MATH 490: SENIOR SEMINAR IN MATHEMATICS

Course Number: MAT 490

Course Title: Senior Seminar in Mathematics

Credits: 1:1

Prerequisites: Senior standing and mathematics major, or permission of instructor.

Instructor Information:

Instructor: Dr. Dan Yasaki `d_yasaki@uncg.edu`
Homepage: `www.uncg.edu/mat/undergraduate/courses/mat490.html`
Office Hours (146 Petty): MWF 1:00–2:00 and by appointment

For Whom Planned: Mathematics majors with senior standing.

Bulletin Description: Oral presentations on topics in mathematics, including current mathematics literature.

Student Learning Outcomes: Upon successful completion of this course, students shall be able to:

SLO1 Summarize a concept or problem in advanced mathematics.
SLO2 Explain the reasoning involved in a concept or the solution of a problem in advanced mathematics.
SLO3 Speak in genres appropriate to the disciplines(s) of the primary subject matter of the course.

Course Objectives:

(1) Read and understand mathematics independently.
(2) Articulate mathematical concepts precisely.
(3) Explain mathematical reasoning as opposed to simply providing answers.
(4) Respond clearly to challenges and questions.

Teaching Methods and Assignments for Achieving Learning Outcomes: This course is for senior math majors and carries the Speaking Intensive (SI) marker. We follow a seminar format, consisting mainly of oral presentations by the students. The primary goal of presenting is not to demonstrate that you understand the material but rather to help the other students to understand the material.

Class Discussion: We talk informally about how to give a good presentation, including strategies for effectively presenting mathematics. Examples of good math talks are shown.

Oral Presentations: You prepare and deliver three oral presentations on an approved topic or problem in advanced mathematics. Each presentations is a technical mathematical talk, rather than historical or survey talk.
The first presentation is relatively short; 10–20 minutes long, depending on class size. It is on a topic chosen from a list of articles posted on MAT 490 website. After receiving critique on the first talk, you revise the talk and present again on the same topic. The final presentation is 20–45 minutes long, depending on class size. This is the major project for the course. It is on a different topic, chosen by you in consultation with me. You submit a brief written description of your major presentation for approval within 1 week of your second presentation.

Main Point Questions: At least two days prior to each talk, you submit 1–3 questions that anyone who attended the talk should be able to answer. The questions should get at the main point that you hope the audience will take away from your talk. They should be straightforward and not involve too much notation. The questions are evaluated for clarity, precision, and appropriateness. These questions are addressed in the peer review.

Peer Review: You prepare a written summary and critique of each of the other presentations, following the *Peer Review for Mathematical Presentations* form.

Evaluation and Grading:

Oral Presentations: (90%) SLO1, SLO2, SLO3. All oral presentations are evaluated using the *Rubric for Mathematical Presentations*. The first presentation is for practice and critique, but does not contribute to your grade. The second presentation counts 40% and should include the revisions based on the first evaluation and critique. The final presentation counts 50%.

Peer Review: (10%) SLO1, SLO2. Your summary and critique is evaluated for completeness.

Required Texts/Readings/References: The approved list of articles, resources about speaking in public, and resources specific to communicating mathematics effectively is maintained on the course website.

`www.uncg.edu/mat/undergraduate/courses/mat490.html`

Topical outline/Calendar:

Week 1	Randomly assign presentation dates. You choose articles for short and final presentations in order of presentation dates. Preliminary class discussions on what makes a good talk, such as audience awareness, organization, and clarity. Examples of talks are evaluated using the rubric.
Weeks 2–4	Short presentations I (2–4 per day, depending on class size). Meet individually to review feedback.
Week 5	Use the short presentations and feedback to stimulate further class discussions on presenting mathematics effectively.
Weeks 6–8	Short presentations II (2–4 per day, depending on class size).
Weeks 9–13	Final presentations (1–3 per day, depending on class size).
Week 14	Final discussions and review, comparing effectiveness of the final presentations to the first and second.

Academic Integrity Policy: Students are responsible for familiarizing themselves with UNCG's policy on issues such as cheating, plagiarism, misuse of academic resources, falsification and facilitation of dishonest conduct. Procedures and penalties related to these and other violations of the Academic Integrity Policy are found in the Student Policy Handbook.

`sa.uncg.edu/handbook/`

These policies are enforced in this class.

Attendance Policy: Attendance is mandatory. Each unexcused absence results in a lowering of your *final grade* by one third of a letter grade. e.g., A to A-, A- to B+, B+ to B, etc.

Additional Requirements: UNCG seeks to comply fully with the Americans with Disabilities Act (ADA). Students requesting accommodations based on a disability must be registered with the Office of Accessibility Resources and Services (OARS) in 215 Elliott University Center, 334-5440, (`oars.uncg.edu`).