HNRS 110: Getting Chummy with Math and Science **Fall 2024**

		
Name: Dr. Maggie **Pronouns:** She/Her/Hers **Email:** rahmoeller@roanoke.edu	**Office:** Trexler 270B **Student Hours (Drop In!):** Tues 10AM - NOON Wed 2:30-4:00PM	**Location:** Miller 113 **Days:** MWF **Time:** 1:10-2:10PM

Student Hours Comments:

- The given times above will be consistently available unless emergencies arise.
- These are opportunities for you to ask me questions about material and/or class, including celebrations and concerns.
- Please come prepared to ask your questions – examples of more useful questions include, "I really don't understand how to use the calculator to calculate the effective discount rate. Can you explain it again?" or "What is an annuity? Can you give another example?" Examples of questions that are less useful include, "I'm completely lost. I don't know where to begin. Can you help?" or "I haven't looked at the homework…can you help me?"
- It's always ok to pop by and say, "HI!" – I love getting to know you and chatting with you! But, these have to be short, fun visits ☺ Sadly, none of us have time to sit back and chill anymore. But – please pop by any time for a short 5-10 minute hello. And – never be afraid to come by if you need help ☺

Course Description: Lack of understanding of worldly phenomenon both drives scientific and mathematical study and potentially rejects it. The world was assumed to be flat until curiosity about shadows cast by the sun led to the discovery that the Earth was round. Astronomers learned that the planets revolve around the Sun in an elliptical orbit, which, along with falling objects (apples?), led to the discovery of gravity. Discovering penicillin came from experiments conducted by a bacteriologist. And yet, some people still believe the Earth is flat, and many more

people believe that all vaccines aren't safe. The disconnect between scientific and mathematical results and the general public is disconcerting. How do we make these findings more approachable? And how do we bridge a gap of mistrust between STEM and the general public?

Student Learning Outcomes: At the end of the course, successful students will be able to:

- describe ways in which scientific fields may differ from non-scientific fields, and discuss ways in which both types of fields may enhance our lives;
- describe the butterfly effect, both mathematically and non-mathematically, and its implications for knowledge and prediction;
- analyze current science reporting to identify potential biases and oversimplifications and discuss how we can develop informed opinions;
- create effective and appropriate scientific messages in a variety of formats;
- demonstrate an awareness of the emotional aspects of scientific communication through thoughtful creation of scientific messages.

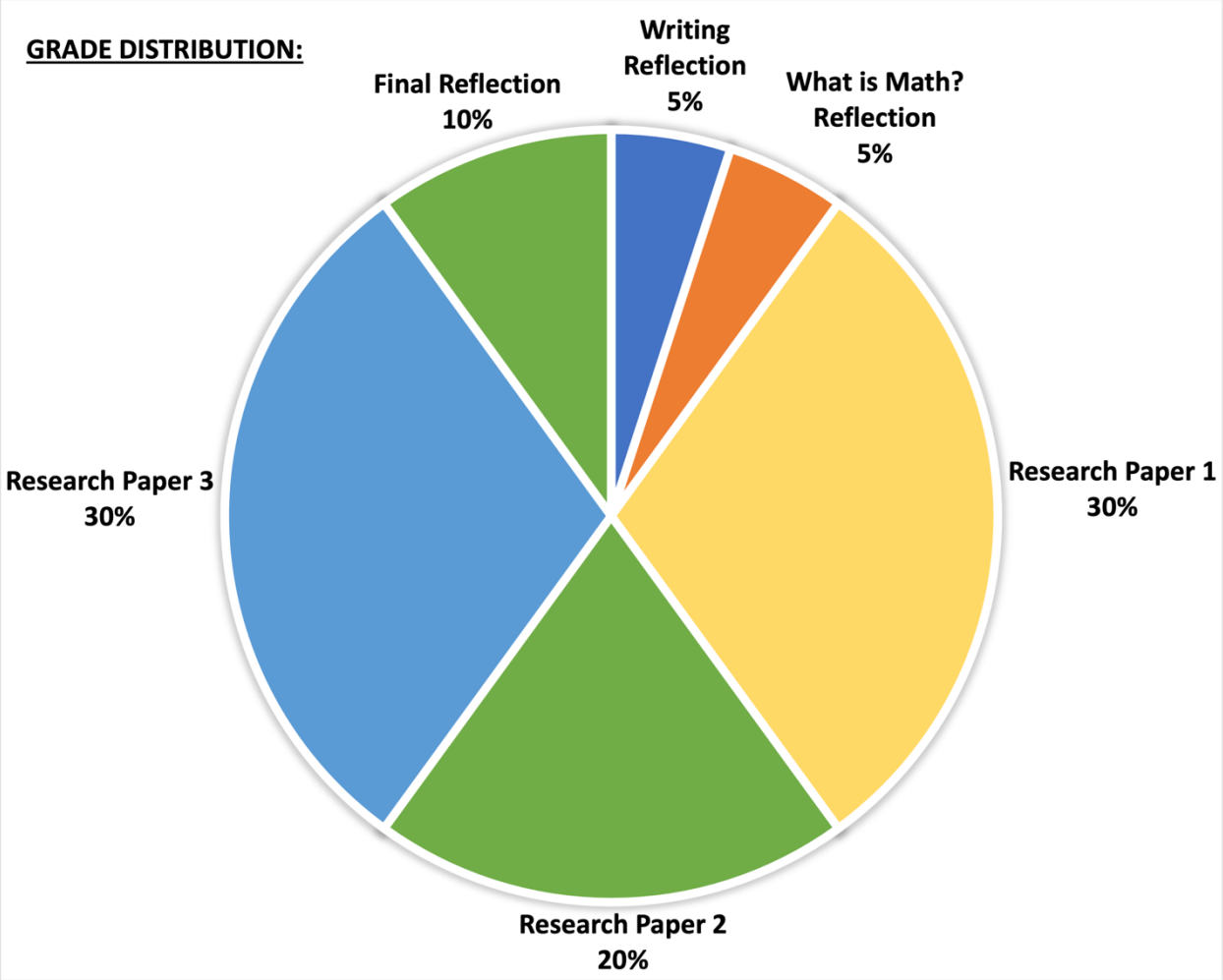
In addition to the topic-specific outcomes, all sections of HNRS 110 have the following learning outcomes: Students will be able to

