Instructor: Mrs. Penny Long
Department: Mathematics & Statistics
Email: plong@nacisd.org
Phone: 936-564-2466 ext. 2703
Office hours: Mondays - Fridays 7 to 7:20 am, T/Th Class (45 min.)
Class meeting time and place: NHS Room 203, January 8 - the week of May 13-16


Calculator: At least a scientific calculator is required; graphing calculators may be required.

Course Requirements: There will be three in-class exams and a comprehensive final exam. If a student must miss an exam due to an excused absence, special arrangements should be made in advance. Homework assignments consisting of textbook exercises will be made on a regular basis and may or may not be turned in for a grade.

Course Calendar:
Class begins on January 8 and ends the week of May 13-16. The final exam will be during the week of May 13-16.

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

Department syllabus:
Please read the official Department of Mathematics & Statistics syllabus for MTH 139 at http://www2.sfasu.edu/math/courses/syllabi/MTH139Syllabus.pdf.

Grading Policy:
Quiz/homework average will be worth 20% of the student’s final average. Each exam including the final exam will constitute 20% of the student's final average. 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.

Attendance Policy:
Students who have 3 or more unexcused absences may have points deducted from their final average.

Other Important Information:
- All cell phones should be silent during class.
- Leave all material and technology not needed to take an exam at the front of the classroom before the beginning of each exam.
- I reserve the right to drop a certain number of quiz grade(s) and replace a low test grade with the grade on the final exam.
Course outline:

- Introduction to plane analytic geometry 20%
- Vectors in the plane 5%
- Lines 10%
- Conic sections 25%
- Coordinate transformations 15%
- Curve sketching 15%
- Polar coordinates and parametric equations 10%

Course Objectives (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.

University Policies

- **Acceptable Student Behavior:** Classroom behavior should not interfere with the instructors 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.
• **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](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 Documented 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/](http://www.sfasu.edu/disabilityservices/).
Math 139 (Math 1348) – Plane Analytic Geometry
Course Syllabus

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

Credit Hours: 3

Course prerequisites and corequisites: Math 133 and 138, or the equivalent.

Course Outline:

- 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

Approximate time spent: 20%
Math 139 – Plane Analytic Geometry
Syllabus Continuation

- Ellipses
- Hyperbolas

**Coordinate transformations** 15%
- Translation of axes
- Rotation of axes
- The general second degree equation

**Curve sketching** 15%
- Domain, symmetry, intercepts, asymptotes
- Graphs of polynomials
- Graphs of rational functions

**Polar coordinates and parametric equations** 10%
- Introduction to polar coordinates in the plane
- Conversion between rectangular and polar coordinates
- Graphs of polar equations
- Introduction to parametric equations of curves in the plane

**Academic Integrity**
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, and may result in additional, more severe disciplinary measures. 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 (SFA policy 4.1):**
Academic dishonesty includes both cheating and plagiarism. Cheating includes, but is not limited to:
- using or attempting to use unauthorized materials on any class assignment or exam;
- falsifying or inventing of any information, including citations, on an assignment;
- helping or attempting to help other student(s) in an act of cheating or plagiarism.

Plagiarism is presenting the words or ideas of another person as if they were one’s own. Examples of plagiarism include, but are not limited to:
- submitting an assignment as one’s own work when it is at least partly the work of another person;
- submitting a work that has been purchased or otherwise obtained from the Internet or another source;
- incorporating the words or ideas of an author into one's paper or presentation without giving the author credit.

**Withheld Grades Semester Grades (SFA Policy 5.5)**
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.

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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 10.4). 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:
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2. Demonstrate understanding of the notions of slope and inclination of lines, including angles between lines, parallel lines, and perpendicular lines.
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8. Perform translations and rotations of the coordinate axes to eliminate certain terms from equations.
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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 this major addressed in this course. It is a general education core curriculum course and/or a service course.

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