GLY 3882C – Hydrology and Human Affairs

Prof. Liz Screaton
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- help hours: Tues 1-2 pm and Thurs 2-3 pm

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- help hours: Mon 12- 1 pm and Thurs 10 - 11

Because this is an online course, the help hours are via email. During other days/times (M-F 8-5), please email and we will respond within several hours. Evening and weekend emails will be answered by the next weekday morning.

Please email us if you'd like to arrange an online conference or in person meeting to ask questions.

Overall Course Goals and Outcomes

Water is a resource that is vital for life, but the quality and quantity of our water resources are currently under threat. Students will understand the basic concepts of groundwater flow, and its relationship to surface water, humans, and the environment and apply concepts to current water-related issues. By the end of this course, students will be able to:

- Describe the basic concepts of groundwater flow and its relationship to surface water, humans, and the environment.
- Apply hydrologic methods, including potentiometric surface mapping, cross-section development, and data analysis, to assess water-related problems.
- Summarize, present, and discuss hydrologic information from scientific reports and the media.

This course fulfills the UF General Education Physical Science (P) requirement. For more information, see the last page of this syllabus.

This course is an International Scholars Program course (click here to find out more about ISP).

Textbook Due to the lack of an appropriate textbook for this topic, chapters have been written for each module. These readings are found linked from each module in Canvas.

Technology You will need a dependable computer and internet connection to access the class content on Canvas. You will need a webcam and microphone for the proctored exams (see ProctorU requirements).

Class Format

The class is online on Canvas and consists of 10 modules.

- Each module will begin with a background **reading** to introduce the concepts and terms.
- One or two <15 minute long **video lecture(s)** will reinforce some of the key points from the reading.

- The **assignment** in each module will introduce material about specific areas and/or provide practice with new concepts and skills. The assignments will includes some essays, data analysis, and presentations that will be graded by the TA or professor.
  - In each module, the **group discussion** provides a place to consider the implications of the material, further apply concepts, and examine issues. The discussions will include student written posts and replies. The written posts and replies will be evaluated on how well they address the question or assignment and the quality of communication. Please carefully review your submissions before posting.
  - Two short **quizzes** for each module will review the terms and concepts from the reading and ask you to synthesize information from the assignment. The quizzes will generally be a combination of True/False, multiple choice, multiple-answer or "fill in the blank" questions. The 5 pt reading **quiz** will be due before the assignment is completed, and the 10-pt **quiz** will be due after the assignment and discussion. The 10-pt module quiz will include questions from the reading and based on the assignment.
  - There will be one student **presentation**. The topic list and will be provided. The topics will be based on student interests and recent news.
  - Two **proctored exams** (online, multiple choice or fill-in-the-blank, 60 minutes each, 8.5 x11 page of notes allowed, using ProctorU) and two **synthesis reports** will ask you to combine class material, discussions and/or presentations and apply skills and/or concepts to a new situation.

Academic Honor Code

Students must follow the University of Florida Honor Code. On all work submitted for credit by students of the University of Florida, the following pledge is either required or implied: "*On my honor, I have neither given nor received unauthorized aid in doing this assignment*." Before submitting any work for this class, please read the policies about academic honesty at https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/

- **Specifics for this class:**
  - Assignments can be discussed with other students and you are encouraged to ask the TA/prof for help, but **all submitted work must be your own**.
  - Having anyone else complete all or part of any submitted work for you, completing all or part of the work for another student, or receiving/providing answers is not allowed.
  - Synthesis reports are to be completed without help from anyone except the TA or prof.
  - The assignments and synthesis reports will be evaluated with Turnitin. Turnitin is an online service to help prevent and identify student plagiarism by comparing your submission to other material and student submissions. Substantial overlap with other submissions/material will be considered a potential honor code violation.
- **How to avoid problems:**
  - Don't copy and paste any text, whether from the web or from another student.
  - Don't provide any answers to another student. Because we won't be able to tell who did the work and who copied (or who dictated the answer and who wrote it down), both students will face an honor code violation. Providing answers also does not help the other student learn.
  - Give credit where due. If you found another student's discussion post helpful, or use information from the internet, summarize what they said and cite the source.

