MAT 305
Modern Geometry
Spring 2017
MWF 10:40-11:50

Text: College Geometry Using the Geometer's Sketchpad by Reynolds and Fenton
Instructor: Dr. Kristen Lampe
Office: 202 College Ave. #203  Phone: 951-3036  E-mail: klampe@carrollu.edu
Office Hours: Monday 8:30-10:30am, Tuesday 10:00-10:50am, Wednesday 2:00-2:50pm
Prerequisites: MAT 206

Course Context: This course is required for Mathematics majors with Secondary Education Minors and Elementary Education majors with Mathematics minors. It is an elective course for other Mathematics majors. The content of the course is designed to meet DPI requirements for educators as well as address an area of mathematics central to modern developments both in mathematics and the sciences.

Learning Goals: At the completion of this course, students will be able to demonstrate understanding of axiomatic methods and be able to present clear, concise and valid proofs of fundamental geometric theorems. Students will also be able to discuss the basic shared properties and differences of Euclidean, Affine, Hyperbolic, and Projective Geometry. Students will also know about the important people and events in history of the development of modern geometry. Further, students will develop a working knowledge of Geometer's Sketchpad.

Course Content: We will cover chapters 1, 2, 3, 4, 5, 6, 7, 11, 12

Late Work: Late work is not accepted except in the case of an excused absence.

Social Media: In this course we will be spending a great deal of time using the computers. It is expected that checking email, social media sites, and surfing are done before or after the class period – not during class time.
If you do have a cell phone with you when you arrive, please turn it off. Do not receive calls or texts during class time. Anyone who receives a call or text during a test or quiz will have his/her test or quiz collected immediately and will automatically be given a zero on that assessment. Mutual respect for other students' feelings and ideas is expected and will be enforced in this course, and this includes disruptions during lectures and tests.

Attendance: Students are expected to attend class. If you miss a class, you are responsible for any material covered, assignments, and announcements made. Poor attendance may adversely affect the Homework Reading Questions grade (see below). If you know you will miss an exam, you must tell me beforehand in order for a makeup to be considered. Exams missed must be appropriately documented before a makeup will be given. Makeup exams given for unexcused absences may have a penalty of up to one letter grade.
**Homework:** Homework will be assigned and collected weekly. The importance of working diligently on these problems cannot be over-emphasized, as they lead to a mastery of the concepts presented in class. I encourage you to work together on problems (most mathematicians do). If you work with others or use resources other than the textbook, credit must be given where credit is due. In the margin next to each problem, write the name of the person who contributed the “key idea” to that problem. To omit this step constitutes plagiarism and will be treated accordingly.

**Homework Reading Questions:** Throughout the semester, students will be expected to come to class prepared to present answers to homework reading questions. Answers will be given 0, 1, or 2 points. Each student can “drop” one during the semester, in which they may decline to answer without penalty. The average for these presentations will be scaled to contribute 50 points toward the final grade.

**Exams:** There will be three in-class exams given during the semester. The dates of these exams are listed below. Exams are all closed note, closed book. In addition, there will be a cumulative final exam.

- **EXAM 1** February 22
- **EXAM 2** March 31
- **EXAM 3** April 21
- **FINAL** Friday, May 5, 11am – 1pm

**Grading:** The point values are as follows:

- Tests (3 x 100) 300 points
- Homework 150 points
- Reading Questions 50 points
- Final Exam 150 points
- Total 650 points

Final grades will be calculated on the following scale:

<table>
<thead>
<tr>
<th>Percent</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>[92,100]</td>
<td>A</td>
</tr>
<tr>
<td>[88,92)</td>
<td>AB</td>
</tr>
<tr>
<td>[82,88]</td>
<td>B</td>
</tr>
<tr>
<td>[78,82]</td>
<td>BC</td>
</tr>
<tr>
<td>[70,78]</td>
<td>C</td>
</tr>
<tr>
<td>[60,70)</td>
<td>D</td>
</tr>
<tr>
<td>[0,60]</td>
<td>F</td>
</tr>
</tbody>
</table>
**Expectations:** Mathematics is a demanding subject. In order to become proficient, expect to do at least two hours of independent work for every one hour spent in class. Attendance and homework are essential for understanding. During the time spent outside class, I suggest the following plan of action:

a) Read (slowly and carefully) the textbook sections corresponding to class lectures. Students benefit most when this is done before class. There will be times when the reading is part of the homework assignment.

b) Try every homework problem twice before asking for help. Don’t give up!! Often, a text example will parallel the problem—look back, look in your notes, and think.

c) ASK about the problems/concepts you don’t understand. You can ask other students in the class, or you can ask me. Once an explanation has been given, study it. Then try to do the problem again without the solution in front of you.

d) Don’t miss class. It takes a lot longer to catch up than you may think.

**Academic Misconduct:** In any form, academic misconduct will not be tolerated. Students who violate academic integrity standards will be subject to disciplinary action including, but not limited to, a grade of 0 on that assignment or a failing grade in the course. All integrity violations are reported to the Student/Faculty Ethics Committee. Please see the Student Handbook for more about academic integrity.

**Disabilities:** Students with documented disabilities who may need accommodations, or any student considering obtaining documentation should make an appointment with Walter Young Center no later than the first week of class.

**Caveat:** All students should understand that the schedules and commitments made in this syllabus are subject to change in the event of extenuating circumstances.
**Math 305 Spring 2017 Homework Problems**

**Chapter 1:** 6, 7, 9, 10, 11, 12, 17, 19, 21, 24, 25, 30, 31

**Chapter 2:** 2 (perp. bis. only), 4, 5, 7, 8, 9, 16, 24, 25, 28, 29, 31

**Chapter 3:** 5, 6, 7ab, 10, 18 (you must write out the second argument that starts “in a similar way” explicitly), 19, 22, 26, 29, 31, 32, 35, 36, 42

**Chapter 4:** 3, 6, 8, 11 (fix typo), 17, 18, 21, 24, 27abce, 30

**Chapter 5:** 3, 7, 9, 11, 12 (must use coordinates!), 15, 17, 18, 19a, 20, 22

**Chapter 6:** 2, 4, 6, 7, 8, 9, 10, 13bc, 14, 19

**Chapter 7:** 1, 3, 4, 7, 9, 12, 13, 17, 18, 19, 21, 22abc

**Chapter 11 (part 1):** 3, 4 (use sketchpad), 7, 8, 9 (cannot use AAA), 10, 12, 14

**Chapter 11 (part 2):** 15, 19, 20, 21, 23b, 24, 25, 30, 32

**Chapter 11 (part 3):** Worksheets

**Chapter 12:** 1, 5, 6, 7, 8, 11