Seminar in Mathematics Mat 150 250 350

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1. **Grade Determination:**

A 90 – 100 B 80 – 89 C 70 – 79 D 60 – 69 F Below 60

**Assignments**: 15%

**Projects**: 75%

**Class Participation** (attendance, work ethic, peer evaluations etc.) 10%

1. **ATTENDENCE**: Math is a subject that builds on information learned on previous days. If you are absent YOU are responsible to get the assignment off the syllabus and complete it on time.

2 TARDIES to class = 1 absence

3 or more absences = 5 points off a project for each absence over 3

**As a reward if you miss 2 or less classes you will get 5 extra points on your lowest test.**

There are no make-up days for presentations or assignment due dates. If you know that you will be absent for a school related function then you may present early. If you present late or turn in assignments late you will lose 25% credit each day they are late.

CONCEPTUAL FRAMEWORK:

# **The Mathematics and Science Department at Reinhardt University believes that all students should have an exposure to the ideas of science and the scientific method. This includes exposure to laboratory procedures, familiarity with some of the vocabulary of science and ability to read scientific articles in the newspaper or in popular magazines.**

The Mathematics and Science Department at Reinhardt University believes that all students should be familiar with the systematic development of science through history. This includes an understanding of the effects that science has had on history and that history has had on scientists.

The Mathematics and Science Department at Reinhardt University wishes to convey to students that science is a continuing endeavor that will not ever be finished. This includes an introduction to the interaction of theory and observation.

# **IV. COURSE RELATIONSHIP TO CONCEPTUAL FRAMEWORK:**

The course will be taught using applied problems, a graphing calculator and laboratory exercises.

1. **LEARNING OUTCOMES:**

Students will demonstrate:

1. Integrative, critical thinking and inquiry-based learning using evidence, logic, reasoning, and calculation.
2. Knowledge of various research methodologies; information, technological, and scientific literacy.
3. Proficency of the calculus skills needed for future classes.

1. **MATHEMATICS PROGRAM OBJECTIVES:** The Mathematics Program at Reinhardt University offers courses geared to

MPO1 Analyze and solve problems by using reasoning, logic and evidence, and by bringing knowledge from a wide range of mathematical areas.

**MPO2** Use effective written and oral expression of mathematical concepts in the creation of a mathematical argument by recognizing a wide range of mathematical terms and vocabulary.

**MPO3** Apply axiomatic systems.

**MPO4** Apply mathematical research methodologies by using libraries, informational technologies, computer programming and numerical methods in order to create solutions to problems.

**MPO5** Apply ethical, legal, and policy issues to Information Technology

**MPO6** Create IT solutions to solve organizational problems.

1. **MATHEMATICS PROGRAM STUDENT LEARNING OUTCOMES:** Taking this course, students will be able to

**SLO1** Solve a word problem by applying the appropriate mathematical setup, obtaining the mathematical solution, and interpreting this solution in the context.

**SLO2** Solve a theoretical problem by identifying the appropriate mathematical context, interpreting the question and the nature of the solution, and checking that the solution is correct.

**SLO3** Complete a proof or produce a mathematical object that satisfies specific properties.

**SLO4** Solve a problem by consulting various resources, applying appropriate technological tools, and using adequate approximations.

**SLO5** Analyze how information technology affects ethical and legal issues.

**SLO6** Synthesize appropriate solutions to organizations' problems.

1. **ALIGNMENT TO REINHARDT UNIVERSITY SLO’s:**

|  |  |  |
| --- | --- | --- |
| **Math PO** | **Math SLO** | **RU SLO** |
| **1** | 1 | 1, 2, 4 |
| **2** | 2 | 1-4 |
| **3** | 3 | 1-4 |
| **4** | 4 | 1-4 |
| **5** | 5 | 1-4, 7 |
| **6** | 6 | 1-4 |

1. **Academic Integrity**

All instances of cheating will result in a zero for the assignment and a report to the Dean of Academic Affairs. All students are expected to adhere to the highest standards of academic integrity, and to abide by the Reinhardt Honor Code. Also, all students are expected to be familiar with the Reinhardt policy on academic dishonesty stated in the University Catalog and in the Student Handbook. Plagiarism (using the ideas and phrases of others without crediting them, therefore claiming those ideas and phrases as your own) will not be tolerated in this course or on this campus. To avoid such academic dishonesty, you must use a citation (footnote or in text) for all ideas drawn from your reading and research, including research in encyclopedias and online, even when you have restated those ideas in your own words.

