WATR 3331-001	**FALL 2026**
HYDROLOGY	**SYLLABUS**
LECTURE: MW 02:00 – 03:15 PM (ZOOM)	**DR. PRIDE ABONGWA**

Changes will be announced in class and as a news item on Blackboard.

Instructor: Dr. Pride Abongwa

Office Hours: TR 12:30 PM – 02:00 PM and by appointment

Email: pabongwa@tamusa.edu

Zoom link:

https://tamusa.zoom.us/j/85134688140?pwd=KAq1P6LjN7T0ua8cYmqR50CbWRF1Kx.1

Meeting ID: 851 3468 8140

Passcode: 325704

Course Description:

In this course, we shall study the hydrologic cycle and relevant atmospheric processes, water and energy balance, radiation, precipitation formation, infiltration, evaporation, vegetation transpiration, groundwater flow, storm runoff, and flood processes. This course also looks into the Principles of hydraulics, flow of water in open channels and pressure conduits, reservoirs and dams, hydraulic machinery, hydroelectric power. We shall study the collection, compilation, and interpretation of data for quantification of the components of the hydrologic cycle, including precipitation, evaporation, infiltration, and runoff. We shall use hydrologic variables and parameters for development, construction, and application of analytical models for selected problems in hydrology and water resources.

Learning Outcomes: After completing the WATR 3331 (Hydrology) course, you will be able to:

- Comprehend the hydrologic cycle and related major water quantity and quality challenges and their relevance to human health and well-being, ecosystems, and the food supply.
- Comprehend basic water properties and can measure basic physical and biochemical aspects of water associated with hydrologic processes.

- Comprehend the chemistry of water and biological phenomena as related to water quality and contaminant transport in surface water and groundwater that provide for drinking water, agriculture, ecosystems, and industry.
- Demonstrate management, communication and teamwork skills needed to work constructively and professionally on multi-disciplinary teams.

Required Textbooks and Online Class Resource

1. Texbooks: Hornberger, G.M., Raffensberger, J.P., Wiberg, P.L., and Eshleman, K.N. (1998) Elements of physical hydrology. Johns Hopkins University Press, Baltimore, 302p. The book contains a CD ROM.

BLACKBOARD: https://tamusa.blackboard.com

Blackboard will be used to communicate information pertaining to the course. Course documents, lecture material, videos, and links will be available on blackboard for downloading, viewing, or printing. You will also be able to check the status of your performance in this course. It is your responsibility to check Blackboard for new announcements and course materials, and to report promptly any errors in your grades.

Additional required materials: Please bring the following to class: Writing instrument of your choice (pen, pencil, etc.), calculator, and notebook or scratch paper.

Attendance:
Students are expected to attend all lectures. Material outside the text will be covered in class and students will be held accountable for that material. The instructor also reserves the right to modify assignments (reading and homework) during the class period.

Missed Assignments or Exams:
If a student misses a deadline or an exam for an excused reason (illness, etc.), please notify the instructor in advance if possible or by the following class period in person. Notification techniques include phone, email, letter, fax or one of the many modern or ancient forms of communication. **EXCUSES MUST BE PROVIDED IN WRITING.** Providing excuses after the following class session will result in a grade of zero on the missed assignment or exam.

Make-up Exams:
See the instructor to schedule a time as soon as possible.

Prerequisites:
There are no listed prerequisites for this class. Note that some equations and derivations will be presented in the class and readings. Ask for assistance if needed.

Mode of teaching:
This course consists of two lectures per week; some of these sessions will be problem based.

Course Structure and Policies:

1. Course schedule: The lecture topics, readings, and exam dates are shown on the course calendar. The professor reserves the right to shift lecture topics as required. However, exam dates will not be changed. You are expected to have completed the reading assignments prior to each lecture.

