College of Natural Science
MICHIGAN STATE UNIVERSITY

Program in Mathematics Education

Teaching College Mathematics - Fall 2024 Syllabus

CEP/MTH/MTHE/TE 879 - 001
3 Credit Hours
Course Meeting Time: Wednesday 12:40 – 3:30 pm Michigan US Eastern Daylight Time (EDT)
Course Modality: In Person
Classroom: C109 Wells Hall
Course Learning Platforms (TBD): Microsoft Teams and D2L (https://d2l.msu.edu)
Recommended Background: Past or concurrent mathematical sciences teaching experience

Welcome!

You belong here at MSU, and I am delighted to have you in this course! In this course, diverse student experiences and perspectives are essential for enhancing and enriching our learning. As an instructor, I intend to create an inclusive classroom that welcomes diverse student experiences and perspectives and addresses the learning needs of all students in this course. I have an expectation that we will treat each other with respect and collegiality, and that we will be open to conversations and perspectives that challenge our own perspectives. The world has lost out because only a very small subset of people has ever had a good chance to contribute to its progress. In this class, we have a chance to make a dent in this historical pattern – our fields need each of us!

This course and its learning opportunities, as described in this syllabus, have been designed with the goal to create an inclusive, welcoming classroom environment and community that helps support and enhance your learning and allows you to meaningfully engage with peers. As the semester progresses, we may need to adapt some aspects of the course (e.g., course content, assignments) to respond to changing conditions; this flexibility will help us maintain a supportive learning environment that is responsive to our potentially changing situations and learning needs. This semester is challenging in many ways, so we will adapt and remain flexible as different challenges and opportunities arise.

If you have a concern about the policies and procedures of the class, or the content of the course, please contact me. If you prefer to use a different name or pronouns than those provided by MSU, please let me know. I truly want all students to feel welcome, respected, valued, and supported in this course. You are an important member of this class community!

Instructor

Name: Dr. Jennifer (Jenny) L. Green
Pronouns: She/Her/Hers
Office: C106 Wells Hall / C442 Wells Hall
Phone: Phone calls to my offices are not forwarded. Please use email to communicate with me.
Email: jg@msu.edu

Email is my preferred method of communication. I commit to responding to emails within 24 hours on weekdays and 24-48 hours on weekends. While I may not be able to answer your question or fully resolve your issue in 24 hours, I will at least acknowledge that you have one and get it resolved in a timely manner. If there are any exceptions, I will send an email or make an announcement on the MTHE 879 Teams "General" channel.

Office Hours: By appointment

Office hours will be held by appointment to best accommodate individual schedules and needs. Please send an email or talk to me in person to schedule an appointment. These meetings can take place in person or via email, video conferencing (Zoom), or phone call based on the specific needs of the request. Please don't hesitate to contact me with any questions or concerns!

Course Information

Note: This course focuses on the mathematical sciences generally, so the phrase "teaching college mathematics" should be interpreted to include mathematics, statistics, etc.

Course Description

This course is designed as professional development for future faculty members who expect to teach courses in the mathematical sciences or do research on teaching or learning of college mathematics or statistics. We will collaboratively explore topics and issues surrounding the teaching of college-level mathematical sciences courses, focusing on three central questions: (1) How do people learn mathematics and statistics?, (2) How do we teach in the mathematical sciences?, and (3) How do we research and evaluate innovations in the teaching and learning of mathematical sciences content?

The goals of this course are to provide opportunities for you to

- Learn about recent research related to the teaching and learning of the mathematical sciences at the collegiate level, and
- Apply the techniques or results from recent research to your own practice.

A wide variety of courses in the mathematical sciences are commonly taught to undergraduates, including precalculus, calculus, statistics, quantitative literacy, proof, linear algebra, etc. We will discuss research-based practices and recommendations for teaching such courses, addressing questions related to assessment, curriculum, pedagogy, policy, and other areas. We will also investigate how to translate these practices from an in-person to an online learning environment.

