UNIVERSITY OF SOUTH FLORIDA

Course Prefix, Number: MAE 6329
Course Title: Geometry & Measurement Middle Grades Teachers
CRN: 14273, Section #: 001 , Credit Hours: 3 hours
College of Education , Department of Teaching and Learning

COURSE SYLLABUS

Semester: Spring 2026
Class Meeting Days: Tuesday
Class Meeting Time: 5:00 – 7:45 pm
Class Meeting Location: EDU 213
Online Class Link (as appropriate): https://teams.microsoft.com/l/meetup-join/19%3ameeting_NGI1MGMzYjctYjIwOS00MmFhLTk4YTYtNzM1NzBiOWRiOWFk%40thread.v2/0?context=%7b%22Tid%22%3a%22741bf7de-e2e5-46df-8d67-82607df9deaa%22%2c%22Oid%22%3a%22e38d4bab-7ce5-4368-8c8d-17a6b48fce66%22%7d
Instructor: Dr. Ruthmae Sears
Office Location: EDU 308J
Office Hours: Tuesday 3:30- 4:30pm
Phone Number: 813-974-2172
Email: ruthmaesears@usf.edu

I. Welcome!

Welcome to **MAE 6329- Geometry and Measurement for Middle Grades Teachers**!

II. University Course Description

This course examines in depth geometry content and instructional practices appropriate for middle school mathematics teachers, including the use of technology to study geometry and historical connections to geometry. Topics studied include fundamentals of geometry, two- and three-dimensional figures, transformations, basic measurement properties of perimeter, area, and volume. Teachers experience instructional approaches appropriate for use in middle grades classrooms. This course is required in the MAT in Middle Grades Mathematics.

III. Course Prerequisites

Admission into the MAT in Middle Grades Mathematics or Curriculum and Instruction

IV. Course Purpose

As a competent mathematics teacher you must accept the challenge to effectively teach all students assigned to your classes, and be knowledgeable of mathematical content, mathematics education research and pedagogy. Therefore, the main objective is for each student to become a more effective geometry teacher.

Upon completion of this course, students will have demonstrated:

1. The ability to generate definitions of geometric terms and to make geometric discoveries independently and in collaboration with others;
2. The ability to reason inductively as well as deductively by generating geometric proofs;
3. The ability to solve problems involving geometric concepts;
4. The ability to derive area and volume formulas for common two- and three-dimensional figures;
5. The ability to find transformations (reflections, rotations, translations, and size changes) of common figures and to reason about properties of transformations;
6. The ability to create tiling designs with geometric shapes;
7. Using the tools of geometry, including geometric-drawing software (if available), to construct geometric figures and perform geometric investigations;
8. Knowledge of major historical developments in geometry;
9. Knowledge of mathematics education research on the teaching and learning of geometry.

V. How to Succeed in this Course

Good time management is critical to your success in the course. The class does have a heavy reading load, although the readings are not particularly dense. It is essential that you have read the assigned readings for the week and are prepared to discuss those readings during class. There may be some weeks when specific individuals will be responsible for leading the class discussion. Hence, you must plan ahead!

I know that in addition to your responsibilities for this class, you are all incredibly busy and productive in a multitude of other life roles. It is my sincere hope that you will read this syllabus carefully and ensure that you are willing to devote the time and energy needed to have a successful and enjoyable experience in this course. Most people who do not succeed in this course are unwilling and/or unable to devote the necessary time to this course. The "necessary time" depends on prior knowledge, the grade you would like to earn, and the effort taken to complete the assigned tasks.

Professional Disposition & Responsibilities

<u>Disposition</u>

According to the COE, it is important that students demonstrate the disposition necessary of a professional in this field. Disposition, according to Webster's dictionary, is defined as a prevailing tendency, mood, or inclination. As such, an educator's professional disposition includes, but is not limited to: self-sufficiency, intellectual curiosity, reflective practice, and

ongoing improvement. **Self-sufficiency** is the ability to work autonomously, communicate effectively, seek assistance and obtain additional information when needed, work within established timelines, and work effectively with peers. **Intellectual curiosity** refers to the acute awareness that learning does not simply occur within the classroom walls and that it may necessitate extra effort to obtain the intended knowledge. **Reflective practice** "describes a process of problem solving, reconstruction of meaning and subsequent reflective judgments while persons are engaged in significant new activity" (Reiman, 1999, p. 598). As such, reflection refers to the ability to consider experiences (e.g. new ways of teaching a topic) and its influence on your own understanding, the understanding of the students you will teach, or potential teaching practices. By reflecting on experiences, teacher or those who aim to become teachers

demonstrate a capacity (or disposition) to analyze the process of what they are doing, and to reconstruct their professional and personal knowledge schemes, while simultaneously making judgments to adapt their practice so that it best matches the needs of students. Theoretically, it connotes conceptually complex, ethical, caring, and flexible persons who consider alternative viewpoints (Reiman, 1999, p. 598).