1. **For Free Tutoring and Help with Homework:**

The Center for Student Success located on bottom floor of Lawson, room 035, is a free tutoring service available to all students. For appointments--go to Reinhardt webpage; click on Academics. When the next page appears, click Center for Student Success. On that screen, click Student Appointment Form. Fill out required fields and then submit. If you would prefer to call, the number is 770-720-9232.

1. **“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 disabilities. If you have a documented disability requiring an accommodation, please contact the Academic Support Office (ASO).

Reinhardt University is committed to providing reasonable accommodations for all persons with disabilities. Therefore, if you are seeking classroom accommodations under the Americans with Disabilities Act, you are required to register with the Academic Support Office (ASO). ASO is located in the basement of Lawson Building. Phone is 7707205567. To receive academic accommodations for this class, please obtain the proper ASO letters/forms.”

***Math 450 Senior Seminar Initial Foundation Requirements***

***These will be added to throughout the semester as more opportunities become available!***

This is a SEMINAR class so the majority of class time will spent led by you. This is a student driven class so my input will be advisory only. I am just another resource for you to complete these requirements. That said, the below assignments and projects are my suggestions only – if you have another path you would like to explore please speak with me. Every person in this class will have different hopes and goals for a future in mathematics. The purpose of this class is to prepare YOU for YOUR future in mathematics. You are not taking this class to do things to get an A you are taking this class to help steer your future in the direction that YOU desire.

**Assignment 1 (Due Sunday Midnight of Week 1)**: Math Education: Join GCTM <http://new.gctm-resources.org/gctm/dv7/node/56>

Math/QS Join a society in the area you are interested in. There are hundreds out there – contact them for free student memberships. Send me the confirmation email of your joining the society.

**Assignment 2 (Due Sunday Midnight of Week 2)**: Make a LinkedIn account with at least 30 Connections (be sure to connect with me so I can grade your site) <https://www.linkedin.com/uas/login>

**Assignment 3 (Due Sunday Midnight of Week 4)**: Make a professional Resume and send to career-services@reinhardt.edu for advice. CC me on these submissions and results

**Assignment 4 (Due any time before Spring Break):** Familiarize yourself with OneNote and join our class Notebook. Teach us anything that has not been taught yet about One Note or another new app on Microsoft (Flow, Yammer etc). You MUST show how you could use it in your profession or in an educational setting.

**Choose 4 of the following Projects.** You will be responsible to turn in 1 Project every 3 weeks of class. This class can be very difficult if you procrastinate so work at a steady pace. Presentations may be the week after but they are due in their entirety by Sunday at midnight. Bring your ideas, questions suggestions to class.

Choose any of the following projects or even better - suggest something that YOU would like to do for YOUR area of interest! Get a new idea approved by me before you start (I approve 99% of ideas)

**Project 1:** Write an article and submit <https://www.gctm.org/reflections/call>

**Spring Only Class: Project 2** (***Required for Math/QS majors***): The [Robert L. Driscoll Convocation of Artists and Scholars](https://www.reinhardt.edu/academics/COAS.html), an annual week-long series of student performances and presentations, highlights student excellence and engagement will be posted soon. <https://www.reinhardt.edu/academics/COAS.html>

**Project 3-5** (Math Ed required to do 3 separate areas for project): Choose a Chapter (or several sections – depending on the topic) from the Hawkes Online (or E-book or paper book) Pre-Calculus Book. Please submit idea to me before you start. These **45-75**-minute presentations must include

