

**The Department of Mathematics & Science Education**  
**COURSE OUTLINE- EMAT 4680: Technology and Secondary School Mathematics**  
**Fall 2006**

Instructor	Nicholas Oppong
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Classroom	111/113 Aderhold Hall
Meeting Times	8:00--9:15 TR

### **Course Description**

Mathematical investigations (with emphasis on geometry) appropriate to the secondary school using various technology tools. Prerequisite: MATH 2210 and MATH 2210L. Corequisite: EMAT 3500.

### **Goals**

This course will concentrate on using various software applications to solve mathematics problems. The emphasis is on exploration of various mathematics (particularly geometry) contexts to learn mathematics, to pose problems and problem extensions, to solve problems, and to communicate mathematical demonstrations.

### **Topical Outline**

- From Euclidean Tools to Dynamic Construction Tools
- Exploring Quadrilaterals
- Exploring Centers, Balance Points and Loci
- Investigating the Pythagorean Theorem
- Exploring Transformations and Tessellations

### **Instructional Materials Source List**

Transforming Mathematics with the *Geometer's Sketchpad* A GSP Companion for Mathematics Education prepared by Olive & Oppong available from el-Jean copy and printing, 163 E. Broad Street, Athens.

National Council of Teachers of Mathematics Principles and Standards for School Mathematics. (2000). (Available at <http://standards.nctm.org/>).

National Council of Teachers of Mathematics, Commission on Standards for School Mathematics. (1989). *Curriculum and evaluation standards for school mathematics*. Reston, VA.: The Council. (Available at <http://standards.nctm.org/info/resources.htm>).

### **Software**

Geometer's Sketchpad; Cabri; Excel; word processing, presentation and drawing tools; web design tools including LiveText; and other electronic communication tools.

<p><b>Wise words:</b> "<i>Some people are like good watches. They're pure gold, open-faced, always on time, dependable, quietly busy and full of good works.</i>"</p>
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## Technology Environment Management / Electronic Portfolios.

You will need USB 2.0 Flash Drive. Today, 512mb is under \$50 and 256mb is under \$30. All work for this course will be kept in Electronic Portfolios. These will be saved on your disks as well as managed in your LiveText environment. All course work must be a part of your electronic portfolio, and must be well organized.

### Grading

Grades will be calculated based on the following criteria:

Item	Points
Attendance/Assignments/Participation	20
Test	15
Project	25
Midterm	20
Final Exam	20

**Attendance:** All students are responsible for maintaining the highest standards of honesty and integrity in every phase of their academic careers. The penalties for academic dishonesty are severe and ignorance is not an acceptable defense. Participation in class discussions will be an important component of this course. One emphasis of this course is your professional development. Part of being a professional educator is being a good student. Being a good student involves more than just coming to class and completing assignments. It includes demonstrating a professional demeanor while in class and attending conferences and colloquia. No rude or disrespectful behavior will be tolerated during class meetings or while attending conferences and colloquia. Disagreement during professional discussions is good and often productive in developing a deeper understanding of the concepts being discussed. Disagreement in a discussion does not warrant yelling or disrespectful language or behavior. Repeated demonstration of unprofessional demeanor during class or while attending conferences and colloquia may drop your grade or you may be withdrawn from the course. Regular and punctual attendance is expected. Excessive absences (2 or more hours) without excuse will drop your grade or you may be withdrawn from the course.

### Culture of Honesty

All academic work must meet the standards contained in "A Culture of Honesty." Students are responsible for informing themselves about those standards before performing any academic work. View details at: [http://www.uga.edu/ovpi/academic\\_honesty/academic\\_honesty.htm](http://www.uga.edu/ovpi/academic_honesty/academic_honesty.htm).

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

For more information, send e-mail to [noppong@uga.edu](mailto:noppong@uga.edu).