Ongoing improvement refers to the recognition that current states, strategies, practices, or lines of thinking may not be the most appropriate or effective and the willingness to attempt things differently if an appropriate rationale surfaces.

[Reiman, A. J. (1999). The evolution of the social roletaking and guided reflection framework in teacher education: Recent theory and quantitative synthesis of the research. *Teaching and Teacher Education*, *15*, 597-612.]

Responsibilities of teachers of mathematics

The items listed below represents a small fraction of the things mathematics teachers must do in the course of their work:

1.Design mathematically accurate explanations that are comprehensive and useful to students;
2.Use mathematically appropriate and comprehensible definitions;
3.Represent ideas carefully, mapping between a physical or graphical model, and symbolic notation, and the operation or process.
4.Interpret and make mathematical and pedagogical judgments about students' questions, solutions, problems and insights (both predictable and unusual);
5.Be able to respond productively to students' mathematical questions and curiosities;
6.Make judgments about the mathematical quality of instructional materials and modify as necessary;
7.Be able to pose good mathematical questions and problems that are productive for student's learning;
8.Assess students' mathematics learning and take next steps.

[Source: Ball (2003) Mathematics in the 21st Century: What mathematical knowledge is needed for teaching mathematics. http://www.ed.gov/inits/mathscience/ball.html]

Students are expected to demonstrate behavior consistent with a professional career. An individual's temperament, aptitudes, beliefs, values, etc. should be exemplary for teacher

candidates who are pursuing a teacher education program. Failure to demonstrate such conduct will impact a student's grade as noted in the course syllabus. In particular, students must:

- Attend all class meeting. You are expected to be present at the beginning and conclusion of this class. Individuals' attendance, punctuality and engagement should be consistently eminent.
- Prepare carefully for class. Your ability to contribute to your own and your peers' understanding is dependent on your level of preparation. Therefore, you must be thoroughly prepared for each class.
- Complete and submit all assignments on time. You should demonstrate an ability to complete work autonomously, effectively utilize feedback, and follow directions. All assignment should be completed on time (before the specified due date and time). See assignment policy above. Students should maintain a file of all graded assignments until after receiving an official grade notification from the registrar.
- Collaborate responsibly with colleagues in coursework. Thoughtful participation, capacity to objectively reflect on one's disposition and behaviors, and demonstration of civility, diplomacy and sensitivity towards others should be evident.
- Engage in all course activities and discussions.
- Individuals should exhibit a positive response to feedback.
- Exhibit an aptitude to objectively consider new ideas.
- Interact professionally with classmates. Be respectful in conversation, behavior, and written correspondence to all parties. Students must demonstrate respectful standards of behavior during class discussion. *Please turn off all cellular phones, or place them in a non-ringing mode.*
- Students are expected to conduct themselves as professionals by positively influencing the classroom environment. Students who come late, leave early, or are absent, rarely contribute ideas, appear to be participating in discussions extraneous to the class, are observed to be doing work not related to the class, are disruptive, or inattentive, or passive are not behaving professionally.
- Students are expected to support all claims made in written and oral communications by relevant mathematics education literature.

NCTM (2014) Effective Mathematics Teaching Practices

As teachers of mathematics you are expected to exhibit the professional standards of the discipline. During your mathematical instruction, you are encouraged to exhibit the NCTM (2014) effective mathematics teaching practices. The practices are as follow:

- **Establish mathematics goals to focus learning**. Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.
- **Implement tasks that promote reasoning and problem solving**. Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies.
- **Use and connect mathematical representations**. Effective teaching of mathematics engages students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving.

- **Facilitate meaningful mathematical discourse**. Effective teaching of mathematics facilitates discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.
- **Pose purposeful questions**. Effective teaching of mathematics uses purposeful questions to assess and advance students' reasoning and sense making about important mathematical ideas and relationships.
- **Build procedural fluency from conceptual understanding**. Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems
- **Support productive struggle in learning mathematics**. Effective teaching of mathematics consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.
- **Elicit and use evidence of student thinking**. Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning. http://www.nctm.org/Conferences-and-Professional-Development/Principles-to-Actions-Toolkit/Resources/7-EffectiveMathematicsTeachingPractices/