1. PowerPoint or printable notes for presenting to students (Hawkes generic PowerPoints are available – easy to modify to what you want)
2. Hands-on activity (no credit for a worksheet of problems) One of your 3 projects must include an outdoor activity. Extra credit for extra hands on activities on a topic. Pinterest!
3. You must include a 3-5-minute phone video of you explaining your topic to a person that does not know the subject – your mom or a kid at RU that’s terrible at math or your 8th grade cousin etc. You can show a couple minutes of you explaining but the real grade is what they say at the end. Interview them about what they understood and what was confusing. Obviously, it will be out of context so they may be a lot more confused than your students would be!
4. Sample homework assignment or test questions and answers from this material.
5. Extra Credit if you pick a topic that you struggle with. I am happy to help you understand the material before you teach it. This will happen to you in your classes so you have to get used to “studying ahead” of what you are teaching for the first time!

**Project 6**: Go to this page in American Mathematical Society and find an opportunity you would like to participate in – they have article submissions, research grants, conferences etc. Before you choose one be sure to discuss with me. <https://www.ams.org/programs/students/students>

**Project 7**: (Required for Math/QS). Send a resume, cover letter modified to fit the specific internship, and introductory email to at least 3 internships or research opportunities that you are interested in. Be careful of deadlines etc. These need to be mathematical opportunities but that is very broad – if you can justify why this internship would fit with your future plans then I am sure I will approve it. One great example (there are many) is The National Science Foundation

Great math & science internships-There are amazing opportunities waiting for you each summer! Typically you will get free room and board and work with professors from universities all over the US. Most have a $5000+ stipend paid to you at the end of the summer. See me ASAP if you are interested, Early applicants with good GPA & resume are at an advantage when applying.

SOME DEADLINES Closing in for the best ones! You just have to apply to get credit for this assignment. Apply to many. You do not have to take it if you are chosen (but why not?)

You are at an advantage applying since RU not a research institution...if you were at GT they would assume you have opportunities there.

Go to top left of this site and click RESEARCH AREAS tab if you are not a math major – they have them for every type of science major.

[https://www.nsf.gov/crssprgm/reu/reu\_search.jsp (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/reu_search.jsp)

NSF funds a large number of research opportunities for undergraduate students through its REU Sites program. An REU Site consists of a group of ten or so undergraduates who work in the research programs of the host institution. Each student is associated with a specific research project, where he/she works closely with the faculty and other researchers. Students are granted stipends and, in many cases, assistance with housing and travel. Undergraduate students supported with NSF funds must be citizens or permanent residents of the United States or its possessions. An REU Site may be at either a US or foreign location.

By using the web page, [Search for an REU Site (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/reu_search.jsp), you may examine opportunities in the subject areas supported by various NSF units. Also, you may search by keywords to identify sites in particular research areas or with certain features, such as a particular location.

Students must contact the individual sites for information and application materials. NSF does not have application materials and does not select student participants. A contact person and contact information is listed for each site.

## **Search for an REU For a topic that relates to your major or interest area**

* [Astronomical Sciences (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=5045)
* [Atmospheric and Geospace Sciences (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=10020)
* [Biological Sciences (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=5047)
* [Chemistry (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=5048)
* [Computer and Information Science and Engineering (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=5049)
* [Cyberinfrastructure (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=10526)
* [Department of Defense (DoD) (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=10023)
* [Earth Sciences (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=5050)
* [Education and Human Resources (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=10021)
* [Engineering (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=10006)
* [Ethics and Values Studies (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=10024)
* [International Science and Engineering (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=10003)
* [Materials Research (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=5052)
* [Mathematical Sciences (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=5044)
* [Ocean Sciences (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=5053)
* [Physics (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=69)
* [Polar Programs (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=72)
* [Small Business Innovation Research (SBIR) (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=10539)
* [Social, Behavioral, and Economic Sciences (Links to an external site.)](https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=5054)