MATH 6233: Geometry  
Spring 2011

Instructor:  Dr. Abdollah Khodkar  
Office: Boyd 309  
Phone: (W) 678-839-4126, (C) 404-384-6131  
Fax: 678-839-6490  
Email: akhodkar@westga.edu

Online Office Hours: Tuesday and Thursday 3:30pm-6:30pm and Wednesday 5pm-7pm. If you would like to talk to me but cannot make it during one of these times, please call first or make an appointment. I will be on campus on Tuesdays and Thursdays after 3:30pm. If you want to see me on campus, just send me an email.

Prerequisites: College Geometry (MATH 4233)

Hours Credit: 3 hours

Class Type: This class is 95% or more online

Textbook: Geometry by David A. Brannan, Matthew F. Esplen, and Jeremy J. Gray

Courses Description: Study of various geometries (Affine, Projective, Inversive, non-Euclidean, and Spherical) and how they are related.

Discussions: Questions that are of importance to everyone in the class may be posted to the appropriate discussion topic. Posting to the discussion boards allows all students in the class to see the answer.

Learning Outcomes: The student will have an understanding of:
1. The coordinate and vector approach to Geometry  
2. Properties of Affine Transformations and the Fundamental Theorem of Affine Geometry  
3. The Projective Plane $\mathbb{RP}^2$, Projective Transformation and Cross Ratio  
4. Desargue’s Theorem, Pappus’ Theorem and Brianchon’s Theorem  
5. Affine and Projective Planes, and their relationship with each other  
6. Inversion, Extended plane, Inversive Geometry and Coaxal families of Circles
Topics include:

<table>
<thead>
<tr>
<th>Sections</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Geometry and Transformation</td>
</tr>
<tr>
<td>2.2</td>
<td>Affine Transformations and Parallel Projections</td>
</tr>
<tr>
<td>2.3</td>
<td>Properties of Affine Transformations</td>
</tr>
<tr>
<td>2.4</td>
<td>Using the Fundamental Theorem of Affine Geometry</td>
</tr>
<tr>
<td>2.5</td>
<td>Affine Transformations and Conics</td>
</tr>
<tr>
<td>3.1</td>
<td>Perspective</td>
</tr>
<tr>
<td>3.2</td>
<td>The Projective Plane $\mathbb{RP}^2$</td>
</tr>
<tr>
<td>3.3</td>
<td>Projective Transformations</td>
</tr>
<tr>
<td>3.4</td>
<td>Using the Fundamental Theorem</td>
</tr>
<tr>
<td>3.5</td>
<td>Cross-Ratio</td>
</tr>
<tr>
<td>5.1</td>
<td>Inversion</td>
</tr>
<tr>
<td>5.2</td>
<td>Extending the Plane</td>
</tr>
<tr>
<td>5.3</td>
<td>Inversive Geometry</td>
</tr>
<tr>
<td>5.4</td>
<td>Fundamental Theorem of Inversive Geometry</td>
</tr>
<tr>
<td>5.5</td>
<td>Coaxal Families of Circles</td>
</tr>
</tbody>
</table>

**Calculators:** You are not allowed to use “advanced” calculators such as TI-89 or better in your tests or final exam.

**Rescheduling tests/Final:** If you have a “valid reason” for missing a test or final, you may be allowed to reschedule, but you must make arrangements with me in advance.

**Quizzes:** There will be a weekly quiz. Each quiz will be worth 3% toward your final grade. All quizzes are online. There will be 15 quizzes in this course.

**Students should turn in their solutions as an attachment to an email. The attachment files should be in .jpg format. Students will have access to their weekly quizzes on each Monday and their quizzes should be turned in by Saturday 12 midnight of the same week.**

**Tests:** There will be two online tests. Each will be worth 10%.

- Test 1: Thursday February 3, 2011 at 4pm
- Test 2: Thursday April 7, 2011 at 4pm

**Students should email me their solutions as an attachment to an email by 10pm the same day. The attachment files should be in .jpg format.**
Mid-term exam: The mid-term exam will be on campus on Thursday March 3, 2011 at 5pm. The location of the mid-term exam will be posted online. The mid-term exam will be worth 15%.

Final exam: The final exam will be on campus on Thursday April 28, 2011 at 5pm. The location of the final exam will be posted online. The final exam will be worth 20%. The dates for tests, mid-term exam and final exam are subject to change.

Grading Scale:

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

Grading: Your final grade will be determined as follows:
Quizzes: 45%; Test one: 10%; Test two: 10%, Mid-term exam 15%, Final exam 20%.

ACADEMIC DISHONESTY

Academic dishonesty is NOT tolerated. It will result in failure on assignment(s) as well as possible disciplinary sanction(s) as stipulated by university rules. State University of West Georgia Student Conduct Code defines academic dishonesty as cheating, fabrication, plagiarism, and facilitating or allowing academic dishonesty in any academic exercise.

Cheating: Using or attempting to use unauthorized materials, information or study aids;

Fabrication: Falsification or unauthorized invention of any information or citation;

Plagiarism: Representing the words or ideas of another as one's own. Direct quotations must be indicated and ideas of another must be appropriately acknowledged.

Academic dishonesty in any form compromises your grade and lowers the quality of your diploma. A fellow student who cheats may actually lower your grade, sometimes causing unfair and inflated grading scales. I hope each of you values your college education enough to protect yourself from dishonest classmates.

Help! I can't get Vista to work!

If you experience problems using Vista do not panic! Please use the support link below:
UWG strives to solve all Vista related problems within 48 hours.

While UWG will do their part to help you resolve problems and other situation regarding Vista you do have some responsibilities.

1. You must seek help. See the link above.

2. Do not wait 2-3 days to report a problem. Do it immediately!

3. Notify me if your problems have not been resolved within 2 business days.

4. Have an alternate computer access plan.

If your ISP suddenly goes out of business, or your disk crashes, or your puppy chews up your modem, or you experience some other personal hardware issue, you are responsible for having an emergency alternative computer access plan. Know in advance where you can go (library, Internet cafe, friend's house, workplace) if your primary system fails!

5. If you are experiencing technical issues with CourseDen (not your computer /ISP) that are preventing you from turning in an assignment, responding to mail/discussions, or taking an assessment you have 2 responsibilities:

1. Contact the helpdesk by phone: 678-839-6248 or email: distance@westga.edu

2. Notify me via mail, personal email, or phone

**Attendance/Participation Policy**

Students in an online course are expected to login a minimum of 3 times a week. My recommendation for doing well in this course is to login daily to check for new discussions, emails, announcements, etc.

If you are having trouble please contact me and talk with me rather than just dropping off the face of the earth! I want you to pass this class-- actually I want you to do more than pass-- I want you to love this class so much that you recommend other students to this course.

**Library Resources**

UWG students have access to many online resources through the UWG Library.

[http://www.westga.edu/library/](http://www.westga.edu/library/)

**ADA**
AMERICANS WITH DISABILITIES ACT STATEMENT

If you are a student who is disabled as defined under the Americans with Disabilities Act and requires assistance or support services, please seek assistance through the Center for Disability Services. A CDS Counselor will coordinate those services.

Affirmative Action Statement

University of West Georgia adheres to affirmative action policies to promote diversity and equal opportunity for all faculty and students.

Equal Opportunity Statement

No person shall, on the grounds of race, color, sex, religion, creed, national origin, age, or disability, be excluded from employment or participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program or activity conducted by UWG.

Final Thoughts...

I reserve the right to make changes to this syllabus at any time. Please check the syllabus frequently for updates. You will be notified of any updates and/or changes to the syllabus via an Announcement in Vista.