- read, discuss, and write about college-level academic texts and ideas;
- use a process of drafting to write papers that have clear theses, cogent argumentation, proper use of evidence, effective organization, and a minimum of sentence-level errors;
- use library and other resources to find, evaluate, and synthesize information from multiple sources and use this information in support of a research question;
- connect course content to their lives and to communities beyond the classroom.

Your success in this class is important to me! We all learn differently and bring a variety of strengths and needs to the class. If there are aspects of the course that prevent you from learning or that make you feel excluded, please let me know as soon as possible. Together we'll develop strategies to meet both your needs and the requirements of the course.

Required Materials:

- *Bully for Brontosaurus: Reflections in Natural History*, by Stephen Jay Gould
- *Getting to the Heart of Science Communication*, by Faith Kearns
- FREE help with writing book: https://open.umn.edu/opentextbooks/textbooks/1125 Writing Guide with Handbook



Commitment Hours: This course expects you to spend at least 12 hours of work a week inside and outside of class.

A:	94-100	B:	83-87	C:	73-77	D:	63-67
A-:	90-94	B-:	80-83	C-:	70-73	D-:	60-63
B+:	87-90	C+:	77-80	D+:	67-70	F:	Below 60

COURSE EXPECTATIONS

Classroom Environment: You are expected to treat all students in the class and me with courtesy and respect. Your comments to others should be factual, constructive, and free from harassing statements. You are encouraged to disagree with other students, but such disagreements need to be based upon facts and documentation (rather than prejudices and personalities). My goal is to promote an atmosphere of mutual respect in the classroom. Please let me know if you have suggestions for improving the classroom environment. (Source: Iowa State University)

Diversity and Inclusivity

I consider this classroom to be a place where you will be treated with respect, and I welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, ability – and other visible and nonvisible differences. All members of this class are expected to contribute to a respectful, welcoming and inclusive environment for every other member of the class.

Attendance Policy: Our course's success depends on you attending class! If you miss class, you will miss community building, engaging conversations, and information that I deem worthy of your time! Plus, we will miss you!

However, life happens! You may get sick, have a game scheduled, or have something else come up. It will not be the end of the world if you miss a class *very occasionally*. At some point, though, missing class can be detrimental to success. So, do your best to be in class! Strive for perfect attendance!

What should you do if you have to miss class? Let me know ASAP! Communication is key! I don't need details (please, spare me the details!) but do let me know ahead of time, so we can make plans, if needed. If you cannot let me know ahead of time (emergencies do happen!), just let me know as soon as you can. Email is typically the best form of communication for me.

If you are sick (and contagious), please either stay home OR come to class wearing a mask. Please use Health Services to determine whether or not it is safe to attend class with a mask. Sometimes it is better to stay home and get caught up later than to try to attend class – so be smart about it! And, if you are unsure, email me! I'll do my best to get back to you ASAP.

