The University of Texas at El Paso
College of Science
Department of Mathematics Science
Course Syllabus

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I. Course Number and Instructor Information

COURSE NUMBER:	**MATH 2304 (CRN 21135)**
COURSE TITLE:	**Geometry & Measurement**
CREDIT HOURS:	**3**
PREREQUISTITE:	**MATH 2303 with a "C" or better**
TERM:	**Spring 2025**
CLASS MEETING:	**TR, 9:00 – 10:20AM, Liberal Arts Building Room 209**
INSTRUCTOR:	**Fan Chen**
CONTACT INFORMATION:	**Email: fchen4@utep.edu** **Phone: (915) 257-5394** **Text using Remind: To subscribe, text 81010 or (415) 799-2512 with the words "@math2304", or scan the QR Code:**
OFFICE/STUDENTS HOURS:	**Thursday 8:00-9:00AM (LART 209), or by appointment using Booking, or scan the QR code to request your appointment**

Note about email:

You can email me a question any time. I try to return email within 48 hours, with exception of weekends; if you email after 5pm on a Friday, you may not hear back from me until the following Monday.
Please email me directly at fchen4@utep.edu. When you email, put MATH2304 in the subject line followed by your name. So, the email will come to me as: Subject: ***MATH2304 [Your Name]****.*
To protect my computer from any virus, I will delete without opening any email ***without*** *subject required.*
I will ***not*** *answer any course related questions from a non-UTEP email. All communications should follow appropriate language and include your name so that I know who you are.*
Email is not a good platform to ask/answer mathematical problems. If you need help with any assignment, you should try to attend the office hours and/or ask questions before/after class.

Note about Office/Students Hours:

The Office/Students Hours are specifically dedicated to helping you, and you are strongly encouraged to take advantage of them. This is your time to ask questions about the course, get advice on being a successful college student, and explore opportunities like internships and scholarships. Whether you need help with course materials or simply want to connect and network, I'm here to support you. Make the most of this time—I'm eager to be your mentor and help you succeed in college!

II. Course Description

This course focuses on geometry and measurement for prospective elementary and middle school teachers. Topics include measurement as a process of units of measurement for quantities such as length, area, volume, angle size, and speed; conversions of units of measurement; properties and formulas for basic geometrical shapes such as polygons, circles, polyhedra, and cones; transformations such as translations, rotations, reflections, and dilations to geometric relationships and constructions using straight edge, compass, and technology. The focus is on spatial reasoning, logical reasoning, and making connections among geometric ideas and measurement, number concepts, and algebra.

III. Course Objectives

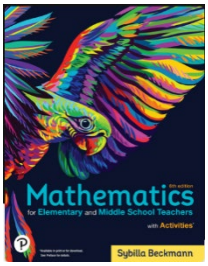
Students will

- deepen their understanding of geometry as a study of space and shapes, and measurement as a process of determining size;
- make connections and distinction among between concepts, e.g., congruent figures and rigid motion, similarity and proportionality;
- conceive mathematics as a problem-solving endeavor that involves visualizing, investigating, and analyzing;
- develop the habits of attending to meaning, of analyzing problem situations, and of making conjectures and providing justifications;
- develop the skills for active reading and understanding mathematical texts; and
- cultivate a growth mindset where the focus is learning and effort rather than looking good and performance.

IV. Text and Materials

A. **Required Text:**

Mathematics for Elementary Teachers with Activities (6th Ed) By Sybilla Beckmann.



B. **Materials:**

a. MyLab Access Code. To enroll into the MyLab course, go to https://mlm.pearson.com/enrollment/chen26753

b. Protractor, compass, ruler, and a pair of scissors.

V. TExES Competencies

Competencies 16 & 18 (Generalist EC-6)
Competencies 20 & 22 (Bilingual Generalist EC-6)
Competencies 17, 18, 19, 20 & 24 (Generalist 4-8)
Competencies 21, 22, 23, 24 & 28 (Bilingual Generalist 4-8)
Competencies 8, 9, 10, 11, 15 & 16 (Mathematics 4-8)

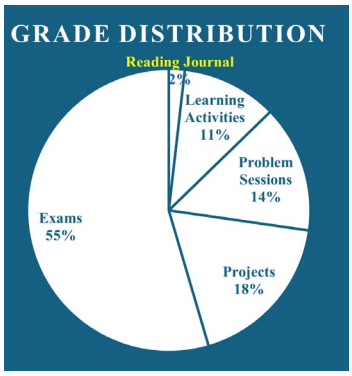
VI. Course Requirements

A. Grading Scale

The Course grade is based on 550 points. All issued grades are accumulative and reflect your progress in the course today.