VI. Course Topics

I. Introduction, Van Hiele Model of Geometric Thinking, & Problem Solving in Geometry
II. Geometric Shapes, and Measurement
III. Perimeter, Area, and Volume
IV. Reasoning and Proof
V. Pythagoras Theorem
VI. Circles Properties
VII. Reasoning and Triangle Congruence
VIII. Parallel Lines and Quadrilaterals
IX. Geometrical Constructions
X. Similarity
XI. Transformation Geometry
XII. Non-Euclidean Geometry
XIII. Trigonometry

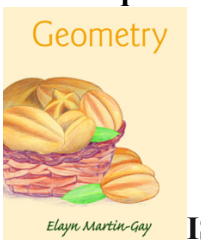
VII. Student Learning Outcomes

By the end of this course, students will be able to:

- Demonstrate proficiency in geometrical content knowledge that are aligned with the Florida B.E.S.T Standards for secondary mathematics
- Illustrate technological pedagogical content knowledge that support geometry teaching and learning
- Examine historical and modern-day development in geometry
- Create geometrical resources that can support and assess students' learning
- Explain why properties of geometry make sense with concrete models.

- Develop formal and informal proofs and arguments using deductive and inductive reasoning.
- Develop an understanding of Euclidean and non-Euclidean geometries
- Use technological tools to solve problems involving geometric structures and applications of algorithms
- Communicate mathematical ideas clearly and precisely in written and oral formats.

VIII. Required Texts and/or Readings and Course Materials



ISBN-13: 9780137554850

Elayn Martin-Gay (2021) Geometry with MyMathLab

IX. Supplementary Texts and Materials

Supplementary readings will be accessible via the University of South Florida Library Presto course reserve services, and/ or on Canvas.

Recommended resources*:*

- Journals (e.g. Mathematics Teacher: Learning and Teaching PK-12, School Science and Mathematics, Journal for Research in Mathematics Education).
- Florida B.E.S.T Standards for Mathematics

Various middle school mathematics texts

X. Grading Scale

The university's plus/minus system of grading will be used

Grading Scale (%)	
94-100	A
90 – 93	A-
87 – 89	B+
84 – 86	B
80 – 83	B-
77 – 79	C+
74 – 76	C
70 – 73	C-
67 – 69	D+
64 – 66	D

60 – 63	D-
0 – 59	F

A Outstanding Performance

The student demonstrates solid conceptual understanding and insight as evidenced by participation during in-class discussions and activities. The student shows mastery of the course content and is able to make extensions or apply that knowledge to new situations. Assignments/papers/projects are of excellent quality. The student contributes substantially to class and shows strong development toward becoming a mathematics teacher.

B Good Performance
The student demonstrates good mastery of the course content and is able to make some extensions or apply some of the knowledge to new situations as evidenced by participation during in-class discussions and activities. Assignments/papers/projects are of good quality but are not exceptional. The student contributes to class discussions. The student shows good development toward becoming a mathematics teacher.

C Adequate Performance

The student demonstrates adequate understanding and mastery of the course content but has difficulty extending or applying the knowledge to new situations as evidenced by in-class discussion and activities. Assignments/papers/projects are acceptable. The student shows acceptable development toward becoming a mathematics teacher.

D Below Average Performance
The student demonstrates unacceptable understanding and mastery of the course content. Assignments/papers/projects are inadequate. The student shows poor development toward becoming a mathematics teacher.

F Unacceptable Performance
The student demonstrates poor performance of the course content. Some assignments are not completed, are often late, or are of poor quality. The student does not contribute to class discussions. The student lacks development toward becoming a mathematics teacher

XI. Grade Categories and Weights

Students' achievement of course goals and objectives are based on the following assessments.

Assessment	Points allocated	Percentage of Final Grade	Tentative Due / Scheduled Date
Mid-term Exam	75	15%	February 21, 2023
Final Exam	75	15%	April 18, 2023
Historical Paper	75	15%	March 28, 2023

Summary of recent research on geometry education: Sinclair, N., Bussi, M. G. B., de Villiers, M., Jones, K., Kortenkamp, U., Leung, A., & Owens, K. (2016). Recent research on geometry education: an ICME-13 survey team report. *ZDM*, *48*(5), 691-719.	75	15%	January 24, 2023
Teaching Geometry with Technology	50	10%	March 21, 2023
Teaching geometry- informed by research articles	50	10%	To be determined- It will be based on the week an individual is assigned to facilitate.
Content Knowledge Exams	100	20%	Geometry for Teachers – Area, Perimeter and Volume – Due January 31, 2023 Geometry for Teachers _ Circles, Pythagoras Theorem, Similarity and Trigonometry – Due April 4, 2023

XII. Description of Assignments

Students' achievement of course goals and objectives are based on the following assessments.

