>
Module 5: opens 2-15	Irrigation	Assignment 5 & Response to Post #2	2-23
Module 6: opens 2-22	Water conservation	Assignment 6 & Discussion Post #3	3-1
Module 7: opens 2-29	Wastewater	Assignment 7 & Response to Post #3	3-8
Module 8: opens 3-7	Water law <b>Note: this module closes during break</b>	Assignment 8 & Discussion Post #4	3-15
Spring Break 3-14 to 3-18	Go do something fun with water! Complete Engagement Bonus!		
Module 9: opens 3-21	Water in the media	Assignment 9 & Response to Post #4	3-29
<b><i>Turn in first draft of paper to dropbox</i></b>			<b><i>Tuesday, 3-29</i></b>
Module 10: opens 3-28	Water physics	Assignment 10 & Discussion Post #5	4-5
Module 11: opens 4-4	Water in the weather	Assignment 11 & Response to Post #5	4-12
Module 12: opens 4-11	Working with water	Assignment 12 & Discussion Post #6	4-19
Module 13: opens 4-18	Water chemistry	Assignment 13 & Response to Post #6	4-26
<b><i>Turn in revised term paper to the dropbox Tuesday 4-26</i></b>			
Module 14: opens 4-25	The future of water	Assignment 14 & Discussion Post #7	5-3
<b><i>Turn in video link to dropbox – The video explains your term paper</i></b>			<b><i>Tuesday, 5-3</i></b>
Meet the Professor – Exit interview Meet in person (Shantz 501A) or video (SKYPE) – times TBA on D2L news feed.			

## Discussion Posts

**You must create your post before you will be allowed to see other posts in your group.** There is a discussion tab in D2L. Students will be randomly assigned to small discussion groups. Each student must add one new post for each of the seven discussion posts (see the assigned dates in the syllabus schedule). The approved topics will be posted in the weekly class module. Each post will be two paragraphs long and will take a position on a topic or answer a question. You must have a proper scholarly reference (in APA) included with your answer or position (an example will be provided) as well as APA in-text citations. Posts that are not in the proper format will receive no/reduced credit. Discussion posts will be graded using the Discussion Post Grading Rubric (**5 criteria**). The rubric can be found in the Content Tab on D2L. **You must post your first discussion post by the date in the calendar and not by the close date of the discussion box.** The reason for this is that the first discussion must be posted before the response, which is due by the time the discussion box is closed for posting.

We will disqualify comments that are too short, rude, or otherwise inappropriate for a class at the University of Arizona. However, you will not be graded down for intelligently disagreeing with the instructor or others. We encourage intelligent debate or disagreement with the instructor, other students, or text. We hope to have honest and interesting discussions; however, you must not be abusive, derogatory or profane in your posts. All feedback, including graded rubrics, can be viewed in the grade book.

## Discussion Responses

Each module (following a discussion post) you must respond to at least one other member of your group. Each response will be one quality paragraph. The discussion post responses will be graded using the Discussion Response Rubric (3 criteria). **When creating your discussion response, make sure all classmate discussion posts have a response before responding to someone that already has a response** (failing to do so will result in lost points).

## Assignments

Assignments are posted in the weekly modules in the content tab of D2L and will be due as listed in the syllabus. Each assignment will be opened approximately one week before they are due. Please do not wait until the last minute to turn in your homework. Homework questions are typically generated from a pool of questions (a large pool) and each student may have a different questions.

**To check the homework feedback** for graded homework assignments: 1- Click on the *Homework* tab. 2- Click on the dropdown arrow to the right of the assignment you would like to view and click *submissions*. 3- Click the blue link *Attempt 1*. 4- You should then be able to see which questions you got right or wrong and you can view the feedback for each question. You will not be able to view the answers until the grade for the assignment has been submitted to the grade book.

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## Submissions to the Drop Box

You need to save anything that you turn into the drop box in a format that is universal – word or pdf. **It is your responsibility to make sure that the file can be read.** If you have a question about format, or you think something went wrong while you were submitting it, check it out before the deadline and ask us if you need help. No credit can be given for submissions that can't be opened or read by the instructors. Problems with your personal computer, software, or internet do not justify late submissions. See above. All feedback, including graded rubrics, can be viewed in the grade book or under the dropbox submission. **(Secret – don't tell anyone else. We only grade the last submission to the drop box, so if you might be running up to the deadline to complete a task, you should consider submitting a version earlier in the day to make sure we have something to grade if life happens – like the internet goes down, or the dog eats your computer.)**

## Help with your computer or software:

Contact the 24/7 IT Support Center at 520-626-8324. Website <http://uits.arizona.edu/studentervices>

## Policies against plagiarism, etc., Student Code of Academic Integrity:

Violations of the UA Code of Academic Integrity are serious offenses at the University of Arizona. As your instructor, I will deal with alleged violations in a fair and honest manner. As students, you are expected to do your own work and follow class rules on all tests and assignments unless I indicate differently. Alleged violations of the UA Code of Academic Integrity will be reported to the Dean of Students Office and will result in a sanction(s) (i.e., loss of credit on assignment, failure in class, suspension, etc.) Students should review the UA Code of Academic Integrity which can be found at: <https://deanofstudents.arizona.edu/codeofacademicintegrity>

## Policies against threatening behavior by students:

<http://policy.web.arizona.edu/threatening-behavior-students>

## ADA Policy and Other U of A Class Policies:

The instructor complies with and encourages students with special needs to gain permission for special accommodations as allowed by the Americans with Disabilities Act.

If you have a health related issue that is going to prevent you from completing the class or turning in an assignment on time, please contact **Campus Health Service at 520-621-6490**. They provide emergency counseling to help with many situations. <http://www.health.arizona.edu/main.htm>

Students with disabilities who require reasonable accommodations to fully participate in course activities or meet course requirements must register with the Disability Resource Center. If you qualify for services through DRC, bring your letter of accommodations to the Professor's attention as soon as possible.

Disability Resource Center  
The University of Arizona  
1224 East Lowell Street  
Tucson, AZ 85721

Phone: (520) 621-3268 (TTY)  
Fax: (520) 621-9423  
Email: [uadrc@email.arizona.edu](mailto:uadrc@email.arizona.edu)  
Web: <http://drc.arizona.edu/>