

**Math 403****Mathematics and Technology****Fall 2011****Instructor:** Sandra Nite**E-mail:** [snite@math.tamu.edu](mailto:snite@math.tamu.edu)**Web Page:** <http://www.math.tamu.edu/~snite>**Office:** Blocker 629E**Office Phone #:** 845-1170**Office Hours:** 12:30 – 2:00 pm TR  
AND by appointment**Class Times & Locations:** MATH 366-502

TR 2:20-3:35

BLOC 164

MATH 403-502

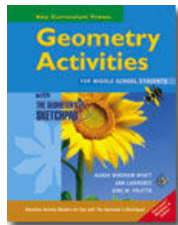
TR 3:55-5:10

BLOC 120/BLOC 104

TQ Program

M 7:00-9:15; S 8:30-1:30

online

**Text:** *Geometry Activities for Middle School Students with the Geometers Sketchpad* by Windham, Wyatt, Lawrence, and Foletta.**Catalog Description:** Mathematical problem-solving and communication through the use of various technologies (both hardware and software). Intended primarily, but not limited to, students working toward teacher certification. Prerequisite: MATH 367 or MATH 467 or approval of instructor.**Calculator Policy:** A TI-83/TI-84 (Plus) or TI Nspire non-CAS is **REQUIRED**; these are the only calculators I will use in class for demonstrations.**Nature, Scope, and Content:** The purpose of this course is to familiarize you, through a number of problem-solving experiences, with the capabilities and limitations of various technologies in common use in the middle- and secondary-school classrooms. These will include the TI-83/84 graphing calculator and The Geometer's Sketchpad (GSP). We will draw problems from a variety of fields, including (but not limited to) algebra, geometry, discrete mathematics, probability, and statistics.**Homework/Labs and Projects:**

- Homework/laboratory problems will be assigned regularly, and will be due generally one week after assigned. You may work on these cooperatively, but each student must submit an independent write-up. GSP homework assignments may be turned in by group.
- The project will require the solution, by GSP, of geometry problems from a supplied list. This project will be evaluated using criteria such as accuracy, elegance, and appropriate and essential use of GSP. This project may also be cooperative, with correspondingly higher expectations for groups than for individuals.

**Grades:**

Major Exams (3)	40%
Final Exam	25%
Homework/Lab average	25%
Project(s)	10%

**FINAL EXAM Schedule:****The final exam for Math 403 Section 502 is on Tues, Dec 13, 8-10 A.M.****Policies:** Policies pertaining to absences, scholastic dishonesty, and final exams are identical to TAMU regulations.

- **You are responsible for checking your TAMU email account.**
- Attendance is expected and will be used in conjunction with your final exam grade as a *consideration* in the case of borderline grades. By attendance, I mean active class participation, not just showing up and sitting in the classroom.

- If you disagree with any deduction taken on your homework, quizzes or exams, you must bring it to my attention before your next class to be re-graded.
- Students with an official excused absence are permitted to make up work only for the dates of the absence. No make-up exams or quizzes will be given without a doctor's excuse. In the case of illness, a student MUST contact me within TWO working days and present a valid doctor's excuse before the make-up will be given.
- **SCHOLASTIC DISHONESTY**
  - **An Aggie does not lie, cheat, or steal, or tolerate those who do.**
  - Note: It is considered CHEATING to have notes, formulas, or programs in your calculator other than the ones I give you to use.
  - For additional information on the Honor Council Rules and Procedures consult <http://www.tamu.edu/aggiehonor/>

**A.D.A. Policy Statement:** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services in Cain Hall, Room B118, or call 845-1637. For additional information visit <http://disability.tamu.edu>

**Copyright Policy:** All printed materials disseminated in class or on the web are protected by Copyright laws. One Xerox copy (or download from the web) is allowed for personal use. Multiple copies or sale of any of these materials is strictly prohibited!

**Personal Request:** As a courtesy to me and all of the students in your class, please keep all cell phones muted during class and refrain from discussion not related to class. Thanks ☺

**Course Learning Objectives:**

- Students will gain greater depth of knowledge about mathematical ideas and concepts and the connections between them by using graphing calculations to explore functional relationships, probability simulations, matrices and regression, sequences and series, and function transformations.
- Students will gain greater depth of knowledge about geometric ideas and concepts by using Geometer's Sketchpad to construct general and specific geometric figures and perform transformations.
- Students will be able to integrate mathematical content, teaching methods, and technology (graphing calculator and Geometer's Sketchpad) in the areas of algebraic functions, basic statistics, and geometric transformations.
- Students will become familiar with online teaching resources available through the websites of the United States Department of Education, Texas Education Agency, Charles A. Dana Center, and Texas A&M University.

**Tentative Calendar:**

Week	Lesson(s)	Topic(s)
1	Lessons 1 and 2	TI 83/84 Calculator Basic Features; Graphing Features
2	Lessons 3 and 4	Piece Functions, Short and Long Run Behavior; Tables, Lists, Scatter Plots
3	Lesson 5	Random Numbers, Simulations, Box Plots
4	Lesson 6; Review	Sequences, Statistics, and Plots; Exam Review
5	Lessons 7 and 8; Exam 1	Regression; Matrices and Regression; Exam 1 (Lessons 1-6)
6	Lessons 9 and 10	Recursion; Sequences & Series, Parametric Equations
7	Lessons 11 and 12	Using the CBR; Online Resources
8	Review; Exam 2	Exam Review; Exam 2 (Lessons 7-12)
9	Sketchpad Introduction	Introduction to Geometer's Sketchpad
10	Sketchpad 1	Constructing General and Specific Polygons
11	Sketchpad 2	Coordinate Geometry in Sketchpad; Dividing a Line Segment
12	Sketchpad 3	Transformations in Sketchpad
13	Sketchpad Projects	Teaching with Sketchpad in the Middle School
14	Review; Exam 3	Exam Review; Exam 3 (Sketchpad)
15	Final Exam	Final Exam