- Content Knowledge Exams: Geometry for Teachers – Area, Perimeter and Volume, and Geometry for Teachers - Circles, Pythagoras Theorem, Similarity and Trigonometry
    - The purpose of the exam is to assess your mathematical understanding of the geometrical content discussed during the semester. Students will have a maximum of three attempts to take each test, for which the highest score will be used.

- Mid-term exam

- Final exam
    - The purpose of a final exam is to demonstrate knowledge learned and to exhibit competency in the objectives of the course.
      For your final exam, you will create a video(s), in which you demonstrate your geometrical content knowledge, knowledge of historical developments, means to infuse technology into a lesson, and good teaching practices. The video should be coherent and logically structured. You should identify a geometrical topic, describe historical significance for the topic, illustrate how a technological tool can be used to help teach the topic, and emphasize core mathematical ideas in unpacking the topic.
      You are encouraged to be creative and to create a product that is worth sharing with a wider audience. You can work in a group (no more than 4) or individually.
- Historical paper
    - Many of the geometrical contents taught in secondary school mathematics can be traced back to Greek mathematics. For example, Euclid and Pythagoras are considered Greek mathematicians, and their scholarly works are still an integral part of most secondary geometry curriculum. Therefore, for your assignment, you will document the contribution(s) that a Greek mathematician made to geometry. You will provide a brief autobiography of the individual and describe the contributions made in great detail, criticisms faced, as well as consider the implications of their works when teaching with technology.
      In your report be sure to provide a thesis statement that explicitly state how the paper would be structured. Additionally, be sure to cite original sources as much as possible, and reference a minimum of 10 reputable sources. Be sure to consider future studies that are needed relative to the Greek mathematician's contribution(s). The writing should be logically sequenced, and APA 6th edition for the references must be utilized. Additionally, an accurate conclusion about the ideas presented ought to be included. Your paper should be single-spaced, times new roman 12 font, and should not exceed six pages single-spaced.
- Summary of recent research on geometry education.
    - For this assignment, you will summarize Sinclair, Bussi, de Villiers, Jones, Kortenkamp, Leung, and Owens (2016), "Recent research on geometry education: an ICME-13 survey team report" which was published in *ZDM*, *48*(5), pages 691-719. In your writing, you will succinctly capture highlights of the chapter, and reference at least 7 researchers in mathematics education (from the chapter) that have studied geometrical thinking and proof. The writing should be logically sequenced, and APA 6th edition for the references must be utilized. Additionally, a conclusion about the ideas presented ought to be included, as well as recommendation(s) for future research based on gaps in the literature. Your paper should be single-spaced, times new roman 12 font, and should not exceed four pages.
- Teaching a geometry lesson using technology
    - Technology can be integrated into mathematics to assist in visualization of concepts, foster students' engagement in mathematics, amplify or reorganize the curriculum. For this assignment, you will integrate technology into teaching a geometry lesson. You will be evaluated on the extent technology is integrated into the lesson, presentation style (the extent your presentation is engaging),

preparedness, materials and teaching methods employed, and overall effectiveness.

The presentation should be 15 minutes or less. A penalty will be given to individuals who exceed the allotted time frame.

- Teaching geometry- informed by research articles
    - Individuals will teach a geometry lesson based on the information discussed in the weekly assigned readings. As the teacher, you should creatively seek to enhance your colleagues understanding of the assigned research articles and provide opportunities for them to reflect on effective teaching of geometry. You will be evaluated on the extent the information is presented in a logical and interesting sequence, the quality of content shared and questions posed, the extent the lesson taught aligns with the articles, and the overall professionalism exhibited. An outline of the nature of the lesson should be provided to the instructor prior to the start of the class. The presentation, which should embody the course readings should not exceed 40 minutes.

Assignments are to be submitted before the start of class (5:00 p.m.) on the due date. Course grades are based upon point allocations. The table below displays the points allocated for each assessment, with respect to the percentage it contributes to the final grade, and the tentative date the assignments are due. The following represents my current thinking about the evaluation of this course. I reserve the right to make changes/adjustments as needed.

XIII. Grade Dissemination

Graded assignments for this course will be returned via correspondence in CANVAS. You can access your scores at any time using "Grades" in Canvas.

XIV. Course Schedule

This outline represents my current thinking. We may need to adjust the syllabus as the course proceeds depending on the interests and needs of students. The table list readings that we will all do.

Date	Topic	Textbook Chapter to be discussed	Supplementary Readings	Assignment Due
January 14, 2026	Introduction, Van Hiele Model of Geometric Thinking, & Problem Solving in Geometry	Chapter 1.2	Breyfogle, M. L., & Lynch, C. M. (2010). Van hiele revisited. *Mathematics Teaching in the Middle School, 16*(4), 232-238. Lee, C. Y., & Chen, M. J. (2015). Effects of Polya questioning instruction for geometry reasoning in junior high school. *Eurasia Journal of Mathematics, Science and Technology Education*, *11*(6), 1547-1561.	

