CoSM Class Syllabus/Policy
MTH 139: Plane Analytic Geometry, Fall 2017

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Office: Math 306
Office Hours: M—F 8:30—9:30am, TR 1—2pm, W 2:30—3:30pm, or by appt.
Department: Mathematics and Statistics
Class meeting times and places:
   Section 3: Class MWF 10—10:50am, Math 358

Course Description: Beginning course in plane analytic geometry including the straight line, the circle, parabola, hyperbola, and the transformation of coordinates.


Student Learning Outcomes (SLO): At the end of MTH 139, a student who has studied and learned the material should be able to:
1. Solve problems involving lengths and distances in the plane, including midpoint and point-of-division formulas.
2. Demonstrate understanding of the notions of slope and inclination of lines, including angles between lines, parallel lines, and perpendicular lines.
3. Recognize the relationship between equations in two variables and graphs in the plane and use the equations to find pertinent information such as points of intersection, and intercepts.
4. Perform arithmetical and geometric operations involving vectors in the plane.
5. Use vectors to solve geometric and physical problems.
6. Sketch graphs of and discuss relevant features of curves in the plane determined by certain equations (including lines, circles, parabolas, ellipses, hyperbolas, polynomial functions, rational functions, and features such as slope, inclination, center, radius, vertices, foci, axes, eccentricity, intercepts, asymptotes).
7. Determine equations of curves when given information that determines the curves.
8. Perform translations and rotations of the coordinate axes to eliminate certain terms from equations.
9. Model real world situations with equations of conics.
10. Use the polar coordinate system, relate it to the rectangular coordinate system, and graph equations using polar coordinates.
11. Sketch graphs in the plane determined by parametric equations by direct sketching as well as elimination of the parameter to obtain a rectangular equation.

Course Requirements: Homework will be regularly assigned, but not collected; students are responsible for completing the homework and understanding the material. Students will be expected to come to class prepared—most notably, to have read the section(s) under discussion and attempted any assigned homework. Assessments will include (approximately) weekly quizzes over course material, three regular exams (tentatively 22 Sep, 20 Oct, and 17 Nov), and a comprehensive final exam (10:30—12:30 on We, 13 Dec).
Course calendar/outline:
(Topics may be presented in a different order than given here)

- **Introduction to plane analytic geometry**
  - Points in the Cartesian plane
    - Distance formulas
    - Point of division formulas
  - Analytic descriptions of lines
    - Inclination
    - Slope
    - Angle from one line to another
  - Graphs of curves
    - Points of intersection of curves
    - Equation of a locus of points

- **Vectors in the plane**
  - Geometric and component representations of vectors
  - Dot products and angles between vectors
  - Applications of vectors in geometry and physics

- **Lines**
  - Point-slope and two-point forms
  - Slope-intercept and intercept forms
  - General form
  - Distance from a point to a line
  - Families of lines

- **Conic sections**
  - Analytic definitions of the conic sections
  - Circles, Parabolas, Ellipses, and Hyperbolas

- **Coordinate transformations**
  - Translation of axes
  - Rotation of axes
  - The general second degree equation

- **Curve sketching**
  - Domain, symmetry, intercepts, asymptotes
  - Graphs of polynomials
  - Graphs of rational functions

- **Polar coordinates and parametric equations**
  - Introduction to polar coordinates in the plane
  - Conversion between rectangular and polar coordinates
  - Introduction to parametric equations of curves in the plane
Grading Policy: Grades will be based on the total points accumulated on in-class quizzes, exams, and labs. If you miss a regularly scheduled quiz/exam, the next grade of the same type will count double. There will be no extra credit (other than, perhaps, bonus questions on exams).

Attendance Policy: Attendance is expected and roll will be checked every day. Students who miss no more than three class days may receive special consideration in determining their grade.

Academic Integrity (A-9.1)

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

Withheld Grades Semester Grades Policy (A-54)

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average. The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

Students with Disabilities

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.
Acceptable Student Behavior

Classroom behavior should not interfere with the instructor's ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.

Please be respectful of your fellow students and your instructor. Cell phone use and texting are not allowed in class. Remember to turn your cell phone off or place it in quiet mode before entering the classroom.