Grade Scale	
Accumulative Points	Letter Grade
≥495 points	A
440 – 494 points	B
385 – 493 points	C
330 – 384 points	D
0 – 329 points	F

Reading Journal:	10 points
Learning Activities:	60 points
Problem Sessions:	80 points
Projects:	100 points
Two Midterm Exams:	200 points
Final Exam:	100 points
Total Possible Points:	**550 points**



Points Distribution by Week

Week	Weekly Subtotal	Reading Journal	Learning Activities	Problem Sessions	Projects	Exams
1	5			5		
2	10		5	5		
3	10		5	5		
4	10		5	5		
5	110		5	5		100
6	33.5	2.5	5	6	20	
7	11		5	6		
8	11		5	6		
9	13.5	2.5	5	6		
10	41		5	6	30	
11	110		5	5		100
12	10		5	5		
13	10		5	5		
14	62.5	2.5	5	5	50	
15	10		5	5		
16	102.5	2.5				100

All grades are posted in Blackboard. You are responsible for verifying those grades are accurate. You have two weeks after a score has been posted or the graded assignment is returned to resolve any grade concerns by contacting the instructor. The instructor will not consider these grade disputes at the end of the semester.

B. Course Assignments

All assignments can be submitted in person in class. No other way of submitting assignments will be accepted. For the assignments require showing your works and you wish to submit them electronically, only .pdf, .doc (or .docx) files will be accepted and graded. All assignments should be ***written/typed neatly and presented logically****. Answers read from graphing calculator, math solver, etc. will receive no credit. Using completed mathematical expressions and sentences (think how you write and submit your essay in an English class). Sentence fragments are meaningless. Materials that cannot be followed will not be graded.*

1. **Reading Journal** (10 points):
   Writing is a way to engage all learners in mathematical thinking at the same time. An entire class of students cannot talk about mathematics at the same time, but you can write about

mathematics at the same time (Tuttle, 2005). Have you ever been overwhelmed with all of the things you need to do? Thoughts just swim through your mind, jumping from one Oh, I can't forget to do that! to the next. What do you do to help you manage these thoughts? Many of us write them down. Making a list often helps us get ahold of what needs doing and focus on our next steps. Writing has this kind of power. Writing helps us capture the multitude of related ideas we have in our heads, bring them together in a coherent story, and realize what gaps we have in our learning or what parts of an idea are still unclear to us.

Written explanations in mathematics are about what is being done and why it works. The type of thinking involved in justifying a strategy or explaining an answer is quite different from that needed to merely solve an equation. The process of writing about a mathematics problem will itself often lead to a solution (Tuttle, 2005).

Before each week's classes, you will be assigned a reading for the week. You are expected to complete the reading and prepare a reading journal before the class. It is your responsibility to read the assigned sections, take notes on your reading journal. Your reading journal can be either physical or electronical. In order to earn full reading journal grade, you must come to class prepared, having completed the reading and note-taking assignments. Your reading journal should include the important definitions, theorems, examples from the textbook, and the questions that arise during your reading. It is your responsibilities to show the instructor your reading journal in a monthly basic (February, March, April, and May) to earn the points.

2. **Learning Activities and Teacher of the Day** (60 points):
   Given the collaborative, activity-based nature of this class, you are expected to be actively engaged in this class. The learning activities are designed to help you to discover math, get to know why you are learning certain math, and apply your mathematical knowledge in the real work, link specific mathematical concepts to real world phenomena. Additionally, you will be assigned sessions to self-study specific topics and return to class to teach your peers, acting as the "teacher of the day." This approach allows you to deepen your understanding by preparing to teach others, reinforcing your grasp of the material while enhancing communication and instructional skills.