Week	Date	Topic	Readings (do before class)
1		Introduction	1
2		The Water Budget	1
		Precipitation	2
3		Evapotranspiration	3
		Fluid Dynamics	
4		Energy Loss	3
		Channel Flow	4
5		Channel Flow	4
			4
6	**10/14**	**Exam 1**	
		Stream flow & Reservoirs	5
			5
7		Flood Routing	5
		Flood Frequency	5
8		Groundwater: Darcy	6
		Geological formations	6

9		Steady Groundwater Flow	6
		Flow nets	6
10	**11/11**	**Exam 2**	
		Regional Groundwater Flow	7
		Unsteady Groundwater Flow	7
11		Aquifer Properties, Pump Tests	7
12		The Unsaturated Zone	8
13		Infiltration	8
		Moisture Redistribution	8
14		Ecohydrology	9
15		Catchment Hydrology	10
16		Water, Climate, Energy & Food	11
		Final Exam Review	
	December ?	**Final Exam**	

2. Class Meetings: Our class meetings will be interactive. Although traditional lectures will be used to transmit the basic information necessary to understand the topics, there will also be time spent engaging with problems hands on. Your participation is crucial to your success in the course and **attendance is mandatory!** Although all the factual material is in the textbook and PowerPoint slides, class time allows us the opportunity to highlight the important points, look at the interrelationships among the different parts of the science, discuss current events and discoveries, and clarify questions you may have with the readings. **Classes are 75 minutes** long and we will need all of that time to consider the subject of the day. Please be prompt, but if you are unavoidably delayed or must leave early **please be quiet when entering or leaving the classroom.** Courtesy during class is important. Pay attention to what we are doing. Please come to class prepared to engage in the material.

3. Lectures and Readings - The goal of the readings is to prepare for the subject under discussion. The reading assignments in the textbook will parallel the lecture material. If you keep current with the readings, then you will get more out of the course and you'll also have an easier time preparing for the exams. In order to do well in this course, you will be expected to attend all lectures, take good notes, actively participate in the in-class exercises and discussion, and *read the assigned material*. It is to your advantage to read the material before class. **The exams will be based on the material presented in class and on the assigned readings**.

4. Weekly assignments and exercises: Throughout the semester, we will be having weekly exercises and assignments. In class exercises will be due by end of class period and assignments (take-home) are due the following Monday either in class or on blackboard by midnight CT. The exercises and assignments will account for **40%** of the course grade.

5. Group Project/Presentation: There will be a group project which shall be presented in class (or submitted as an article). The Group Project constitutes **20%** of the course grade.

6. Exams: 3 EXAMS (2 Midterms and Finals) will account for a total of **40% (10% for each Midterm and 20% for the Final) of your grade** in the course. While the exams will not be explicitly comprehensive, the material in this course builds upon previous concepts. Therefore, once a concept has been introduced, it will be assumed that you remember it and understand it in subsequent lectures and in subsequent examinations. **You must bring #2 pencils, an eraser and a calculator; I will not provide these items. Exam results will be posted on BLACKBOARD.** If you have any questions or concerns about a grade you receive on an exam, you must bring them to my attention within one week of the day that the grades are posted. After this week has passed, the exam grade will stand as recorded and will not be changed. All exams will be held during class-time (See schedule).

7. Excused Absences: If you must miss an exam or a class because of participation in any university sanctioned activity or other legitimate reason, you must notify me **before** the event so that we can make arrangements for missed work (note from faculty, coaches or other officials is required). If you miss an exam or a class because of **illness**, you must contact me as soon as possible by email. If need-be, have a

friend or parent contact me; **communication is essential**. If you do miss class, lecture material will be available online at Blackboard. Social events, fundraisers, etc. are not valid reasons for missing exams.

8. Grade computation and grading procedure:

-Weekly Assignments/Exercises:
Short and long answer type questions, articles summary/presentation and scientific problem solving **(40%)**
-Three exams (40%)
Multiple choice questions, short and long answer type questions, and scientific problem solving **(40%: 10% for each of the midterm & 20% for the Finals)**
- Group Project:
Presentation/Group report required **(20%)**

Percentage	**Letter Grade**
90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
Below 60	F

Disability Services and The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disability. If you believe you have a disability that may require accommodations, please contact *Disability Support Services (DSS)* for the coordination of services. DSS is located at the Main Campus on the 2nd floor of the Central Academic Building in room 210. The phone number for DSS is (210) 784-1335 and email is dsupport@tamusa.edu.

