



Course Syllabus

MTHC 5110 COURSE NUMBER AND SECTION	Dr. Nancy English INSTRUCTOR	neenglish@earthlink.net E-MAIL ADDRESS
Perspective in Geometry COURSE TITLE	Spring, 2004 TERM	3 CREDIT HOURS
Room 225, Webster Hall SITE		

1. Course Description: (provide details of student focus, rationale, scope, and prerequisites)

This course, designed for teachers of grades 5 - 8, will focus on topics in Geometry, explored via interactive Geometry software (Geometer's Sketchpad) in a computer lab. Students will be able to make their own conjectures and then have the chance to not only test those conjectures, but to delve even further into the relationships they discover.

2. Learning Outcomes: (goals, objectives, course outcomes, etc.) Identify any MOSTEP or professional standards that are met by each learning outcome.

Students will learn material beyond the scope of a high school geometry class. Many of the topics will be learned through the student's own discoveries. Students should gain a perspective about geometry's relationship to the world around them, particularly its relationship to literature, to art and to nature.

In particular:

- (1) Students will become very proficient in the use of Geometer's Sketchpad.
- (2) Students will explore many of the existing relationships inside triangles, quadrilaterals, and circles.
- (3) Students will thoroughly explore symmetry and its relationship to the work of E.C. Escher.
- (4) Students will have the opportunity to explore the beauty of fractal geometry.
- (5) Students will have the opportunity to do their own research into a geometry-related subject of their own choosing.

(6) Students will have the opportunity to see the application of geometry to literature.

3. Schedule of required readings, class preparations and assignments, lectures, discussions, student presentations, out-of-class assignments and exams.

Class 1: Introduction to Geometer's Sketchpad and some of the vocabulary used in geometry. Begin reading Flatland.
Tuesday, January 13

Class 2: Constructions using Sketchpad
Tuesday, January 20
Continue reading Flatland

Class 3: Conjectures about triangles
Tuesday, January 27
Finish reading Flatland

Class 4: More conjectures about triangles
Tuesday, February 3
Discussion of Flatland and its relationship to Geometry

Class 5: Conjectures about quadrilaterals and other polygons
Tuesday, February 10

Class 6: Circles/Similarity/Curves of Pursuit
Tuesday, February 17

Class 7: Symmetry
Tuesday, February 24

Class 8: Transformations
Tuesday, March 2
Binders Due

Tuesday March 9 **No Class - Webster Spring Break**

Class 9: Tessellations
Tuesday, March 16

Class 10: More Tessellations
Tuesday, March 23
Projects Due

Class 11: A look at Escher
Tuesday, March 30

Class 12: A closer look at Escher

Tuesday, April 6

Class 13: Introduction to Fractals

Tuesday, April 13

Class 14: More Fractals

Tuesday, April 20

Student Presentations

Binders due for students making presentations

Class 15: More Fractals

Tuesday April 27

Student Presentations

Binders due for remaining students

Class 16: Student Presentations

Tuesday May 4

The Missouri Show-Me Standards are addressed within the content of this course. Identification of specific standards are included within course assignments. Integration of Missouri Assessment Program (MAP) standards and grade levels will be integrated into this course when appropriate.

4. Resources:

Text(s): Edwin A. Abbott, Flatland: A Romance of Many Dimensions, Dover Publications, (1992). (The instructor will provide this text for the students.)

Supplemental Readings: (list and indicate how these are to be used)

Audio-visual/other:

5. EVALUATION: (basis of evaluation with explanation regarding the nature of the assignment and the percentage of the grade assigned to each item below)

Homework will be assigned at every class meeting. Completed homework assignments should be kept inside a three-ring binder, along with the assigned class work. The binder will be evaluated at two different times during the course. It is expected that homework assignments be complete and correct.

Each student will be responsible for doing an individual project, using Geometer's Sketchpad. This project could consist of doing individual research with Geometer's Sketchpad to discover possible geometric relationships, or it could consist of creating a unit, using Geometer's Sketchpad, that can be used within a middle or secondary school classroom.

Each student will be responsible for giving an oral presentation to the class. A written paper on that same subject will be submitted to the instructor on the day of that presentation.

The grading scale will be as follows:

A	93 - 100	C+	77 - 80
A-	90 - 92	C	73 - 76
B+	87 - 89	C-	70 - 72
B	83 - 86	D	60 - 69
B-	80 - 82	F	0 - 59

a) Term Paper(s)	100
b) Examination(s)	0
c) Class presentation(s)	50
d) Curriculum project	100
e) Class Participation	
f) Binder of class work and homework	300

6. Supplements (study guide, sample tests, project outlines may be attached.)
Please list.

7. 3 Hour Courses: Students taking an 8 week course for 3 credit hours will complete the following additional assignments and/or attend the following additional class meetings:
 - a) Lab
 - b) Curriculum Project
 - c) Paper(s)
 - d) AV Project
 - e) Other

8. FINAL PROJECTS: Final projects/papers will be returned to students in the following manner:
 - Projects/Papers will be returned during the last meeting period.
 - Students should provide a self-addressed stamped envelope (appropriate size and postage) to the instructor so project/paper can be returned.
 - Other (explain)

NOTE: Papers will not be available for pick up from the School of Education Office.

- This syllabus is subject to change at the discretion of the instructor.
- Regular class attendance is required.