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Analytical Geometry
Math 1350-001
Math 108, MWF 1:00-1:50

Office Hours:
Fixed Hours
TT 11:00 - 1:00
Other Hours
By Appointment

Text:
Riddle, Douglas
Analytical Geometry, 6th Ed.
Brooks/Cole

Course Website:
www.math.ttu.edu/~pearce/courses.shtml

Chapters:
Chapter 1, Sections 1-7, 4.5
Chapter 2, Sections 1-3, 1.5
Chapter 3, Sections 1-3, 1.5
Chapter 4, Sections 1-2, 1.5
Chapter 5, Sections 1-4, 5.0
Chapter 6, Sections 1,3-4, 4.0
Chapter 7, Sections 1-6, 6.5
Chapter 8, Sections 1-6, 6.5
Chapter 9, Sections 1-6,9, 7.0

Course Description

This course is primarily designed for architecture and pre--engineering majors. It provides a basic background in analytic elementary geometry.

Prerequisites

Math 1321, or departmental permission.

COURSE-SPECIFIC LEARNING OBJECTIVES AND CORRESPONDING OUTCOMES

1. Apply arithmetic, algebraic, geometric, statistical and/or logical reasoning to solve problems.
In Math 1350 students will develop skills to: (1) analyze geometry in the plane; (2) determine properties of conic sections; (3) apply transformation of coordinates; (4) sketch curves; (5) use parametric curve representations; (6) investigate geometry in space; (7) integrate appropriate terminology into your everyday language when discussing mathematics; (8) appraise their own progress in thinking logically, increasing their mathematical confidence, and appropriate organizational skills for mathematics. Student mastery of problem solving skills will be assessed through homework exercises, in-class quizzes, and examinations.
Assessment Strategies: A comprehensive list of homework and exam problems will be created by the course coordinator in collaboration with the instructors/TAs. It is expected that at least 25% of the problems on this comprehensive list will address this specific objective. The homework assignments and mid-term exams will include selected problems from this comprehensive list, and all of the problems on the final exams will be selected from this comprehensive list. The final exams will be periodically sampled and analyzed in order to assess how this particular objective was attained. The assessment will measure the percentage of students who achieved mastery of the skills and knowledge involved by this objective.
2. Represent and evaluate basic mathematical and/or logical information numerically, graphically, and symbolically

In Math 1350 students will learn how to adequately communicate mathematical information in writing, verbally and graphically, by using words, numerical answers, algebraic expressions, logical sentences, as well as graphs and diagrams.

Assessment Strategies: A comprehensive list of homework and exam problems will be created by the course coordinator in collaboration with the instructors/TAs. It is expected that at least 25% of the problems on this comprehensive list will address this specific objective. The homework assignments and mid-term exams will include selected problems from this comprehensive list, and all of the problems on the final exams will be selected from this comprehensive list. The final exams will be periodically sampled and analyzed in order to assess how this particular objective was attained. The assessment will measure the percentage of students who achieved mastery of the skills and knowledge involved by this objective.

3. Use mathematical and logical reasoning to evaluate the validity of an argument.

In Math 1350 students will learn how to identify, understand and apply mathematical and logical reasoning to theoretical and applied problems. In particular, attention will be given to procedures for establishing of the validity of functional identities and to the principle for constructing proofs by mathematical induction.

Assessment Strategies: A comprehensive list of homework and exam problems will be created by the course coordinator in collaboration with the instructors/TAs. It is expected that at least 25% of the problems on this comprehensive list will address this specific objective. The homework assignments and mid-term exams will include selected problems from this comprehensive list, and all of the problems on the final exams will be selected from this comprehensive list. The final exams will be periodically sampled and analyzed in order to assess how this particular objective was attained. The assessment will measure the percentage of students who achieved mastery of the skills and knowledge involved by this objective.

4. Interpret mathematical and/or logical models such as formulas, graphs, tables and schematics, and draw inference from them.

In Math 1350 students will learn to identify and interpret mathematical information contained in formulas, graphs and tables, in particular: (a) interpreting graphs of functions; (b) applications to geometric models; (c) applied problems. The development of student interpretative and inference skills will be assessed through homework exercises, in-class quizzes, and examinations.

Assessment Strategies: A comprehensive list of homework and exam problems will be created by the course coordinator in collaboration with the instructors/TAs. It is expected that at least 25% of the problems on this comprehensive list will address this specific objective. The homework assignments and mid-term exams will include selected problems from this comprehensive list, and all of the problems on the final exams will be selected from this comprehensive list. The final exams will be periodically sampled and analyzed in order to assess how this particular objective was attained. The assessment will measure the percentage of students who achieved mastery of the skills and knowledge involved by this objective.