January 21, 2026	History of geometry and historical curricular trends Geometric Shapes, and Measurement ** **Mathematical Knowledge for Teaching - Geometry (MKT-G)**	Chapter 1.3, Chapter1.4, Chapter 1.5, Chapter 1.6	Bentley, B. (2016). Why the golden proportion really is golden. *Australian Mathematics Teacher, The*, *72*(1), 10. Choudhary, A., Dogne, N., & Maheshwari, S. (2014, December). Mathematics and Architecture: Importance of Geometry. In *Ncaict: National Conference On Advances in Information and Communication Technology*. Hardison, H. L., & Lee, H. Y. (2020). Funky protractors for exploring angle measure. *Mathematics Teacher: Learning and Teaching PK-12*, *113*(3), 229-232. Jones, K., & Fujita, T. (2013). Interpretations of national curricula: the case of geometry in textbooks from England and Japan. *ZDM*, *45*(5), 671-683. Stahl, G. (2013). History: The Origin of Geometry. In *Translating Euclid* (pp. 21-31). Springer, Cham.	***HW. 1.2***
January 28, 2026	Perimeter, Area, and Volume	Chapter 2.1 , Chapter 10, Chapter 11	Druken, B., & Fullerton, C. S. U. Four Tasks to Catalyze Change: Perimeter, Area, Surface Area, and Volume.	***Summary of recent research on geometry education***

			Tan Sisman, G., & Aksu, M. (2016). A study on sixth grade students' misconceptions and errors in spatial measurement: Length, area, and volume. *International Journal of Science and Mathematics Education*, *14*(7), 1293-1319.	***HW*** Chapter 1.3, Chapter1.4, Chapter 1.5, Chapter 1.6
February 4, 2026	Reasoning and Proof	Chapter 2.2, Chapter 2.3 Chapter 2.4, Chapter 2.5 Chapter 2.6 Chapter 2.7	Conner, K. A. (2020). Constructing and Unpacking Diagrams in Geometry. *Mathematics Teacher: Learning and Teaching PK-12*, *113*(6), 516-519 Sears, R. (2019). Proof schemes of pre-service middle and secondary mathematics teachers. *Investigations in Mathematics Learning*, *11*(4), 258-274. Sears, R., & Chávez, Ó. (2015, February). Students of two-curriculum types Performance on a proof for congruent triangles. In *CERME 9-Ninth Congress of the European Society for Research in Mathematics Education* (pp. 192-197).	***HW*** Chapter 2.1 , Chapter 10, Chapter 11
February 11 2026	Parallel Lines and Quadrilaterals	Chapter 3 Chapter 6	Josefsson, M. (2016). On the classification of convex quadrilaterals. *The*	***HW*** Chapter 2.2, Chapter 2.3

			Mathematical Gazette, *100*(547), 68-85. Rohman, H. M. H., & Retnowati, E. (2018, September). How to teach geometry theorems using worked examples: A cognitive load theory perspective. In *Journal of Physics: Conference Series* (Vol. 1097, No. 1, p. 012104). IOP Publishing.	Chapter 2.4, Chapter 2.5 Chapter 2.6 Chapter 2.7
February 18, 2026	Similarity and Congruence	Chapter 7	Haj-Yahya, A. (2022). Students' conceptions of the definitions of congruent and similar triangles. *International Journal of Mathematical Education in Science and Technology*, *53*(10), 2703-2727. Wijaya, T. T., Mutmainah, I. I., Suryani, N., Azizah, D., Fitri, A., Hermita, N., & Tohir, M. (2021, October). Nineth grade students mistakes when solving congruence and similarity problem. In *Journal of Physics: Conference Series* (Vol. 2049, No. 1, p. 012066). IOP Publishing.	***HW*** Chapter 3 Chapter 6
February 25, 2026	Transformation Geometry	Chapter 8	Roscoe, M. B., & Zephyrs, J. (2016). Quilt Block Symmetries. *Mathematics Teaching in the Middle School*, *22*(1), 18-27	***Midterm Exam***

