

COURSE: MATH 471-001 – Undergraduate Research (3 credit hours) –

Spring 2013

INSTRUCTOR: Dr. Abernathy

OFFICE: Bancroft 148

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MATH DEPARTMENT PHONE 803-323-2175

OFFICE HOURS: MW 11:00-12:00 R 1:30-2:30 F 2:00-3:00 or by appointment.

TIME/LOCATION: To be arranged with the instructor.

TEXT: No textbook required. Students are encouraged to take advantage of library resources.

COURSE DESCRIPTION: Students will develop and engage in an active research program in mathematics or mathematics education. Upon completion of the semester's work students will present their findings in an appropriate venue.

Course Goals: By engaging in current research techniques students will meet the following three departmental objectives.

- 1) Students are able to communicate mathematical ideas, demonstrate mathematical reasoning skills, and create and evaluate mathematical conjectures at various levels of formality.
- 2) Students apply fundamental mathematical concepts and techniques to solve problems and evaluate results.
- 3) Students demonstrate the ability to apply appropriate technologies to the study of mathematics and effectively use such technologies to investigate and develop an understanding of mathematical ideas.

ASSESSMENT NOTE: Mathematics research is time intensive and meaningful results often occur only after frequent failures. Undergraduate research in mathematics will be assessed in terms of the quality of the research plan, and the quality and quantity of the effort students have taken to implement this plan. While students must strive for professional and appropriate outcomes, they will not be penalized if semester these outcomes are not obtained.

WEEKLY GOAL SHEET: Each week the student and faculty will construct a list of goals for the student to accomplish before the next week's meeting. The student will document their efforts to accomplish these goals during the

course of the week. The goal sheet will be evaluated together at the beginning of the first meeting during the following week.

The evaluation will follow the following rubric:

Topic	Exceeds Expectations 100%	Meets Expectations 90%	Effort extended but does not meet expectations 75%	Minimal or no Effort 45% for minimal or 0% for none.
Time Spent (20%)	6 Hours	4.5 hours	2.5 hours	1 hour min
Time Use (20%)	Focused and creative use of time	On task, could have been more productive	Drifted from task	Not on task
Goal Progress (60%)	Goals exceeded	Met all goals	Met most goals	Goals not completed

At the instructor's discretion, serious efforts to complete a task, along with documenting reasonable barriers to completing the task, may be considered meeting or even exceeding the weekly goals.

WRITTEN AND ORAL PRESENTATIONS: Biweekly, students will present their works-in-progress to the research group in an informal format. For weeks that students are not presenting, they will have a written assignment pertinent to the research project.

PROJECT REPORT: At the end of the semester students will submit a final report in which they document both their research efforts and accomplishments. This report can be replaced by paper submitted for publication, or public presentation of the student's work.

ATTENDANCE POLICY: The University attendance policy is stated in the current catalog (<http://www.winthrop.edu/recandreg/default.aspx?id=7380>): if a student's absences in a course total 25 percent or more of the class meetings for the course, the student will receive a grade of N if the student withdraws from the course before the withdrawal deadline; after that date, unless warranted by documented extenuating circumstances as described in the previous section, a grade of F or U shall be assigned.

GRADING:

WEEKLY GOAL SHEETS	30 %
WRITTEN & ORAL PRESENTATIONS	30 %
PROJECT REPORT	40%

Grades will be assigned as follows:

Average	>92	>90	>88	>82	>80	>78	>72	>70	>68	>60	<60
Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	F

Calendar of Events: Due to the unique timeline required by various research projects, an exact schedule will be determined by the student and instructor. *Halfway through the semester the student and instructor will meet to discuss the student's performance in the course.*

LAST DAY TO WITHDRAW FROM THE CLASS: March 20th 2013. Students withdrawing prior to this date will receive an "N" in the course. Students may not withdraw from a course after this date without documented extenuating circumstances.

FINAL EXAMINATION DATE AND TIME: The Project Report will replace the Final Exam.

ACADEMIC INTEGRITY: Each student is responsible for conforming to University policies on academic misconduct. Academic misconduct can result in failing grades for individual assignments and for a failing grade in this course. The complete Student Code of Conduct is available at <http://www2.winthrop.edu/studentaffairs/handbook/StudentHandbook.pdf>.

FOR STUDENTS WITH DISABILITIES: Winthrop University is dedicated to providing access to education. If you have a disability and require specific accommodations to complete this course, contact the Office of Disability Services (ODS) at 323-3290. Once you have your official notice of accommodations from the Office of Disability Services, please inform me as early as possible in the semester.

ALTERATIONS TO THIS SYLLABUS: The instructor reserves the right to make modifications to this syllabus. Students will be notified in class and by email of any modifications.