Academic Dishonesty is any act, or attempt, which gives an unfair advantage to the student. Academic dishonesty includes, but is not limited to –Plagiarism-Cheating-Lying-Bribery
As a member in an academic community, students at Texas A&M University- San Antonio are expected to exhibit a high level of honesty and integrity in their pursuit of higher education, be mature, be self-directed and be able to manage their own affairs. Students who are unwilling to abide by these basic expectations will find themselves facing academic and/or disciplinary sanctions. Students are expected to share in the responsibility and authority with faculty and staff to challenge and make known acts that violate the Texas A&M University- San Antonio Code of Conduct. Texas A&M University- San Antonio faculty has the discretion to impose grade penalties as deemed necessary and are **obliged to and will report** any form of academic dishonesty. For more information on the process of reported academic misconduct, please refer to

http://www.tamusa.edu/studentengagementsuccess/StudentRightsAndResponsibilities/Academic-Misconduct/index.html
Academic Dishonesty falls under Acts of Dishonesty in the Student Handbook's Code of Conduct.

Veterans and active duty military personnel are welcomed and encouraged to communicate, in advance if possible, and special circumstances (e.g., upcoming deployment, drill requirements, disability accommodations). You are also encouraged to visit the Patriots' Casa in person room 202, or to contact the *Office of Military Affairs* with any questions at military@tamusa.edu or (210)784-1397

University Email Policy and Course Communications: All correspondence between professors and students must occur via University email accounts. You must have your Jaguar email account ready and working. If it is not working, contact the help desk at sahelp@tamus.edu or at 210-784-HELP (4357). If you don't hear back within 48 hours, contact them again. They have a lot of requests during the first part of the semester, so you may need to follow up with them.

The Six-Drop Rule: Students are subject to the requirements of Senate Bill (SB) 1231 passed by the Texas Legislature in 2007. SB 1231 limits students to a maximum of six (6) non-punitive course drops (i.e., courses a student chooses to drop) during their undergraduate careers. A non-punitive drop does not affect the student's GPA. However, course drops that exceed the maximum allowed by SB 1231 will be treated as "F" grades and will impact the student's GPA.

The Jaguar Writing Center provides writing assistance to graduate and undergraduate students in all three colleges. Writing tutors work with students to develop reading skills, prepare oral presentations, and plan, draft, and revise their written assignments. Students can make individual or group appointments with a writing tutor. The Writing Center has two locations: Central Academic Building, Suite 208. The writing center can be reached by emailing writingcenter@tamusa.edu or calling (210)-784-1222. Appointments can also be made through JagWire using under the student services tab.

The Academic Learning Center offers free, appointment-based tutoring to Texas A&M University-San Antonio students. The Learning Center is made up of subject-area tutoring for Math and Sciences (including Statistics for most majors). Please call us at **210-784-1332** to see if the ALC offers tutoring for your course. Also, please come visit us in Modular C, Room 140 to learn more about our subject specific hours.

WHAT YOU CAN EXPECT

A. You will get a broad introduction to the Earth science, the scientific principles upon which it is based, and the importance of geology in our daily lives.

B. Class meetings will be interactive, with numerous in-class activities and exercises. Grades will be based on both individual and group assignments, and your participation in these exercises.

WHAT WE EXPECT

A. Regular attendance, keeping-up with the readings in the text, active participation during class, completion of the in-class exercises, and attendance and participation in the laboratory.

B. Courtesy during class. This means arriving to class on time, paying attention to what we are doing that day, and participating actively in class discussions and exercises.

How can I earn an "A" in this class? You can earn it if you follow these suggestions:

- **Attend all classes** and engage in the material
- **Review your class notes** that evening; ***what's not clear to you?*** Write it down
- **Review the previous class notes** while waiting for class to begin; ***do you have any questions for me?***
- **Participate** in and complete all in-class exercises/assignments (**worth 40% of your grade**)
- **Participate** actively with your groups
- **Study** for and take all 2 exams
- **Ask questions**, participate, get involved with the material
- **Seek help** with your questions: come to instructor's **office hours** and **make appointments**