Grading

420 total points

- 9 pts: Introductory quiz and discussion
- 135 pts: Best **9** of 10 assignments @ 15 points
- 40 pts: Best **8** of 10 reading quizzes @5 pts
- 80 pts: Best **8** of 10 quizzes @10 pts
- 16 pts: Best **8** of 10 Discussion Posts @ 2 pts
- 20 pts Presentation
- 80 pts: Two Exams @ 40 pts each
- 40 pts: Two Synthesis Reports @ 20 pts each

A: ≥93.4%; A- 90.0-93.3%; B+ 86.7 – 89.9%, B: 83.4 – 86.6 %, B-: 80.0 – 83.3 %, C+ 76.7 – 79.9 %; C: 73.4 – 76.6%, C-: 70.0 – 73.3%, D+: 66.7 – 69.9%, D: 63.4 – 66.6%, D- 60.0 – 63.3%, E 59.9% and below**.** *(Information on how UF calculates GPA based on letter grades can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx)*

These grade criteria are firm. At the end of the semester, the points you earn determine your grade. Approximately 10-15 extra credit points will be available to all students at various times during the semester. These could be in the form of extra quizzes, extra questions on assignments, or extra discussions. Please take advantage of these opportunities for extra points. **We do not negotiate the final grade or offer special extra credit opportunities to individual students.**

How to Get Help

GLY 3882C is a 3000-level class, which means it is aimed at junior-level students or above. You will be challenged by some parts of the material. Be sure to ask questions as you read the course notes, work through the assignments, and prepare for the quizzes and syntheses.

Emails received between 8 am and 5 pm on weekdays when UF has classes will generally be answered within 2-3 hours.
Be sure to allow yourself enough time prior to deadlines to ask questions and have them answered.

- **For problems with Canvas**: Call 352-392-4357 or via e-mail at helpdesk@ufl.edu.
- **To report course-specific errors:** If you find a broken link in an assignment, an error in quiz grading, or some other error, email both the TA and me (screaton@ufl.edu). We are happy to correct any problems and will credit you 1 point if you are the first to report a problem by 5 pm before any deadline.
- **For content questions**: The first place to go is to Course Question and Answer Discussion Board to check whether the question has already been answered. If not, contact us by email or post your question to the class. Please help your classmates by responding to questions on the Course Question and Answer Discussion Board. Answers will be reviewed by the TA/professor daily M-F and additional information may be added.
- **For questions specific to you:** An email to the prof and/or TA is the best way to ask questions that are specific to you, such as about your grade or an upcoming conflict with a deadline.

Course Modules and Deadlines

Dates might shift during the semester. **If there is a UF closure due to hurricanes or other causes, it might be necessary to move the Synthesis 2 deadline or Exam 2 into finals week.**

Introduction	Aug 22
Module 1 Rainfall and Recharge: Why isn't rainfall enough? examines why humans can't rely on rainfall for their water needs, and looks at precipitation, evapotranspiration, and groundwater recharge. Examples from the U.S., Africa, and Bangladesh are introduced.	Aug 29 and Sep 3
Module 2 Water Underground introduces how water is stored and flows underground and the relationship between geologic materials and water flow and storage.	Sep 5 and 10
Module 3 Mapping Flow covers how wells are installed and how water level elevations in wells can be contoured to understand groundwater flow directions.	Sep 12 and 17
Module 4 Streams and Floods covers how stream flow is measured, what factors affect the stream discharge, floods, and dams. Students examine surface water conflicts.	Sep 19 and 24
Module 5 Surface Water and Groundwater examines how groundwater interacts with surface water. Students will look at examples from Florida and the focus regions.	Sept 26 and Oct 1
Synthesis 1 Exam 1	Oct 8 Oct 9-10
Module 6 Darcy's Law: How Slow Does Groundwater Flow? covers how groundwater flow rates are determined and how groundwater can be "dated" using isotopes.	Oct 15 and 17
Module 7 Pumping and Groundwater Budgets examines how an aquifer's inflows and outflows are impacted by the addition of pumping and under what circumstances pumping can lead to subsidence of the land surface. This module uses examples from California's Central Valley as well as the focus regions.	Oct 22 and 24
Module 8 Water Management uses U.S. law to introduce differing strategies for water allocation and consider the problems of sharing water between states and nations	Oct 29 and 31
Module 9 Water Chemistry and Karst describes the basics of the reactions that affect the chemistry of surface water and groundwater and examines karst and sinkholes.	Nov 5 and 7
Module 10 Water Quality focuses on nutrients, natural contaminants, and saltwater intrusion.	Nov 12 and 14
Revised Presentations	Nov 19
Synthesis 2 Exam 2	Nov 26 Dec 2-3

Course announcements and email

When you log in to Canvas, please ensure that your Notification Preferences are set to "ASAP" for Announcements and for Conversation Messages and that notifications are sent to an email address that you check frequently. These tools will be used to inform you of any updates or changes in the course or to contact you.