Late Work: Whether or not to accept late work is always a tough decision. Life happens – and occasionally we need more time to complete tasks! But, sometimes turning in an assignment late causes more complications than benefits.

Most of the assignments in this course build on previous assignments and build up to a final product – should you turn in one component late, the rest may be harder to complete on time. In addition, we often spend time in class discussing or reviewing components of the larger assignments – which means, if you don't have the work done on time, you cannot participate in the discussion or review. For example, on Sept 16, you will be working with a partner to review the first component (a template for your paper) of Research Paper 1. If you don't have that component finished, then you cannot participate in the peer review, which means you get a 0 for 5% of your grade (i.e. you cannot earn higher than a 95% in the class).

If I am able, I will work with you. But if you miss a peer review, we almost definitely will not be able to make that up. No matter what, reach out and let me know if you will miss a class or need more time. If I can help, I will.

****In summary, the best thing you can do is *communicate* with me.** Let me know if you have concerns about turning in an assignment on time – I will do my best to work with you.**

Academic Integrity: Students are expected to adhere to the Academic Integrity policies of Roanoke College (https://www.roanoke.edu/inside/a-z_index/academic_integrity). All work submitted for a grade is to be your own work!

A few comments:

- One of the learning outcomes for this class is to learn about the drafting / writing process and to improve your writing. So, please do not have someone else write your papers for you – this includes artificial intelligence and other online non-person entities (like "write my paper" types of websites and services). Using these sources in this way will result in an academic integrity violation, for which the typical penalty is an F in the course.

- We may experiment with artificial intelligence in the classroom at times, but unless I specifically give the ok on an assignment prompt, you are not to use artificial intelligence on your assignments in this class.

- Why on any of this? Our student learning outcomes include the goal of having you learn how to successfully communicate your statistical findings (both oral and written) and to learn how to use statistics and analyze data. By using artificial intelligence or other resources in ways I deem inappropriate, you wouldn't be giving yourself the chance to learn these skills. If you don't achieve these skills, you shouldn't get credit for this course. We want degrees at Roanoke College to mean you've mastered certain skills, rather than you've mastered cheating…we don't want Roanoke College to have a reputation as a "cheating school" – imagine how hard it would be to get a job, should that happen.

Besides, I like to be helpful. Ask me for help ☺ I'm only an email away!

COURSE ASSIGNMENTS

Readings: I will assign readings in this course, along with discussion questions for the readings. You are to complete the reading and jot down some thoughts on the discussion questions before the next class.

Engagement: Many classes will consist of small group discussions, classroom discussions, small activities, and partner work. You are expected to participate in each of these types of activities by joining in on conversations verbally, listening to your peers, offering your own opinions, and completing any written tasks assigned. You don't always have to contribute to a full class discussion, but I do expect you to verbally contribute at least every other class in a full class discussion.

Reflection Assignments: This course has 3 reflection papers: writing, what is math, and a final reflection. You will receive a more descriptive prompt for each of these 3 papers.

Research Papers: This course has 3 research papers: Chaos Theory, Science in the News Critique, and Science Communication. You will receive a more descriptive prompt for each of these 3 papers, and each of these prompts will include a schedule for the varying components along with a breakdown of the grade for each component.

Final Exam Time Slot: Your final exam time slot is scheduled for Wednesday, Dec 11 from 2-5PM. We will NOT have a final exam, nor will we meet during this time. Instead, you will simply upload your final reflection by 5PM on Wed, Dec 11.

MCSP Tea Time

Thursdays, 2:20 – 3:20PM Trexler 271

A chance to chill with peeps while munching on cookies and sipping tea! Often cards make an appearance – or other games! Take an opportunity to relax, have fun, and hang with other students and professors!

RESOURCES

Accessible Education Services (AES) is located in the Goode-Pasfield Center for Learning and Teaching in **Fintel Library**. AES provides reasonable accommodations to students with documented disabilities. To register for services, students must self-identify to AES, complete the registration process, and provide current documentation of a disability along with recommendations from the qualified specialist. Please contact Dustin Persinger, Assistant Director of Academic Services for Accessible Education, at 540-375-2247 or by e-mail at aes@roanoke.edu to schedule an appointment. If you have registered with AES in the past and would like to receive academic accommodations for this semester, please contact Dustin Persinger at your earliest convenience to schedule an appointment and/or obtain your accommodation letter for the current semester.

IF YOU HAVE ACCOMODATIONS THAT YOU WOULD LIKE TO USE THIS SEMESTER, YOU MUST SCHEDULE A MEETING WITH ME *BEFORE* YOU REQUEST THEM FOR OUR CLASS.