3. **Problem Sessions** (80 points):
   Learning mathematics is a bit like playing sport or learning a musical instrument. You can't do it well immediately. It requires practice. Think of having a mathematical muscle in your mind that with practice gradually gets stronger. The math muscle gets stronger, the more math practice we do. The stronger the math muscle, the faster it works. The stronger it is, the harder the problems it can solve. The stronger it is, the easier math becomes. Therefore, the majority of your learning will come through completing the course assignments. After new material has been presented, homework exercises corresponding to the material should be attempted and presented in the next class. Sometimes you will be asked to study a lesson on your own and then explain what you learn to the class. The assignments will be assigned on every week. You are encouraged to work together, but each student must write up their own; do not simply copy one another. If you work with a group of classmates, you need to list their names on the problem(s) that you work together. It is incumbent on you to ensure that your assignments are readable, both in terms of legibility and intelligibility. These assignments are not something that you can ban out in an afternoon, so you should start working immediately once they are assigned and work on them in short chucks several times a week. Keep in mind that the more you practice, the better you get at it.
   The list of problems which has been assigned is only a minimal list. You should do additional problems whenever possible, especially in an area that you find challenging.

4. **Projects** (100 points):
   There will be few projects assigned in this course. The purpose of the projects is to get practice of the course material and to strengthen your skills of problem solving and critical thinking, building team work, and improving written communication skills. See the project handouts for the requirement and deadlines.

5. **Midterm Exams** (200 points):
   There will be two midterm exams (see calendar for approximate timetable) worth a total of 200 points. However, the schedule is subject to change, so be sure to check your course announcement for updated schedule. Students will be called randomly to explain their work in the exam, failing to do so will be resulted to a zero. There will no retests or make-up exams. If you believe that you have a legitimate reason for missing a midterm, you must contact the instructor as soon as the reason arises, not after the fact. Each student is required to take both exams. The lowest test grade will not be dropped. Instead the final exam grade can be used to replace the student's lowest exam grade out of the two midterm exams. Note, however, the final exam will not replace any zeros for tests not taken.

6. **Final Exam** (100 points):
   The final exam is mandatory and comprehensive. A student who fails to take the final will be result in an automatic failing grade, F, for the course. The final exam will **not** be dropped or replaced.

VII. Instructor's Policies

A. Class Structure

This course is Project Based Learning (PBL) course. PBL is an instructional approach that challenges students to learn how to learn through collaborative real-world problem solving. PBL improves student's 21st century skills.

You, the student, are expected to actively engage in the discussion, learning activities, and group projects. You will have the opportunity to work in groups and with partners. You will be expected to present solutions to your group or the entire class. I will play the role of the facilitator in this process as you initiate, synthesize, and analyze knowledge.

There are two domains of knowledge that you are expect to become fluent with by the end of the course – content knowledge and lifelong skills.

Content knowledge:

You will master the first three levels of Bloom's taxonomy – be able to recall basic facts (through pre-class quizzes), explain key concepts in your own words (through in-class quizzes), and apply learnt techniques in novel settings, particularly in problems that are pertinent to one's field of study (through projects and exams). You should be able to do so even after two years from the time you took this class.

Lifelong Skills:

You will

- become an independent learner who can initiate the learning process, stay on top of the course materials, evaluate your studying habits, develop abilities to detect faults in your learning strategies, and make adjustments when needed.
- become a proficient problem solver
- become comfortable sharing our ideas to others who might or might not have the expert knowledge in the content field.
- become an efficient learner by being organized.
- acquire the ability to communicate your ideas clearly through mathematically sound writing.

B. Standard of Work

In this course, all assignments must include both correct answers and the accompanying work or explanations. Correct answers without supporting work may not receive full credit. You may lose credit, even with a correct final answer, if your work is unclear, difficult to read, or missing important details or interpretations. Work must be logically presented and easily understandable. If your work is incorrect, inconsistent with your final answer, or poorly organized, you may lose credit.

C. Scholastic Integrity Policy

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the Office of Community Standards for possible disciplinary action. To learn more, please visit HOOP: Student Conduct and Discipline.

