Syllabus:
M 543 Groups and Geometry- A Bridge to Abstract Mathematics)
Summer 2017

Time: TBA   Room: TBA

Course Description:

This course introduces the student to the unity of higher mathematics by demonstrating interconnections between geometry and algebra, and guides the student into developing, writing and communicating mathematical proofs.

The first part of the course will be a review of complex numbers and use of complex arithmetic to understand concepts of plane geometry. Afterwards, functions from the complex plane to itself will be used to study symmetries of the Euclidean plane. No knowledge or familiarity with "linear algebra" will be assumed – all the concepts will be developed from the basics.

In the second half of the course, the students will see how an algebraic structure such as a "group" can be viewed as a geometric object, and how this enables one to develop geometric proofs of algebraic results, and vice versa. Once again, no familiarity with the concept of a "group" will be assumed.

Prerequisites: M 333 , or consent of instructor.

Topics: The following are some of the topics to be covered.

- Geometry of Complex Numbers

- Symmetries of the Euclidean Plane

- Groups as Geometric Objects

Grading Policy: The course grade will be determined as follows:

- Several problem sets : 40%
- Midterm Exam : 30%
- Final Exam : 30%
- Graduate students (enrolled in 5xx) will be required to complete more advanced problem sets, and will have additional problems in the midterm and final exam.

Grading Scale:

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
93-	90-92	87-89	83-86	80-82	77-79	73-76	70-72	67-69	63-66	60-62	0-59

Miscellaneous Policies:

1. Check Moodle for announcements and other notes regularly.

2. Please do not hold conversations, either with your classmates or through your cell phones or other devices, during the lecture. Cell phones/pagers must be turned off at all times. Please do not text during class.

3. All unauthorized recordings of class are prohibited. Recordings that accommodate individual student needs must be approved in advance and may only be used for personal use during the semester.

4. It is your responsibility to check all your grades on Moodle before the final exam date and report me in writing if your grades are recorded incorrectly. You should keep all your graded exams/quizzes/classwork/homework until you receive your final course grade.

5. **Academic integrity**: A zero-tolerance policy will be enforced for academic dishonesty / cheating. Academic dishonesty / cheating includes plagiarism on homework or other assignments, copying from or deliberately aiding another student during quizzes / exams, using unauthorized books, notes, calculators or other computing devices, using cell phones, pagers, Apple/Android watches or any other communicating devices during quizzes / exams.

   Any student who is found to have cheated on a homework / quiz / exam will receive an F in the course, and will also be reported to the office of the Provost/Vice Chancellor for Academic Affairs.

   The instructor reserves the right to assign seating arrangements or change a student's current seating arrangement before or during any quiz or exam.

6. **Special Accommodations**: If you qualify for special accommodations, please send me an email to set up an appointment ASAP. When you come for your appointment, please have a letter from your Tech Counselor available.