2012 Fall  
MTH 139.310, Plane Analytic Geometry

Professor: Dr. Pamela Roberson  
Department: Mathematics & Statistics  
Email: roberson@sfasu.edu  
Phone: 936-468-1882 (office)  
Office: 340 Mathematics building

Class meeting time and place: 9:00 – 9:50 a.m., MWF, Room 357 Math building


Course description: This is a beginning course in plane analytic geometry emphasizing the correspondence between geometric curves and algebraic equations. This correspondence makes it possible to reformulate problems in geometry as equivalent problems in algebra, and vice versa. Curves studied include straight lines, circles, parabolas, ellipses, and hyperbolas. Coordinate transformations, polar coordinates, and parametric equations are also studied. The course assumes a sound background in algebra, geometry, and trigonometry.

Course Requirements:
- Three in-class exams (If a student must miss an exam due to an excused absence, special arrangements should be made in advance.)
- A comprehensive final exam (lasting 2 hours on Monday, Dec. 10, 8:00-10:00 a.m.)
- Homework will be assigned from the textbook but will not be turned in for a grade.
- Reading questions on Desire2Learn: Several questions due before each class meeting will cover the sections that will be discussed in class that day. Each question will require a short answer.
- Class attendance and participation: Students are expected to attend all class meetings, arriving on time. Leaving class early without notifying the professor in advance will result in your being counted absent for the class session. Students that sleep in class, send or receive text messages, or conduct other online activities not directly related to class will be counted absent.
- Preparing for class: Students should be prepared to invest several hours per day outside of class reading the text, practicing examples, and working homework exercises. Material to be discussed in class should be read before coming to class.

Grading Policy: 65% First Three Exams (top two 25% each, lowest 15%)
10% Reading questions (due before each class meeting) and class participation (including attendance)
25% Comprehensive Final Exam

A final average ranging from 90 to 100 will be an A in the course, 80 to 89 a B, 70 to 79 a C, 60 to 69 a D, and below a 60 will be an F. Your grades for this class will be recorded on D2L so that you have access to them as soon as they are available. You can log on to D2L directly at http://d2l.sfasu.edu.
Course outline:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Approximate time spent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to plane analytic geometry</td>
<td>20%</td>
</tr>
<tr>
<td>Vectors in the plane</td>
<td>5%</td>
</tr>
<tr>
<td>Lines</td>
<td>10%</td>
</tr>
<tr>
<td>Conic sections</td>
<td>25%</td>
</tr>
<tr>
<td>Coordinate transformations</td>
<td>15%</td>
</tr>
<tr>
<td>Curve sketching</td>
<td>15%</td>
</tr>
<tr>
<td>Polar coordinates and parametric equations</td>
<td>10%</td>
</tr>
</tbody>
</table>

Department syllabus: Please read the official Department of Mathematics & Statistics syllabus for MTH 139 at [http://www.sfasu.edu/math/courses/syllabi/MTH139Syllabus.pdf](http://www.sfasu.edu/math/courses/syllabi/MTH139Syllabus.pdf).

Attendance Policy: Students are expected to attend all class meetings, arriving on time. In case you are absent, you are responsible for determining what you missed and for being prepared for class when you return.

AARC: The Academic Assistance and Resource Center (AARC) located on the first floor of the Steen Library offers several types of academic assistance. All services are FREE. You may make weekly appointments for one-on-one tutoring and use the math walk-in help table and access the Math Online Lab. See the AARC web pages for more information [http://libweb.sfasu.edu/aarc](http://libweb.sfasu.edu/aarc).

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.

The penalty for a student found cheating on any part of an assignment, quiz, or exam in this class will range from a grade of zero on the work to a grade of F in the course. A student who allows another to copy his work and the student copying the work are both guilty of cheating. Do your own work. Do not show your completed work to others. Do not allow others to copy your work.

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](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 http://www.sfasu.edu/policies/student_conduct_code.asp). 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.

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.

There are no specific program learning outcomes for the mathematics major addressed in this course. It is a general education core curriculum course and/or a service course.