In this course, students will complete weekly readings and reflections, lead and participate in discussions, and engage in group activities and projects. By the end of the course, you will have developed a portfolio of instructional materials, ideas, resources, and research literature to support you when teaching courses in the mathematical sciences or conducting research.

Course Structure

Most class meetings will focus on discussions of readings. Students and instructors will draw on the readings and on their own experiences in teaching and learning. Teaching in the mathematical sciences is a complex subject; topics may be profitably viewed through multiple lenses, and issues of teaching and learning lack simple answers. It is important that all participants (students and instructors) feel comfortable expressing their views and understandings during class meetings, and that all participants be ready to modify and enhance their views based on readings and the input of others in the class.

Course Expectations

Participation (e.g., group work, readings, reflections, discussions) and class attendance are important aspects of this course—and for meaningfully engaging within a mathematical sciences education community. The course expectations described in this section are intended to help support not only your success in this course, but also your development as a mathematical sciences education community member.

- In this course, you are expected to remain an **active participant** both in and out of class meetings, and there are many ways to actively participate. For example, working in groups, engaging with the readings before class, reflecting on the readings and course activities, completing assignments, and discussing the readings and your ideas (both in and out of class) are all important aspects of your participation. In addition, you are expected to be curious, ask questions, seek opportunities to learn, and be open and responsive to constructive feedback.

- Across all the course activities, **it is very important that you share your voice with others and actively listen to and respectfully consider others' voices**! This course is an opportunity to practice articulating your ideas aloud and engaging in real-time discussions with colleagues. The quality of our discussions depends on how deeply you engage with the readings before class. I don't expect you to have internalized and processed everything you read, but I do expect that you will bring your questions, issues, comments, and concerns about the readings. I also expect that you will interact respectfully and productively with others.

- **Attendance** is a critical aspect of the course structure and activities and is expected; please notify me in advance if you must miss a class. Because we meet only once a week and what we do in class—our discussions and activities—is an important part of your learning, it is impossible to "make up" classes you miss. However, I also completely understand that situations may arise where you need to not be present for a class meeting (e.g., illness, religious observance, grief absence). Please let me know if such an occasion arises. I will do everything in my power to help you with issues surrounding our class.

- In general, if you have any **concerns or issues** arise this semester, please let me know as soon as possible so that we can seek appropriate accommodations that allow you to prioritize your well-being and still be successful in this course. You are an important member of this class community, and we want to support you and your learning in this course!

As the instructor, I pledge to give you timely feedback, answer questions in a prompt way, make the learning relevant and engaging for you, and support your success by being responsive to class needs and offering a variety of resources and opportunities to learn the content and apply it to your own research and practice.

Course Schedule and Readings

Throughout the semester, we will explore and discuss multiple aspects of teaching and learning in the mathematical sciences. Some topics include fostering active learning, using technology to promote understanding, and assessing student learning, but the course schedule and readings may be tailored and adapted to students' interests and goals. Weekly readings and assignments will be posted to Microsoft Teams as the semester progresses.

Required Course Materials

There is no required textbook. All assigned readings are available online through open access journals and sites, can be accessed for free through the MSU electronic resources, or will be posted in the MTHE 879 Teams "General" channel under the "Files" tab. All course materials and assignments may be accessed through the MTHE 879 Teams channels, so please access it regularly.

Required Technologies

This course requires the use of multiple technologies. Please make sure you can successfully access the learning platform and meet all the technical requirements described in this section. ***If you cannot access the learning platform (D2L), have difficulties with any of the online learning tools, or are failing to meet the following technical requirements for this course, please email the instructor and contact the MSU IT Service Desk*** (Phone: (517) 432-6200, toll free (844) 678-6200; Email: ithelp@msu.edu) ***as soon as possible.***

Computer/Internet:

Consistent access to a reliable computer and reliable high-speed internet access is required to access content, collaborate with peers, and submit assignments. If you have any difficulties accessing internet, please contact the MSU IT Service Desk (Phone: (517) 432-6200, toll free (844) 678-6200; Email: ithelp@msu.edu) and email the instructor (jg@msu.edu). You may also reference the following resource with guidelines of how to connect online and a list of companies offering students free or reduced cost internet: https://remote.msu.edu/learning/internet.html