March 4, 2026	Pythagoras Theorem	Chapter 9.1	Wittmann, E. C. (2021). Designing teaching: The pythagorean theorem. In *Connecting Mathematics and Mathematics Education* (pp. 95-160). Springer, Cham.	***HW Chapter 7 & 8***
March 11, 2026	Geometrical Constructions with GeoGebra		Lo, J. J., & White, N. (2020). Selecting GeoGebra Applets for Learning Goals. *Mathematics Teacher: Learning and Teaching PK-12*, *113*(2), 156-159. Mollakuqe, V., Rexhepi, S., & Iseni, E. (2020). Incorporating Geogebra into Teaching Circle Properties at High School Level and it's Comparison with the Classical Method of Teaching. *International Electronic Journal of Mathematics Education*, *16*(1), em0616.	***HW Ch.9.1***
March 18 2026 ***NO CLASS***	SPRING BREAK		SPRING BREAK	
March 25, 2026	***Teaching Geometry with Technology*** ***(Individual Class Presentations)***			***Teaching Geometry with Technology***

April 1, 2026	Circles Properties	Chapter 12	Buchbinder, O. (2018). Guided discovery of the nine-point circle theorem and its proof. *International Journal of Mathematical Education in Science and Technology*, *49*(1), 138-153.	***Historical Paper***
April 8, 2026	Trigonometry	Chapter 9.3	Fox, C., & DeJarnette, A. (2022). Trigonometry and the World Water Crisis. *Mathematics Teacher: Learning and Teaching PK-12*, *115*(3), 220-227. May, V., & Courtney, S. (2016). Developing meaning in trigonometry. *Illinois Mathematics Teacher*, *63*(1), 25-33. Moore, K. C., & LaForest, K. R. (2014). The circle approach to trigonometry. *The Mathematics Teacher*, *107*(8), 616-623.	***HW Ch 12.***
April 15, 2026 ***(Virtual)***	Non-Euclidean Geometry	Chapter 12	Williams, D. A., Fulton, K., Silver, T., & Nehring, A. (2021). Non-Euclidean Geometry Lesson Promotes Mathematical Reasoning. *Mathematics Teacher: Learning and Teaching PK-12*, *114*(11), 869-877.	***HW 9.3***
April 22, 2026	** **Mathematical Knowledge for Teaching –**			***Final Exam***

	Geometry (MKT-G)			
April 29, 2026	Reflections			

* Note: The Schedule is subject to revision

XV. Course Policies:

Assignments

All assignments must be completed by the start of class (Tuesday 5:00pm) on the due date. Many of the activities in which we will engage will depend on your preparedness for class. Therefore, it is strongly recommended that students arrange to meet with the instructor in advance to receive feedback and additional guidance regarding progress on submissions, if needed. Submitted assignments will be graded according to a scoring rubric that will be distributed. There are no extra credit assignments.

If a student misses a class, it is the student's responsibility to secure from other students the information missed or material distributed. The student at the next class must retrieve scored assignments/papers distributed to the class or it will be discarded. Students should retain all graded papers until final grades are issued.

If a student is absent on a day when an assignment is due, the assignment must be submitted via Canvas and or their university email account to the instructor.

The due dates for assignments are clearly specified in the "Course Assessment" section of this document. Generally, permission to submit late work is only granted in extreme family or personal circumstances, and not because the student failed to submit the work in a timely fashion. Unless the instructor of the course has granted the student a formal extension, the following penalties will be applied for assignments submitted late:

- up to two days late, loss of 10% of the total available marks for the assignment;
- two to five days late, loss of 15% of the total available marks for the assignment;
- five to seven days late, loss of 20% of the total available marks for the assignment;
- seven to nine days late, loss of 25% of the total available marks for the assignment;
- over nine days late, no mark will be given for the assignment. Hence, the student would obtain a 0% as a grade for the assignment.

****Note**: Expect to complete at least 4 hours of work outside of class for each hour you spend in class.

Attendance

Candidates are expected to attend all classes. Each candidate should arrive prior to class and remain until the conclusion of the class. Prompt attendance is expected. A tardy may count as an absence. In the event of an unavoidable absence (e.g. serious illness, accident, hospitalization, or significant immediate family tragedy) the candidate may provide the

instructor with documentation verifying the absence within 48 hours for any consideration. If a candidate anticipates the necessity of being absent from class due to the observation of a major religious observance please provide the instructor a notice of the date(s), in writing, by the second class meeting. With the exception of major religious observances, candidates who come to class late, leave early, and/or miss class are not entitled to the same professional disposition points (and/or other forms of evaluation) as candidates who attend more or all classes. Regarding engagement, each candidate must be actively engaged in class work at all times to be considered present. Candidates will be considered absent if they disengage from class activities and professional disposition points will be deducted. Absences, coming late, leaving early and disengaging in class significantly affect each candidate's ability will impact your overall grade in the course. **More than two unexcused absences will result in a lower letter grade in the course**.

