

## GLY 4822/5827 – Groundwater Geology

**Dr. Liz Sreaton**

**TA: Brian Kelly**

GLY 4822 and GLY 5827 are co-listed and co-taught. The differences between the two courses are described below under grading.

**Virtual office hours:** Monday 6-7 pm (Brian Kelly); Tuesday 3:30-4:30 pm (Brian Kelly); Weds 1-2 pm (Dr. Sreaton) Thurs 2-3 pm (Dr. Sreaton).

During virtual office hours, you can ask questions by email or use Zoom. The Zoom links will be posted on the “Syllabus” page on Canvas. You can also arrange times outside office hours with either the TA or Prof.

### Overall Course Goals and Outcomes

By the end of this course:

- Students will understand the basic concepts of groundwater flow and the relationship between groundwater flow and subsurface geology.
- Students will be able to apply these concepts to solve groundwater problems.

**Textbook:** Groundwater Science by Fitts (recommended) **OR** Ground Water by Freeze and Cherry, available at [this link](#).

### Class Format

The class consists of 10 modules. Each module will contain:

- A background reading assignment and one to two < 15-minute video lectures to introduce the concepts, terms, and skills. The reading assignment will generally be from the text but will sometimes include outside reading.
- A pre-quiz (5 pts). The pre-quiz is untimed. Scores and partial feedback are available immediately after submission. Questions are multiple-choice, multiple-answer, and calculation “fill in the blank” questions.
- An 8-point assignment will include analysis and interpretation. Unless otherwise specified, you are allowed to discuss assignment questions with other students but must produce your own answers. The assignments will be evaluated using Turnitin to determine the originality of your work. Turnitin is an online service to help prevent and identify student plagiarism. **All answers must be your own, all shown work must be yours, and all figures must be created by you.**
- During online discussions, students will consider examples, practice skills, and build understanding through asking questions. For each module, participation in the class discussions will be 3 pts.
- The module quiz is 15 points. The format is similar to the pre-quiz and many of the questions will cover similar content areas. Scores and partial feedback are available after the deadline.

During the semester, there will also be:

- Two **reports** in which you will apply the skills that you've learned. The reports will also provide experience in technical writing. The reports will be evaluated using Turnitin to determine the originality of your work. Turnitin is an online service to help prevent and identify student plagiarism.
- Two 60-minute **exams**. Exams will be a combination of multiple choice and calculations. During the exam, you will be allowed to use a calculator (but not one on your phone) and scratch paper. You can have a one-sided 8 ½ x 11 sheet with any notes you need. Exams will be proctored.

### DEADLINE AND LATE POLICIES

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

- All deadlines are at 11:59 pm Eastern U.S. time. Please be aware that Canvas submits your quiz (or marks assignments late) at, 11:59:00, not 11:59:59.
- Be sure to ask questions, request extensions, or report any problems before 5 pm on the day of deadlines.

### Requesting Extensions

- For conflicts with deadlines (e.g., athletic, religious, academic, or work) please contact me (Prof. Sreaton) in advance and make arrangements for an alternate deadline no later than 5 pm the day of the deadline. An email through Canvas is the best way to contact me.
- Keep in mind that most submissions are available for >1 week prior to deadlines. It is better to stay ahead of deadlines rather than falling behind.
- Typically for long-lasting illnesses or other issues that affect more than one deadline, students contact the [Dean of Students Office](#), who verify and then inform all the student's professors.
- It's not possible to extend a discussion for an individual student (and doesn't make sense for a student to "discuss" on their own). For major conflicts, a discussion can be "excused" (e.g., not count for/against a student's grade).

### Late Submissions (without an extension) and Dropped Scores

- **Assignments** can be submitted up to 2 days late. No extra credit is graded on late assignments and 1 pt is deducted. *You are responsible for viewing all files after submission to make sure that it is the correct file and that it uploaded without error.*
- **Reports** can be submitted up to 2 days late, but no extra credit is graded and 2 pts are deducted. *You are responsible for viewing all files after submission to make sure that it is the correct file and that it uploaded without error.*
- Instead of allowing late **quizzes**, **pre-quizzes** and **discussions**, the lowest 2 grades are dropped.

## Grading

<p><b>GLY 4822: 424 total points</b></p> <ul style="list-style-type: none"> <li>• Introductory Quiz and Discussion 10 pts</li> <li>• Discussions 24 pts (best 8@3 pts)</li> <li>• Pre-Quizzes 40 pts (best 8@5 pts)</li> <li>• Quizzes 120 pts (best 8@15 pts)</li> <li>• Proctored Exam 1: 40 pts</li> <li>• Proctored Exam 2: 40 pts</li> <li>• Assignments 80 pts (10 @8 pts)</li> <li>• Reports 70 pts (2@35 pts)</li> </ul>	<p><b>GLY 5827: 444 total points</b></p> <ul style="list-style-type: none"> <li>• Introductory Quiz and Discussion 10 pts</li> <li>• Discussions 24 pts (best 8@3 pts)</li> <li>• Pre-Quizzes 40 pts (best 8@5 pts)</li> <li>• Quizzes 120 pts (best 8@15 pts)</li> <li>• Proctored Exam 1: 50 pts</li> <li>• Proctored Exam 2: 50 pts</li> <li>• Assignments 80 pts (10@8 pts)</li> <li>• Reports 70 pts (2@35 pts)</li> </ul>
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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 15-20 extra credit points will be available to all GLY 4822 students and 5-10 extra credit points for all GLY 5827 students at various times during the semester. Please take advantage of these opportunities for extra points. **I do not negotiate the final grade or offer special extra credit opportunities to individual students.**

**Differences between GLY 4822 and GLY 5827: 1)** For the assignments and the two reports, additional analyses are required at the graduate level. Interpretation and written communication will be assessed with higher expectations at the graduate level. **2)** The exams are each 10 points shorter for the undergraduate course.