D. Academic Dishonesty and Plagiarism

Academic Dishonesty includes cheating (giving and/or receiving unauthorized assistance on any assignment), fabricating information or sources, improper collaboration, taking or having another person take your exam, tampering with the work of another student, submitting the same paper for different classes without permission, and plagiarism. Plagiarism occurs when writers deliberately or unintentionally use another person's language, ideas, or materials and present them as their own without properly acknowledging and citing the sources. This includes but is not limited to truing in all or part of work written by someone other than yourself (a friend, an internet source, etc.) and claiming it as your own, including information or ideas from research material without citing the source, finding the solutions of the assignment using software and/or search on internet. Avoid plagiarism by carefully and correctly citing your sources whenever you use someone else's words, equations, graphics, or ideas.

The intentional or unintentional presentation of someone else's work as your own will result in disciplinary action and earned failure of the course. Any form of academic dishonesty, to include plagiarism, self-plagiarism, Artificial Intelligence generated work (AI or third-party application or software), cheating on quizzes/exams, collusion, or complicity, will not be tolerated. The use of any Artificial Intelligence (AI or third-party application) software-program/open-source application will result in earning an "F" for the course and referral to the Vice President of Student and Enrollment Services with a recommendation for further sanctions (dropped from course, academic probation, transcript recording of the offense, etc.). If you plagiarize/cheat you will earn a failing grade of "F" for the assignment and course and you will be referred to the Vice President of Student and Enrollment Services with a recommendation for further sanctions (dropped from course, academic probation, transcript recording of the offense, etc.). Refer to the "Student Code of Conduct" in the course catalog for detailed information regarding EPCC policy and your rights as a student.

E. Guidance on Artificial Intelligence

Use of AI technologies or automated tools, particularly generative AI such as ChatGPT or DALL-E, is not allowed for assignments in this class. Each student is expected to use critical and creative thinking skills to complete tasks and not rely on computer-generated ideas. Any direct use of AI-generated materials submitted as your own work will be treated as plagiarism and reported to the Office of Community Standards.

F. Attendance and Drop Policy

This is a face-to-face course, and attending the class at the scheduled time is mandatory. It is your responsibility to attend class as per the schedule. Additionally, it is your responsibility to withdraw from the course if necessary. The instructor assumes no responsibility for your withdrawal from the course or for the completion of student's course work.

Course expectations are outlined in this syllabus. Last day to withdraw with a grade of "W" is **Friday, April 4th, 2025.**

According to UTEP Curriculum and Classroom Policies, "When, in the judgment of the instructor, a student has been absent to such a degree as to impair his or her status relative to credit for the course, the instructor may drop the student from the class with a grade of "W" before the course drop deadline and with a grade of "F" after the course drop deadline." See academic regulations in the UTEP Undergraduate Catalog for a list of excuse absences.

If you fail to attend class or submit assignments for three consecutive business days, then you may be dropped from this class due to lack of effort. Be sure to check Blackboard and your miners' email regularly for important announcements.

The officially drop the course, student must submit a drop form by emailing records@utep.edu no later than 5:00PM on Friday, April 4th, 2025. The College of Science will remain aligned with the University and will not approve any drop requests after that date.

G. Participation

You are expected to arrive class on time and attend the class as schedule and actively participate as part of our learning community. This includes being prepared for class, engaging in group activities, contributing to class discussions, communicating your understanding of mathematics, and explaining your work to others.

H. Late Work

Late work will **not** be accepted. Assignments will not be available after the deadline. If you have an extenuating circumstance, please contact your instructor by private message **before** the assignment is due to make alternate arrangements. Active communication is the key to overcoming any hurdles you many encounters during the term.

I. Missed Assignments/Exams

It is your responsibility to make prior arrangements with the instructor if unable to attend class the day of the exam or group presentation. If you miss two or more exams and/or major assignments (worth at least 80 points) before November 1st, 2024, you might be dropped from non-course pursuit.

J. Incomplete Policy

All grades of Incomplete must be accompanied by an Incomplete Contract that has been signed by the instructor of record, student, departmental chair, and the dean. The College of Science allows a period of one month to complete this contract. A grade of Incomplete is only used in extraordinary circumstances confined to a limited event such as a missed exam, project, or lab. If the student has missed a significant amount of work (e.g. multiple assignments or tasks), a grade of Incomplete is not appropriate or warranted.

