HWRS 565a Communications in Hydrogeology I
Fall 2025

Catalog Description

This course covers foundational skills in professional communication centered on hydrogeology. Students will develop written reports, figures, and oral presentations that target specific audiences with approaches relevant to careers in hydrogeology. Through peer-editing and self-reflection exercises, students will learn how work collaboratively in a professional setting to provide and receive constructive feedback to improve their communication skills.

Course Prerequisites or Co-requisites

No pre-requisites, but the student must be enrolled in the MS Hydrogeology program.

Required co-registration in HWRS 599 Section 001 (Recitation), HWRS 561a - Physical Hydrogeology I, HWRS 562a Chemical Hydrogeology I, HWRS 563a Hydrogeologic Measurement Methods I, and HWRS 564a Hydrogeologic Tools & Methods I.

Required Textbooks/Materials

No materials for purchase will be required. Expected readings and related materials will be provided via D2L.

Course Objectives

Students will…

1. understand the essential elements of effective writing and presentations depending on purpose and audience.
2. provide actionable, constructive feedback on written reports and oral presentations.
3. respond to feedback in a professional manner.
4. design figures and tables, with appropriate captions, that explain their findings.
5. develop effective oral presentations on technical projects to peer, expert, and general audiences.
6. write a short and long-format technical report to present scientific calculations and findings.

Expected Learning Outcomes

Students will be able to…

1. communicate technical information through writing (e.g., memo, project pitch, technical report) and through oral presentations while considering the target audience.
2. design, incorporate, and communicate essential figures and graphics that increase audience understanding of the report or presentation.
3. improve written and oral presentations through critical and constructive assessment, as well as responding to and incorporating feedback.

Course Format and Teaching Methods

Content delivery in this course is comprised of lectures, guided in-class discussions, self-reflection and free-writing exercises, and small-group collaborations. Assignments offer out-of-class time to build on skills and content covered during lecture periods. Any required reading should be completed before attending class to maximize the effectiveness of that material.

Planned Field Trips

The class will begin this course with a field trip during the entire first week of class, and will apply to all courses in the MS Hydrogeology Fall semester (this course, but also HWRS 561a, HWRS 562a, HWRS 563a, and HWRS 565a). The field trip will begin on the first Monday of the first full week. Students should plan to be out of town for the entire week, including camping overnight.

Additionally, there may be field trips in the other courses in the MS Hydrogeology program. The timing of trips is coordinated with students' schedules and the instructors of the other courses in the MS Hydrogeology program. Please plan accordingly. Participation in field trips for the other courses will not impact the schedule of this course.

Schedule of Topics & Activities

The course will be organized around month-long projects that provide learning context for all five co-convened classes. The scheduled activities are outlined below:

Week	Monday date	Weekly topics	Weekly assignment	Assignment due date
1	8/25/2025	- **Road trip: no class**		N/A
2	9/1/2025	- **Expectations for professional communication**: discuss best practices, communication modalities (email, chat services like Slack, reports), and expectations for correspondence with faculty and peers in this program - **Introduction to technical writing**: conduct self-assessment regarding current level of comfort with writing, discuss what entails "technical writing," and explore technical writing across domains	Write a formal email to your professor that briefly describes what you hope to get out of this program and the career you plan to pursue upon graduation.	9/5/2025
3	9/8/2025	- **You have to write a report. Now what?** Discuss writing resources (e.g., the university library) and the concept of scaffolding (a report doesn't manifest out of thin air!) - **Outlining and drafting**: define and describe what constitutes an outline and how to tackle the process, explore ways to draft reports and navigate writers' block - **Audience analysis**: how to consider who you're writing *for*	Submit an outline for the memo you plan to write about your home watershed. Find at least one article relevant to your outline.	9/12/2025
4	9/15/2025	- **Paragraph structure**: "one paragraph, one idea" concept, topic sentences, how to produce a flow of concepts rather than a laundry list - **Sentence structure**: each sentence expresses a complete thought, each sentence must have a subject and predicate, and varying sentence structure can make your writing more engaging	Draft two paragraphs based on your outline. Evaluate the effectiveness of paragraph and sentence structure in the article you submitted in Week 3.	9/19/2025
5	9/22/2025	- **Active vs. passive voice**: define what constitutes "passive voice" and "active voice" and then discuss the benefits and limitations for each in technical writing - **Providing feedback**: effective feedback discusses what is working and what can be improved, supported by actionable examples	*No formal assignment to provide time for students to complete Project 1.*	N/A
6	9/29/2025	- **Storytelling with slides**: discuss effective slide design strategies to communicate with a target audience (and common pitfalls to avoid) - **Tables**: what they are and how they can be used	Submit a slide that conveys the key point(s) from Project 1 memo to your peers. Submit 1 "good" figure and 1 "bad" figure.	10/3/2025