College-Level Competency: Students graduating from Texas Tech University should be able to: demonstrate the ability to apply quantitative and logical skills to solve problems.

In particular, students who have taken Math 1350 will be able to use the course-specific learning objectives in order to provide individual solutions to mathematical problems and interpret the results in a relevant manner.

Assessment Strategies: The assessment of these skills will be conducted via embedded assessments in final exams, senior surveys (GSS) and senior assessments (OSA).

STUDENT LEARNING OUTCOMES

Students will:

- Apply trigonometry to geometric problems.
- Study conic in planes.
- Study quadrics in space.
- Perform geometric constructions in plane.
- Perform geometric constructions in space.
- Write basic geometric proofs.
- Study Euclidean motions in plane and in space.

LEARNING ASSESSMENT:

Learning outcomes will be assessed through homework exercises, in-class quizzes, and examinations.

The following assessments represent a general departmental requirement:

- 1) Homework assignments are expected to be given weekly, either as on-line, web-based assignments, or as writing-intensive assignments
- 2) It is expected that a test will be given at the end of each major chapter
- 3) A common, unique departmental final exam will be given according to the academic schedule established by the university and department, for all the course sections whose primary delivery method is the traditional one (lecture, face-to-face).

General requirement: The Common Final represents a course requirement. A student who did not complete the Final Examination, but otherwise completed all the other requirements successfully cannot be assigned a passing letter grade (D or higher) unless taking the Final Examination. Each designated instructor has to keep their copy of partial scores and grades for each student, for one calendar year from the date of recording the grade in the web database.

Course Grades

Class grades will be assigned according to the following rubric:

Mid-Term Exams:	300 pts.
3 Mid-Term Exams @ 100 pts	
Dates: Sep 19, Oct 17, Nov 7	
Quizzes:	100 pts.
11 Weekly Quizzes	
Dates: Fridays of weeks without scheduled exams + Fri, 21 Nov	
Drop lowest quiz	
Final Exam:	200 pts.
Comprehensive	
Date: Tuesday, 9 Dec, 1:30 pm	
Grade Total	600 pts.

Grading Scale

A...100% - 90% B...89% - 80% C...79% - 70% D...69% - 60% F...59% - 0%

Technology

Graphing calculators (TI-83, TI-84, TI-89 or equivalent) and/or computer algebra software (Maple, Mathematica, Matlab) can be invaluable aids for facilitating learning. On the other hand, the course objectives are not centered around calculator proficiency nor computer expertise. Students may use a graphing calculator or computer algebra software while doing homework assignments to facilitate: (1) learning of concepts; (2) understanding the material; (3) checking calculation details. The emphasis on mid-term exams and the final exam will be oriented towards assessing mastery of the concepts stated in

the Student Learning Outcomes section. To that end, calculators will not be allowed in the mid-term exams nor in the final exam.

Critical Dates

Wed, 10 Sep Last day to drop a course without drop penalty
Fri, 19 Sep Exam I
Fri, 17 Oct Exam II
Mon, 20 Oct Mid-semester grades due
Mon, 27 Oct Last day to drop a course
Mon, 17 Nov Exam III
Mon, 24 Nov-Wed, 3 Dec Period of no exams
Wed, 26 Nov-Fri, 28 Nov Thanksgiving Break
Wed, 3 Dec Last day of class
Thu, 4 Dec Individual Study Day
Tue, 9 Dec Comprehensive Final Exam (1:30-4:00)
Mon, 16 Dec Final grade are due to registrar

Notices

Academic Integrity (Extracted from [OP 34.12](#))

It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and high standard of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offenders liable to serious consequences, possibly suspension.

“Scholastic dishonesty” includes, but it not limited to, cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, and any act designed to give unfair academic advantage to the student (such as, but not limited to, submission of essentially the same written assignment for two courses without the prior permission of the instructor) or the attempt to commit such an act.

Civility in the classroom (Extracted from [Faculty Handbook](#))

Texas Tech University is a community of faculty, students, and staff that enjoys an expectation of cooperation, professionalism, and civility during the conduct of all forms of university business, including the conduct of student–student and student–faculty interactions in and out of the classroom.

Observance of Religious Holiday (Extracted from [OP 34.19](#))

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence.

Accommodation for Students with Disabilities (Extracted from [OP 34.22](#))

Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor’s office hours. Please note: instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, please contact Student Disability Services in West Hall or call 806-742-2405.