Academic Dishonesty

Plagiarism is defined as "literary theft" and consists of the unattributed quotation of the exact words of a published text, or the unattributed borrowing of original ideas by paraphrase from a published text. On written papers for which the student employs information gathered from books, articles or oral sources, each direct quotation, as well as ideas and facts that are not generally known to the public at large must be attributed to its author by means of the appropriate citation procedure. Citations may be made in footnotes or within the body of the text. Plagiarism also consist of passing off as one' s own segment or the total of another person's work.

Punishment for Academic Dishonesty will depend on the seriousness of the offense and may include receipt of an "F" with a numerical value of zero on the item submitted, and the "F" shall be used to determine the final course grade. It is the option of the instructor to assign the student a grade of F or FF (the latter indicating dishonesty) in the course.

Generative Artificial Intelligence (AI)

Use of an AI generator when an assignment does not explicitly call or allow for it without proper attribution or authorization is plagiarism.

ChatGPT and Generative AI

It is dishonest and unethical to submit work created by a generative artificial intelligence (AI) such as ChatGPT as an original assignment. Therefore, all assignments are to include proper citations, and are expected to be original works that was created entirely by the doctoral student.

Thus, the use of a generative AI to complete assignments will result in a zero grade for the assignment and potentially an FF for the course.

XVI. Course Policies: Technology and Media

Web Portal Information

An official USF e-mail account is given to every USF student when enrolled. Every official correspondence to students will be sent to this account via Canvas. Please ensure that you

arrange to forward your email to an account that you read regularly if you do not use the official USF email.

Canvas: This course will be offered via USF's learning management system (LMS), Canvas. If you need help learning how to perform various tasks related to this course or other courses being offered in Canvas, please view the following videos or consult the Canvas help guides. You may also contact USF's IT department at (813) 974-1222 or help@usf.edu.

Recording of class sessions
All unauthorized recording of class are prohibited. Recording of class via audio/ visual recorder, or cellular phone is strictly prohibited without the express permission of the instructor. Recording that accommodate individual student needs must be approved in advance and be used for personal use during the semester only. Redistribution and/or sharing information in the public or private domain is prohibited.

XVII. Course Policies: Student Expectations

Academic Integrity
Academic integrity is the foundation of the University of South Florida System's commitment to the academic honesty and personal integrity of its university community. Academic integrity is grounded in certain fundamental values, which include honesty, respect, and fairness. Broadly defined, academic honesty is the completion of all academic endeavors and claims of scholarly knowledge as representative of one's own efforts. The final decision on an academic integrity violation and related academic sanction at any USF System institution shall affect and be applied to the academic status of the student throughout the USF System, unless otherwise determined by the independently accredited institution. The process for faculty reporting of academic misconduct, as well as the student's options for appeal, are outlined in detail in USF System Regulation 3.027.

Disruption to Academic Progress
Disruptive students in the academic setting hinder the educational process. Disruption of the academic process is defined as the act, words, or general conduct of a student in a classroom or other academic environment which in the reasonable estimation of the instructor: (a) directs attention away from the academic matters at hand, such as noisy distractions, persistent, disrespectful or abusive interruption of lecture, exam, academic discussion, or general University operations, or (b) presents a danger to the health, safety, or well-being of self or other persons.

Academic Grievance Procedure
The purpose of these procedures is to provide all undergraduate and graduate students taking courses within the University of South Florida System an opportunity for objective review of facts and events pertinent to the cause of the academic grievance. An "academic grievance" is a claim that a specific academic decision or action that affects that student's academic record or status has violated published policies and procedures, or has been applied to the grievant in a manner different from that used for other students.

Disability Access
Students with disabilities are responsible for registering with the Office of Student Accessibility Services in order to receive special accommodation and services. Please notify the instructor during the first week of classes if a reasonable accommodation for a disability is needed for this course. A letter from the USF Accessibility Services Office must accompany this request.

Sexual Misconduct / Sexual Harassment
USF is committed to providing an environment free from sex discrimination, including sexual harassment and sexual violence (USF System Policy 0-004). The USF Center for Victim is a confidential resource where you can talk about incidents of sexual harassment and gender-based crimes including sexual assault, stalking, and domestic/relationship violence. This confidential resource can help you without having to report your situation to the Office of Student Rights and Responsibilities (OSSR) unless you request that they make a report. Please be aware that in compliance with Title IX and under the USF System Policy, educators must report incidents of sexual harassment, sexual assault, stalking, and domestic/relationship violence. If you disclose any of these situations in class, in papers, or to me personally, I am required to report it to OSSR investigation. Contact the USF Center for Victim Advocacy and Violence Prevention: (813) 974-5757.