Deadlines

You are responsible for keeping track of deadlines and allowing yourself plenty of time to complete work prior to the deadline. We strongly recommend starting quizzes and assignments early enough to ask questions and get answers and to prevent loss of points due to technical issues.

Due to past student requests, we have set the deadlines at 11:59 pm on the due date rather than 5 pm. Students find this extra time in the evening helpful, but should be aware that **completing the work after 5 pm is at your own risk.** We will check emails at ~5 pm and help out with any last-minute questions or problems. If you find a bad link, have internet issues, or encounter a question, you are still responsible for completing the work. ** The exception is UF-wide server issues, which you can check on here.

Late submissions: Canvas will accept assignments and syntheses up to 30 minutes after the deadline with a 10% deduction (1.5 pts for assignments and 2 pts for syntheses).

Incorrect submissions: Please carefully review submitted files. Make sure that you submitted the version that you intended and that it uploaded corrected. **Corrections will only be accepted by decision of the professor. If allowed, these will only be accepted within 24 hours of the original deadline and there will be a minimum 30% penalty.**

Deadlines and Policies

- Deadlines in Canvas are 11:59 pm. Please be aware that the Canvas clock might differ from your watch and also that Canvas considers the deadline to be 11:59:00 (not 11:59:59).
- Be sure to carefully read the assignment and ask any questions well before the deadline. In addition, be sure to view any files after submission to check that it is the correct file and that it uploaded without error.
- For *pre-existing conflicts* (e.g., athletic, religious, academic): email me (screaton@ufl.edu) **no later than 1 week before a deadline** to set an alternate deadline.
- For *sudden, unexpected major issues:* email me (screaton@ufl.edu) no later than 5 pm the day of the deadline. Documentation may be requested.
- Typically for long-lasting illnesses or other issues that affect more than one course, students contact the Dean of Students Office, who will verify and then inform all the student's professors. You'll then work with me (and your other professors) to arrange new deadlines.
- Mistakes happen and bad days happen. That's why the lowest **two** quiz score will be dropped, the lowest **two** discussion grades will be dropped, and the lowest assignment score will be dropped.

Class Demeanor Students are expected to treat other students, TAs, and professor with consideration. Discussions and peer reviews must be constructive and courteous.

Accommodations for Disabilities: Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluations**:** Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/

More information about how this course fulfills the Physical Sciences Requirement: Physical science courses provide instruction in the basic concepts, theories and terms of the scientific method in the context of the physical sciences. Courses focus on major scientific developments and their impacts on society, science and the environment, and the relevant processes that govern physical systems. Students will formulate empirically-testable hypotheses derived from the study of physical processes, apply logical reasoning skills through scientific criticism and argument, and apply techniques of discovery and critical thinking to evaluate outcomes of experiments. To fulfill the physical science requirement, this course focuses on the major developments in the field of hydrology including the physical processes that govern groundwater flow and the chemical processes that affect water quality. These developments will be used to illustrate the scientific method. Critical thinking skills will be developed using virtual experiments and analyses of recent water-related issues. Students will evaluate data to formulate and test hypotheses.

The General Education requirements for Student Learning Outcomes are: 1) Content: Students demonstrate competence in the terminology, concepts, theories and methodologies used within the discipline. 2) **Communication:** Students communicate knowledge, ideas and reasoning clearly and effectively in written and oral forms appropriate to the discipline. 3) **Critical Thinking:** Students analyze information carefully and logically from multiple perspectives, using discipline-specific methods, and develop reasoned solutions to problems.

In this course, the *content outcome* will be assessed through the quizzes and assignments in each module. The *written communication outcome* will be assessed through your discussion posts, synthesis writing assignments, and your essay answers on the assignments. Discussion posts are evaluated for completeness and clarity. Syntheses are assessed on content, organization, and mechanics. The *oral communication outcome* will be assessed through audio/ video presentations, which will be graded on content, use of supporting material, and delivery. *Critical thinking* will be assessed through the syntheses, which require you to integrate scientific understanding of hydrology with societal factors that affect water use, and which will require you to apply concepts and methods to new situations.