K. Accommodation Policy

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with the Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA) of 1990, and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the UTEP Center for Accommodations and Support Services (CASS). Contact the Center for Accommodations and Support Services at 915- 747-5148, or email them at cass@utep.edu, or apply for accommodations online via the CASS portal www.sa.utep.edu/cass.

L. Military Statement

If you are a military student with the potential of being called to military service and/or training during the semester, please contact me by the end of the first week of class.

M. Services and Resources

Help Desk: Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus.

UTEP Library: Access a wide range of resources including online full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.

University Writing Center (UWC): Submit papers here for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.

Military Student Success Center: Assists personnel in any branch of service to reach their educational goals.

Center for Accommodations and Support Services: Assists students with ADA-related accommodations for coursework, housing, and internships.

Counseling and Psychological Services: Provides a variety of counseling services including individual, couples, and group sessions as well as career and disability assessments.

It is important to keep up with the course material weekly. Thus, you should seek for extra help as soon as possible if you are having difficulties. During the semester, you will have access to the following resources:

Prof. Chen student/office hours & study group: The hours and locations are listed at the beginning of this syllabus. These hours are dedicated to answer students' questions and/or advising.

Math Tutoring Center (MaRCS): Ask a tutor for help and explore other available math resources.

VIII. Tentative Calendar MATH 2304

NOTE: Schedule may be modified to accommodate particular needs as the semester progresses. If you miss a class, it is your responsibility to determine specific material covered and/or assignments made for that class period.

Week	Dates	Lessons covered	Section Titles
1	Jan. 21 – Jan. 26	10.1, 10.2	10.1 Lines and Angles 10.2 Angles and Phenomena in the World
2	Jan. 27 – Feb. 2	10.3, 10.4	10.3 Circles and Spheres 10.4 Triangles, Quadrilaterals, and other Polygon
3	Feb. 3 – Feb. 9 **Feb. 5 – Spring Census Day**	11.1, 11.2, 11.3	11.1 Concepts of Measurement 11.2 Length, Area, Volume, and Dimension 11.3 Error and Precision in Measurements
4	Feb. 10 – Feb. 16	11.4, 12.1, 12.2	11.4 Converting from One Unit of Measurement to Another 12.1 Areas of Rectangle Revisited 12.2 Moving and Additivity Principles About Area
5	Feb. 17 – Feb. 23	12.3, **Midterm I**	12.3 Areas of Triangles
6	Feb. 23 – Mar. 2	12.4, 12.5, 12.6	12.4 Areas of Parallelograms and Other Polygons 12.5 Shearing: Changing Shapes without Changing Area 12.6 Area and Circumference of Circles and the Number Pi
7	Mar. 3 – Mar. 9	12.7, 12.8	12.7 Approximating Areas of Irregular Shapes 12.8 Contrasting and Relating the Perimeter and Area of Shapes
	Mar. 10 – Mar. 16 Spring Break		
8	Mar. 17 – Mar. 23	12.9, 13.1	12.9 Using the Moving and Additivity Principles to Prove the Pythagorean Theorem 13.1 Polyhedra and Other Solid Shapes
9	Mar. 24 – Mar. 30	13.2, 13.3	13.2 Patterns and Surface Area 13.3 Volumes of Solid Shapes

10	Mar. 301 -Apr. 6 **April 4th – Last Day to DROP with a "W"**	13.4, 14.1	13.4 Volume of Submersed Objects Versus Weight of Floating Objects 14.1 Reflections, Translations, and Rotations
11	Apr. 7 – Apr. 13	14.2, **Midterm II**	14.2 Symmetry
12	Apr. 14 – Apr. 20	14.3, 14.4	14.3 Congruence 14.4 Constructions with Straightedge and Compass
13	Apr. 21 – Apr. 27	14.5,	14.5 Similarity
14	Apr. 28 – May 4	14.6	14.6 Dilations and Similarity
15	May 5 – May 8 **May 8th – last day of classes**	14.7	14.7 Areas, Volumes, and Similarity
16	May 12 – May 16	**Final Exam**	**Final Exam: 10:00 am – 12:45 pm, Tuesday, May 13th**