Religious Observances
All students have a right to expect that the University will reasonably accommodate their religious observances, practices and beliefs (USF System Policy 10-045). The USF System, through its faculty, will make every attempt to schedule required classes and examinations in view of customarily observed religious holidays of those religious groups or communities comprising the USF System's constituency. Students are expected to attend classes and take examinations as determined by the USF System. No student shall be compelled to attend class or sit for an examination at a day or time prohibited by his or her religious belief. However, students should review the course requirements and meeting days and times to avoid foreseeable conflicts, as excessive absences in a given term may prevent a student from completing the academic requirements of a specific course. Students are expected to notify their instructors at the beginning of each academic term if they intend to be absent for a class or announced examination, in accordance with this Policy.

Statement of Academic Continuity
In the event of an emergency, it may be necessary for USF to suspend normal operations. During this time, USF may opt to continue delivery of instruction through methods that include, but are not limited to: Learning Management System, online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor the Learning Management System for each class for course-specific communication, and the main USF, College, and Department websites, emails, and MoBull messages for important general information (USF System Policy 6-010). For additional guidance on emergency protective actions and hazards that affect the University, please visit www.usf.edu/em

Attendance Policy: Students are expected to attend classes. If an emergency arises that hinders a student attending class, the student should notify the instructor as soon as possible.

Professionalism Policy:
Per university policy and classroom etiquette; mobile phones, iPods, etc. **must be silenced** during class. Those not heeding this rule will be asked to leave the classroom so as to not disrupt the learning environment. Please arrive on time for all class meetings. Students who habitually disrupt discourse relative to the mathematics education content being discussed, arriving late, etc., and have been warned may suffer a reduction in their final class grade.

End of Semester Student Evaluations:
All classes at USF make use of an online system for students to provide feedback to the University regarding the course. These surveys will be made available at the end of the semester, and the University will notify students by email when the response window opens. Hence, students participation is highly encouraged and valued.

Turnitin.com: In this course, turnitin.com will be utilized. Turnitin is an automated system which instructors may use to quickly and easily compare each student's assignment with billions of web sites, as well as an enormous database of student papers that grows with each submission. Accordingly, students will be expected to submit all assignments in both hard copy and electronic format. After the assignment is processed, as instructor I receive a report from turnitin.com that states if and how another author's work was used in the assignment. For a more detailed look at this process visit http://www.turnitin.com. Assignments are due at turnitin.com the same day as in class.

The Writing Studio: Offer information about the Writing Studio.
Example: The Writing Studio is a free resource for USF undergraduate and graduate students. At the Writing Studio, a trained writing consultant will work individually with you, at any point in the writing process from brainstorming to editing. Appointments are recommended, but not required. For more information or to make an appointment, visit http://www.lib.usf.edu/writing/, stop by LIB 2nd Floor, or call 813-974-8293.

XVIII. Covid-19 Procedures

All students must comply with university policies and posted signs regarding COVID-19 mitigation measures.

XIX. Important Dates to Remember

*All the assignments dates are tentative, and can be changed at the discretion of the professor.

Drop/Add Deadline: **January 16, 2026**
Spring Break: **March 16-22, 2026**

Withdrawal Deadline: **March 28, 2026**
Mid-term Exam : **February 26, 2026**
Final Exam: **April 22, 2026**
Historical Paper : **April 1, 2026**
Summary of recent research on geometry education:
Sinclair, N., Bussi, M. G. B., de Villiers, M., Jones, K., Kortenkamp, U., Leung, A., & Owens, K. (2016). Recent research on geometry education: an ICME-13 survey team report. *ZDM*, *48*(5), 691-719. - **January 28, 2026**
Teaching Geometry with Technology **March 25, 2026**
Teaching geometry- informed by research articles
MyMathLab Homework – Content Knowledge Assessment - January 21, 2026, January 28, 2026, February 4, 2026, February 11, 2026, February 18, 2026, March 4, 2026, March 11, 2026, April 8, 2026, and April 15, 2026

XX. Diversity of Thought

It is fundamental to the University of South Florida's mission to support an environment where divergent ideas, theories, and philosophies can be openly exchanged and critically evaluated. Consistent with these principles, this course may involve discussion of ideas that you find uncomfortable, disagreeable, or even offensive.

In the instructional setting, ideas are intended to be presented in an objective manner and not as an endorsement of what you should personally believe. Objective means that the idea(s) presented can be tested by critical peer review and rigorous debate, and that the idea(s) is supported by credible research.

Not all ideas can be supported by objective methods or criteria. Regardless, you may decide that certain ideas are worthy of your personal belief. In this course, however, you may be asked to engage with complex ideas and to demonstrate an understanding of the ideas. Understanding an idea does not mean that you are required to believe it or agree with it.