

MA 241
Geometry for Middle School Teachers
Fall 2015
TR 5:00-6:15 pm — CB 343

Instructor: Carl Lee.

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Email: lee@uky.edu (preferred method for reaching me).

Phone: 257-1405 (or 257-3336 to leave a message).

Office Hours: TR 1:00 – 2:00 pm, and by appointment, since I realize that this time may not be convenient for everyone.

Course Web Page: I will use the UK Blackboard course site and also post materials here: <http://www.ms.uky.edu/~lee/ma241fa15/ma241fa15.html>.

Course Description: A course in plane and solid geometry designed to give middle school mathematics teachers the knowledge needed to teach a beginning geometry course. Cannot be counted toward the mathematics minor or major.

Prerequisites: One semester of calculus or MA 201 with a grade of C or better.

Student Learning Outcomes: Students will explain concepts, solve problems, and prove theorems in geometry, and make connections with the Standards for Mathematical Content and the Standards for Mathematical Practice of the *Common Core State Standards for Mathematics*.

UK Mathematics Department Professional Themes: This course will address the four themes of the conceptual framework for the UK professional education program: research, reflection, learning, and leading. Students will engage with fundamental ideas in mathematical research, reflecting on and analyzing core mathematical content that arises throughout mathematics at all levels. Students will develop as life-long mathematical learners who will

be able to take active leadership roles in their future roles as professionals and citizens. The ultimate goal in addressing these four themes is to produce teacher leaders who work together to improve student learning among diverse populations and improve education in Kentucky and beyond.

Unbridled Learning Initiatives and the Kentucky Core Academic Standards: This course will provide students an opportunity to advance their knowledge and mastery of the “tools” associated with Kentucky education reform, focusing on the content and practice standards outlined in the the Kentucky Core Academic Standards. As students carry out projects and complete assignments that involve mathematical content underlying instructional activities for P–12 students in Kentucky schools, they will address one or more components of the Unbridled Learning initiatives.

Required Materials:

- *Connected Mathematics 3 Student Edition Grade 6: Covering and Surrounding: Two-Dimensional Measurement*, copyright 2014, Prentice Hall, paperback ISBN-13: 978-0133274417 ISBN-10: 0133274411
- *Connected Mathematics 3 Student Edition Grade 7: Shapes and Designs: Two-Dimensional Geometry*, copyright 2014, Prentice Hall, paperback. ISBN-13: 978-0133274479. ISBN-10: 0133274470.
- *Connected Mathematics 3 Student Edition Grade 7: Stretching and Shrinking: Understanding Similarity*, copyright 2014, Prentice Hall, paperback. ISBN-13: 978-0133274486. ISBN-10: 0133274489.
- *Connected Mathematics 3 Student Edition Grade 7: Filling and Wrapping: Three-Dimensional Measurement*, copyright 2014, Prentice Hall, paperback. ISBN-13: 978-0133276411. ISBN-10: 0133276414.
- *Connected Mathematics 3 Student Edition Grade 8: Looking for Pythagoras: The Pythagorean Theorem*, copyright 2014, Prentice Hall, paperback. ISBN-13: 978-0133274516. ISBN-10: 0133274519.
- *Connected Mathematics 3 Student Edition Grade 8: Butterflies, Pinwheels, and Wallpaper: Symmetry and Transformations*, copyright 2014, Prentice Hall, paperback. ISBN-13: 978-0133276435. ISBN-10: 0133276430.

We will also be using some free programs in the course, so I recommend that you download and install these on your own computer.

- GeoGebra, <https://www.geogebra.org>.
- SketchUp, <http://www.sketchup.com>.

Attendance and Participation: Attendance is expected. For *each* unexcused absence beyond the first two, your final grade will be reduced by 2 percentage points.

This class is designed for active involvement of the students. You will be actively supporting each other as you gain experience and understanding. Multiple ideas and points of view are important. You will benefit from hearing others' approaches to analysis and problem solving, and they will benefit from you. So attendance and active participation are expected. I expect activities in class to be related to the course. In particular, cellphones should be silenced, and use of laptops and other electronic devices should be devoted to the course activities.

If you miss a class for any reason, please let me know the reason immediately—an email message will suffice. I will give you an opportunity to make up graded work missed due to an excused absence.

S.R. 5.2.4.2, <http://www.uky.edu/StudentAffairs/Code/part2.html>), defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit “reasonable cause for nonattendance” by the professor.

Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Information regarding dates of major religious holidays may be found here: http://www.uky.edu/Ombud/ForStudents_ReligiousHolidays.php.

Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused or unexcused) per university policy.

Students may be asked to verify their absences in order for them to be considered excused.

Senate Rule 5.2.4.2 states that faculty have the right to request “appropriate verification” when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

Homework: There will be frequent homework assignments, usually assigned weekly, with specified due dates. The homework problems will have varying length and complexity. Some homework might actually be classwork collected in class. It is fine to discuss the homework together, but you must write up your own solutions in your own words.

Exams: I am planning to have two in-class exams during the semester. It is possible that some of these might be taken-home exams or have take-home components.

Final Exam: Thursday, December 17, 3:30–5:30 pm, in our regular classroom, though part or all of this exam might be take-home.

Grading: Your course score will be based on on the following percentages:

- 40% Homework
- 40% In-Class Exams
- 20% Final Exam

Your letter grade will be determined according to the common 10% scale, rounded to the nearest percent:

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

In addition, for *each* unexcused absence beyond the first two, your final grade will be reduced by 2 percentage points.

Academic Integrity: Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from

the university may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: <http://www.uky.edu/Ombud>. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Part II of Student Rights and Responsibilities (available online <http://www.uky.edu/StudentAffairs/Code/part2.html>) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about the question of plagiarism involving their own work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgment of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be.

Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone. When a student's assignment involves research in outside sources of information, the student must carefully acknowledge exactly what, where and how he/she employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain (Section 6.3.1).

Please note: Any assignment you turn in may be submitted to an electronic database to check for plagiarism.

Accommodations Due to Disability: If you have a documented disability that requires

academic accommodations, please see us as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide us with a Letter of Accommodation from the Disability Resource Center (725 Rose Street, Multidisciplinary Science Building (the building between the T. H. Morgan Building (Biological Sciences) and the College of Nursing), Suite 407, 257-2754, David Beach, Director, dtbeac1@uky.edu).

Suggestions and Other Course Issues: Suggestions for improvement are welcome at any time. Any concern about the course should be brought first to my attention. Further recourse is available through the Mathematics Director of Undergraduate Studies and the Department Chair, both accessible from the Main Office in 715 Patterson Office Tower.

Important Dates:

August 25 — Tuesday — Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees

August 26 — Wednesday — First day of classes

September 1 — Tuesday — Last day to add a class

September 1 — Tuesday — Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund

September 7 — Monday — Labor Day — Academic Holiday

September 16 — Wednesday — Last day to drop a course without it appearing on the students transcript

September 23 — Wednesday — Last day to officially withdraw from the University or reduce course load and receive a 50 percent refund

October 19 — Monday — Midpoint of the semester

November 13 — Friday — Last day to withdraw from the University or reduce course load. Students can withdraw or reduce course load after this date only for “urgent non-academic reasons.”

November 25–28 — Wednesday through Saturday — Thanksgiving — Academic Holidays

December 11 — Friday — Last day of classes

December 17 — Thursday — Final Exam, 3:30–5:30 pm

December 18 — Friday — December Commencement