## Course Topics and Tentative Schedule

Deadlines	Topic
January 14	Introduction <ul style="list-style-type: none"> <li>Syllabus quiz on class logistics; Introductory Discussion</li> </ul>
January 19 & 21	Module 1 Basic Principles <ul style="list-style-type: none"> <li>Darcy's Law, basics of groundwater flow</li> </ul>
January 26 & 28	Module 2 Hydraulic Conductivity and Hydraulic Head <ul style="list-style-type: none"> <li>hydraulic conductivity and how it is measured</li> <li>What is hydraulic head?</li> <li>Introduction to mapping hydraulic head</li> </ul>
Feb 2 & 4	Module 3 Potentiometric surface maps and Groundwater/surface water exchange <ul style="list-style-type: none"> <li>potentiometric surface maps and groundwater flow directions</li> <li>exchange of surface water and groundwater</li> <li>stream measurements</li> </ul>
Feb 9 & 11	Module 4 Geologic Information for Groundwater Studies <ul style="list-style-type: none"> <li>collecting and interpreting geologic information</li> <li>Borehole geophysics for groundwater studies</li> </ul>
Feb 16 & 18	Module 5 Geology of Groundwater; Florida's Hydrogeology <ul style="list-style-type: none"> <li>Geology and aquifer characteristics</li> <li>Current state of knowledge about Florida's aquifers</li> </ul>
Feb 23	Report 1 Initial Analyses due
March 4-6	Exam 1 (9 am Mar 4 to 11:59 pm on Mar 6)
March 11	Report 1 DUE
March 16 & 18	Module 6 Storage and Groundwater Flow Equations <ul style="list-style-type: none"> <li>The storage parameter groundwater flow equations</li> </ul>
Mar 23 & 25	Module 7 Recharge and the Hydrologic Cycle <ul style="list-style-type: none"> <li>flow through the unsaturated zone</li> <li>how recharge is quantified regional groundwater flow</li> </ul>
Mar 31 & Apr 1	Module 8: Flow to Wells <ul style="list-style-type: none"> <li>prediction of drawdown due to pumping</li> <li>aquifer tests to determine transmissivity and storativity</li> </ul>
April 6 & 8	Module 9: Mass Transport and Groundwater Contamination <ul style="list-style-type: none"> <li>advection and dispersion; non-aqueous phase liquids, sources and investigation of contamination</li> </ul>
April 13 & 15	Module 10: Freshwater/Saltwater and Groundwater Modeling <ul style="list-style-type: none"> <li>groundwater at the coast</li> <li>numerical modeling of groundwater flow</li> </ul>
April 20	Report 2
April 25-27	Exam 2 (9 am on Apr 25 to 11:59 pm on Apr 27)

## Additional Information

**Technology** You'll need a dependable computer and internet connection to access the class content on Canvas. Students will need to either print out figures or be able to draw onscreen. Fully online students will need a microphone and webcam for Honorlock monitoring during exams. Excel will be needed for one to two assignments.

**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:**
  - You are allowed to discuss practice quiz and assignment questions with other students and to ask the prof for help, but all work submitted must be your own.
  - Having anyone else complete any work for you, completing any work for another student, or receiving/providing answers is not allowed and is subject to being reported as an honor code violation.
  - Reports are to be completed without help from anyone except the professor.
  - Assignments and 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 answer text to another student—even if it is verbal. Because I won't be able to tell who did the work and who copied, both students will face a potential honor code violation. Providing answers also does not help the other student learn.
  - Give credit where due. If you found another student's explanation or discussion post helpful, or use information from the internet, *summarize* rather than copy what they said and cite the source. For reports, citation format will be specified.

**Course announcements and email:** Announcements and Canvas Email ("Conversation Messages") will be used to contact you and to inform you of updates or corrections to course deadlines or content. Make sure that you either have Notification Preferences are set to "ASAP" for Announcements and for Conversation Messages, or that you check these frequently.

## How to Get Help

Groundwater Geology combines geology and quantitative methods. All students are challenged by some parts of the material. 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](mailto: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, please email. I will 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:** Visit the Course Q&A and module discussion to check whether the question has already been answered. If not, contact me by email, post your question to the class, bring your questions to the class or office hours, or arrange a time to meet (in person or online). Emails received between 8 am and 5 pm on days when UF is in session will generally be answered within 2-3 hours. Emails received in the evening or on weekends will be answered the next weekday morning.
- **For questions specific to you:** An email to me is the best way to ask questions that are specific to you, such as about your grade or an upcoming conflict with a deadline.

**Accommodations for Disabilities:** Students with disabilities requesting accommodations should first **Class Demeanor** Students are expected to treat other students, the TA, and the professor with consideration.

**Accommodations for Disabilities:** Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, [www.dso.ufl.edu/drc/](http://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/>