D2L:

Microsoft Teams will be our primary mode for sharing and organizing course materials, announcements, asynchronous discussions, and assignments, but D2L may be used to post grades. To access the course website, you will need to be able to log on to D2L through Michigan State University. You can access D2L directly through this link: https://d2l.msu.edu. You will need your Net ID and password to log on to the site. More information about getting started with D2L at MSU is provided at the following link: https://help.d2l.msu.edu/training

Spartan 365:

You should have access to Microsoft Office (Word, Excel, PowerPoint) and other tools (e.g., Microsoft Teams, OneNote Class Notebook) for ease of accessing course materials, completing course assignments and collaborating with one another. You can login to your Spartan 365 account at spartan365.msu.edu. You may access a list of the available tools and links to resources on how to use them at https://tech.msu.edu/technology/collaborative-tools/spartan365/

Technical Assistance

If you need technical assistance at any time during the course or to report a problem you can:

- Visit the MSU Help Site at http://help.msu.edu
- Visit the Desire2Learn Help Site at http://help.d2l.msu.edu

- Call the MSU IT Service Desk at (517)432-6200, (844)678-6200, or e-mail at ithelp@msu.edu
- Post a question in the "Conversations, Questions, and Shout-Outs" MTHE 879 Teams channel to reach out to the class community for help.
- Email the instructor (jg@msu.edu) and the class community to ask for help.

Learning Continuity Statement

In any learning environment, it is critical to communicate clearly and frequently with your instructor, especially if you encounter a prolonged period where you are unable to engage in course content. In extreme cases where you cannot reliably progress through course content for more than one week, please **immediately email me (jg@msu.edu) to inform me** of your situation so that individualized accommodations can be made. Except in the case of emergencies, communication is expected ***prior*** to assignment deadlines.

If I become sick and unable to offer instruction in person or virtually, PriME will find replacement instructor(s) to teach the material and provide feedback during my absence, so no lapse instruction is anticipated to occur. If I have a prolonged absence, you will be notified via email or Teams announcements.

Course Assignments and Grading

Course Assignments

This course has several types of assignments, and the due dates, rubrics, instructor feedback, and assignment scores will be posted on Microsoft Teams as the course progresses. Because the primary goal of these assignments is to help support our professional development as college educators and education researchers in the mathematical sciences, feedback and reflection is a critical part of this process and woven throughout all three of the equally-weighted course components:

Class Readings, Discussion, and Participation: Participating in discussions with your peers promotes deeper, collective understanding of the material and approaches. To help foster richer discussions, please complete all assigned readings on time, reflect upon the readings and the "Guiding Questions" provided, and be prepared to discuss the assigned readings with your classmates. Discussion plays a central role in this course, so you are expected to actively participate and engage in productive discourse both inside and outside of the classroom – this includes both actively listening to others (making space) and sharing your thoughts and ideas with others (taking space).

Journaling is another way to meaningfully engage with the readings, class activities, and class discussions and reflect on how they are informing your thoughts, ideas, and inquiries with respect to questions, such as the following:

(1) How do people learn mathematics and statistics?
(2) How do we teach in the mathematical sciences?, and
(3) How do we research and evaluate innovations in the teaching and learning of mathematical sciences content?

Journal entries can include images, videos, audio, text – whatever medium and form of communication you prefer to use to express your thoughts, ideas, and inquiries as they are developing in the moment. You do not need to share your journal entries with anyone in this course to "prove" your participation, but regularly engaging in this self-reflective practice is another way to actively participate and helps foster habits that support one's growth and development as an educator and researcher.