The Writing Center @ Roanoke College, located on the Lower Level of Fintel Library (Room 15), offers free tutorials focused on writing projects and oral presentations for students working

in any field. Writers and presenters at all levels of competence may visit the Writing Center at any point in their process—including brainstorming, drafting, organizing, editing, or polishing presentation skills—to talk with trained peer tutors in informal, one-on-one sessions. The Writing Center is open Sunday through Thursday from 4 to 9PM. Simply stop in or schedule an appointment at www.roanoke.edu/writingcenter. Questions? Email writingcenter@roanoke.edu or call 540-375-4949.

Student Health & Counseling Services supports students through in-person health appointments, in-person counseling, 24/7 telehealth (TimelyCare), Therapy Assistance Online, as well as resources related to general wellness, LGBTQ+, sexual assault, substance abuse, and suicide prevention. Unmet health needs can negatively impact your performance in this course. Student Health & Counseling Services can help. Please see https://www.roanoke.edu/shcs for more information and to access services.

TENTATIVE COURSE SCHEDULE

Week	Date	In-Class	Readings due	Assignments
Week 1	Aug 28	Intro / SLOs / Math and Sci		Writing Refl Assigned
	Aug 30	Reading Discussion	"The Math Instinct"	Writing Refl Due "What is Math?" Refl Assigned
Week 2	Sep 2	Peer Review	"What is Math?" Socratic Dialogue	What is Math? Draft (printed)
	Sep 4	Reading Discussion	Butterfly Effect blog	"What is Math?" Refl Due
	Sep 6	Reading Discussion	BB – "The Panda's Thumb"	
Week 3	Sep 9	Reading Discussion Research Paper 1 Intro	BB – "George Canning"	Research Paper 1 Assigned
	Sep 11	Brainstorming!!		
	Sep 13	**NO CLASS!**		
Week 4	Sep 16	Peer Review Annotated Bib Intro	Writing Guide	Handout Due
	Sep 18	Outlines	Writing Guide	
	Sep 20	Outlines + Sources	Writing Guide	Annotated Bib Due
Week 5	Sep 23	Integrating Sources	Writing Guide	Outline Due
	Sep 25	Quotes / Paraphrasing / Summarizing	Writing Guide	
	Sep 27	Reading Discussion	BB – Streak of Streaks	Draft Due
Week 6	Sep 30	Reading Discussion Active/Passive Voice	BB – Median isn't the Message	
	Oct 2	More Editing Advice	Writing Guide	
	Oct 4	Peer Review		Edited Draft (printed)
Week 7	Oct 7	Reading Discussion	UNESCO	Research Paper 1 Due
	Oct 9	Reading Discussion		Find a popular (math/sci) news article to share - Due
	Oct 11	Thesis Statements	Writing Guide	Research Paper 2 Assigned

FALL BREAK!!!				
	*Oct 20			Thesis Due!! (Sun!)
Week 8	Oct 21	Review Thesis Statements!		
	Oct 23	Body Paragraphs	Writing Guide	Edited Thesis Due 4 popular (math/sci) articles - Due
	Oct 25	Intros/Conclusions	Writing Guide	
Week 9	Oct 28	Peer Review / Self Review		Draft Due (printed)
	Oct 30	Reading Discussion	Heart – Intro & Ch 1	
	Nov 1	**NO CLASS!!**		Res Paper 2 Due
Week 10	Nov 4	Reading Discussion	Heart – Ch 3	Research Paper 3 Assigned
	Nov 6	Brainstorm Topics		
	Nov 8	Explore / Find Topics		Topic Due
Week 11	Nov 11	Focus / Narrow Topic – small groups formed		
	Nov 13	Share Blurbs in groups		Blurb Due
	Nov 15	Reading Discussion Small Group Disc	Heart – Ch 4	
Week 12	Nov 18	Reading Discussion Small Group Disc	Heart – Ch 6	
	Nov 20	Reading Discussion Small Group Disc	Heart – Ch 7	
	Nov 22	Reading Discussion Work Day	Heart – Ch 8	
Week 13	Nov 25	Peer Review		Draft Due (printed & Inquire)
THANKSGIVING BREAK!!!!!				
Week 14	Dec 2	Last Minute Writing Help		
	Dec 4	Last Minute Writing Help		Final Reflection Assigned
	Dec 6	Celebration!		
Final Exam Slot Wednesday, Dec 11 2 – 5PM			**Research Paper 3 Due by 5PM!** **Final Reflection Paper Due by 5PM!**	