7	10/6/2025	- **Figure design**: discuss characteristics of good and bad figures using submitted examples (and how characteristics may vary by audience) - **Citations**: when to cite, how to cite, why to cite (ethics, plagiarism)	Evaluate the effectiveness of a provided list of figures, including their captions.	10/10/2025
8	10/13/2025	- **Types of figures**: what constitutes a "conceptual" figure and what constitutes a "quantitative" figure (and when to use them) - **Graphic design rules**: navigating symbols and colors, ways to avoid a figure being too "busy," why visual accessibility matters - **Captions**: what goes into a caption and strategies for effective captions	Submit two figures you've created for Project 2, including captions, and discuss considerations made in that design for your target audience.	10/17/2025
9	10/20/2025	- **Tables revisited**: when should you use a table and when should that data be presented as a figure instead? (plus strategies to help you choose) - **Professional collaboration**: working with team members, with supervisors, with colleagues outside your organization	*No formal assignment to provide time for students to complete Project 2.*	N/A
10	10/27/2025	- **Introduction to technical report structure**: problem statement, methods, example calculations, results, conclusions, remaining questions - **Feedback revisited**: discuss preferred feedback approaches and how those approaches support continued improvement	Offer constructive feedback on a fellow student's Project 2 submission. (Begin writing outline.)	10/31/2025
11	11/3/2025	- **Technical reports Part 1**: creating outline from problem statement, data selection, intended methods - **Background of the problem**: when and why to cite past work - **Responding to feedback**: how it's done in the manuscript review process, how to navigate these responses within your organization/team	Submit first draft of problem statement and outline for Project 3.	11/7/2025
12	11/10/2025	- **Technical reports Part 2:** describing the methods (what you did) and results (what you found by applying those methods) - **Reducing "dry" writing**: revisiting the effectiveness of active vs. passive voice, strategies on writing vs. revising - **Introduction to presentations**: how oral communication differs from written communication	Submit revised Project 2 report alongside responses to feedback received on Project 2 in Week 10.	11/14/2025
13	11/17/2025	- **Elements of effective presentations**: targeting key messages throughout the talk, catering to audience, tips on delivering content in 3-5 minutes - **Technical reports, continued**: presenting conclusions (what are the key findings and/or takeaways? what should a reader walk away knowing? why should they believe your conclusions?)	*No formal assignment to provide time for students to complete their presentations.*	N/A
	11/24/2025	NA - Thanksgiving		
14	12/1/2025	- During class time, each student delivers a 3-5 minute presentation on Project 3	Provide feedback on other students' presentations.	12/5/2025
15	12/8/2025	- **Job searches**: curriculum vitae, resumes, cover letters		N/A

Course Assessments and Grading Breakdown

You will be assessed based on weekly assignments. You will also be assessed based on how you apply the understanding gained in this class to the projects. Finally, you will receive completion credit for completing weekly self-assessments.

Assignments are assigned no later than each Monday and due the subsequent Friday by 10 pm, and D2L announcements will accompany posted assignments. Each assignment offers out-of-class time to apply recent concepts and strategies to support development of your communication skills. Time spent per assignment will vary depending on your comfort level with those skills, but it is expected that students will spend no more than 3 hours per week. If you find that you are spending more than 4 hours on a given assignment outside of class time, contact the instructor to discuss your approach and identify strategies for future efforts.

Projects – Communications Component – assigned monthly. These projects are designed to synthesize the content and skills you are learning in all five courses that month to address a hydrogeologic problem/task. This means that the projects in their entirety are not specific to any one course and require you to pull knowledge from all of them to address a hydrogeologic problem.

The associated grade will relate to your demonstration of communications skills for the project, and that grade will be included when calculating your total course grade in Communications in Hydrogeology I for the semester.
Note that this course includes an additional element to project 3, which is an **oral presentation on the technical report you wrote for project 3**.

Class participation it is expected that all students in the program will participate fully in all aspects of the course. This includes showing up in class, being present and engaged in discussion, answering and asking questions during class, and contributing to the culture of learning of the program. If a student is not meeting expectations, they will be notified by the instructor, given guidance on how to increase their participation, and given a chance to improve. Thereafter, if student continues to fall below meeting the expectations for participation, their class participation points will be reduced.

The percentage distribution of your grade will be as follows.

Course Assignments	**(11)**	**: 50%**
Projects – communication component	**(3)**	**: 30%**
Project 3 presentation	**(1)**	**: 10%**
Participation		**: 10%**

University policy regarding grades and grading systems is available at this link.

Final Examination or Project

There is no final examination in this course. However, students will be completing 3 projects this semester that cut across all courses in the MS Hydrogeology program which will require students to utilize and synthesize the skills they learned in all 5 courses to address a hydrogeologic question/problem. Presentation of the third and last Term Project of the semester will take place on December 10, 2025, the last scheduled day of classes. These presentations will be organized as a mini-conference and professional hydrogeologists will be invited to attend in person or online.

Grading Scale

Your final grade will be informed via D2L. Letter grades are determined using the following scale:

A:	>= 90.0%
B:	>= 80 - 89%
C:	>= 70 – 79 %
D:	>= 60 to 69 %
E:	below 59 %

University policy regarding grades and grading systems is available at https://catalog.arizona.edu/policy/courses-credit/grading/grading-system.

Late work Policy

This class and the entire program depend strongly on student participation and you are only able to participate fully if you have done the homework on time. Therefore, no late assignments will be accepted for credit. We do understand that life happens, so we will automatically drop your **two** lowest course assignment grades for this course when calculating your final grade.

Incomplete (I) or Withdrawal (W)

Requests for incomplete (I) or withdrawal (W) must be made in accordance with University policies, which are available at this link associated with the registrar.

University of Arizona Course Policies

All University of Arizona course and syllabi policies, as well as other helpful information and resources, can be found at this link.

If you are in need of basic needs care, here is another helpful link, in addition to what you can find at the policy link above.

Subject to Change Statement

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.