Papers: Reflecting on different teaching practices and philosophies is a critical aspect of growing professionally as an educator and researcher. During the course, you will get to reflect on a variety of topics and complete at least four papers:

(1) Experiences as a student or teacher of the mathematical sciences
(2) Description of a classroom observation in light of research-based practices and recommendations
(3) Summary and critique of three articles about the teaching or learning of mathematics/statistics
(4) Reflection on the MTHE 879 course experience and your philosophy and goals as a scholar and practitioner

The lowest paper score will be dropped at the end of the semester.

Projects: The assigned projects are an opportunity to explore different resources and tools, identify aspects you could research further or use to teach, and share what you discovered with others. During this course, you will get to complete approximately three different projects:

(1) *Class Seminar:* Prepare and lead a class meeting about a topic of interest. The topic and readings will be chosen in consultation with the instructor and must be related to teaching in the mathematical sciences, but many topics can be considered!
(2) *Web Resource/Technology Tool:* Find and share a favorite web resource or technology tool that can be used to support student learning in a unique way in a college mathematics or statistics course.
(3) *Lesson Plan (Final Project):* The lesson plan final project is an opportunity to tie everything together and to create a product you might use in the future when teaching or researching teaching innovations in the mathematical sciences! For this project, you will get to develop a detailed lesson plan for use in a self-chosen mathematical sciences course. The lesson plan may demonstrate use and integration of research-based practices and recommendations to teach a topic in the mathematical sciences, or it may demonstrate a novel approach or idea for which you would like to research an aspect of its efficacy/effectiveness.

If it will improve your grade, your lowest project score will be replaced by the score earned on the final project.

Final

There is no final examination for the course, but we will reserve Monday, December 9, 2024 from 12:45 pm - 2:45 pm in case it is necessary to meet for other reasons, such as project presentations.

Course Grade

Your course grade will be based on three, equally-weighted components: (1) Class Readings, Discussion, and Participation; (2) Papers; and (3) Projects. At the end of the semester, the lowest paper score will be dropped before the final course grade is calculated. If it will improve one's grade, the lowest project score will be replaced by the score earned on the final project.

Final grades will be assigned using the following weighted mean rubric scores:

Grade	Weighted Mean Rubric Score
4.0	3.75 - 4
3.5	3.6 - <3.75

Grade	Weighted Mean Rubric Score
3.0	3.3 - <3.6
2.5	3.0 - <3.3

Grade	Weighted Mean Rubric Score
2.0	2.85 - < 3.0
0	0

Other Course Policies and Information

Important Dates

Classes Begin: Monday, Aug. 26
University Closed: Monday, Sept. 2
Last day to drop with refund: Thursday, Sept. 19
Last day to drop with no grade reported: Monday, Oct. 14
Fall Break: Monday, Oct. 21 – Tuesday, Oct. 22
University Closed: Thursday, Nov. 28 – Friday, Nov. 29
Classes End: Sunday, December 8
Final Exam: Monday, Dec. 9, 12:45 pm – 2:45 pm, WH C109

Microsoft Teams Discussion Channel

For this course, there is a Microsoft Teams channel entitled "Conversations, Questions, and Shout-Outs" where you can access, ask, and respond to questions about course material, activities, assignments, etc. You can also share helpful resources and celebratory notes with one another! Please take advantage of this platform by creating new posts to share discoveries, questions, and other notes with one another.

Attendance Policy

Participation is an important aspect of this course. Students are expected to attend and actively participate in all class meetings on Thursdays from 12:40 – 3:30 pm EDT.

If you are unable to attend a class meeting, please contact me. When reasonably possible, please communicate with me **prior** to the missed class meeting. I am more than willing to work with people who have conflicts and, whenever possible, provide accommodation.

Late Work Policy

All work needs to be turned in on time to receive credit. If you have circumstances that warrant you handing an assignment in late or missing a class meeting, please communicate with me. I am more than willing to work with people who have conflicts. Except in the case of emergencies, communication is expected ***prior*** to assignment deadlines. Without prior notification, late work will be assigned a grade of zero. To offer built-in flexibility, the lowest weekly journal entry score and the lowest paper score will be dropped at the end of the semester. If it will improve one's grade, the lowest project score will be replaced by the score earned on the final project.

Religious Observance Policy

MSU has implemented an updated religious observance policy, which may be viewed at https://provost.msu.edu/academic-resources/religious-observance-calendar. Please familiarize yourself with the updated policy. If a religious observance will cause a conflict for you with a class activity or will cause you to miss a class meeting, you must notify me at least two weeks prior to the conflict. (For example, if a religious observance will cause you to miss class on Wednesday, September 25, please notify me no later than Wednesday, September 11.)

Accommodations for Students with Disabilities

Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities at 517-884-RCPD or on the web at rcpd.msu.edu. Once your eligibility for accommodations has been determined, you will be issued an Accommodation Letter. **Please present this letter to me at the start of the term or two weeks prior to the accommodation date (project, etc.). Requests received after this date will be honored whenever possible.**

Student Support

It is important to care for our academic, personal, and health-related wellbeing. Seeking help and support when faced with academic, personal, and/or health-related concerns is a strength, not a weakness. Finding ways to cope with stress in a healthy way will make you, the people you care about, and your community stronger. If you are facing any concerns, please contact the instructor or reach out to any of MSU's wide range of resources for supporting students. Many of these resources are posted to the Keep Learning website, but a few highlights include Kognito and CAPS Connect as options for finding ways to experience mental health and wellness.

Use of Generative AI

You are welcome to use generative AI tools (e.g. ChatGPT, etc.) in this class in ways that assist, but do not replace, your own thinking, creativity, and creation (e.g., brainstorming and refining your ideas, drafting an outline to organize your thoughts, checking grammar and stye). You are responsible for the information you submit based on an AI query (for instance, that it does not violate intellectual property laws, or contain misinformation or unethical content). Your use of AI tools must be properly documented and cited in order to stay within university policies on academic integrity and the Spartan Code of Honor Academic Pledge, as also noted in the respective sections in this syllabus. Remember, AI is not likely to generate a response that would be seen as quality work and should be modified and improved.

Academic Integrity

All participants in this class are held to the standard set by MSU's Policy on Integrity of Scholarship and Grades. The policy and other policies and expectations can be read in full in the MSU Student Handbook.

You are expected to develop original work in this course. Work that is not your own needs to be properly cited, whether the source is a classmate, a Web site, a published text, or a generative AI tool (e.g., ChatGPT). Taking credit for work you did not produce is considered plagiarism, which is a serious offense with serious consequences. Work that is intellectually dishonest also includes writing a response to a text you did not read or writing up a report of research you did not plan or carry out. Work that is found to be intellectually dishonest will receive a failing grade and may constitute grounds for failing the course (see your student handbook and MSU policies for students' rights and responsibilities). Please be extremely careful about using material from the Web. It must be identified as such with proper citation. (See the APA Guidelines for information on citing Web sources.)

Article 2.3.3 of the Academic Freedom Report states "The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards." In addition, the College of Education adheres to the policies on academic honesty as specified in General Student Regulations 1.0, Protection of Scholarship and Grades (excerpted below); the all-University

Policy on Integrity of Scholarship and Grades; and Ordinance 17.00, Examinations. (See Spartan Life: Student Handbook and Resource Guide and/or the MSU Web site: www.msu.edu.)

"The principles of truth and honesty are fundamental to the educational process and the academic integrity of the University; therefore, no student shall: (1.01) claim or submit the academic work of another as one's own. (1.02) procure, provide, accept or use any materials containing questions or answers to any examination or assignment without proper authorization. (1.03) complete or attempt to complete any assignment or examination for another individual without proper authorization. (1.04) allow any examination or assignment to be completed for oneself, in part or in total, by another without proper authorization. (1.05) alter, tamper with, appropriate, destroy or otherwise interfere with the research, resources, or other academic work of another person. (1.06) fabricate or falsify data or results" (From MSU's General Student Regulations, Protection of Scholarship and Grades). Because electronic resources and generative AI are so readily available and easy to copy and paste into your notes or electronic bibliographic software, be aware that if you quote the exact words of another author (including generative AI) you must use quotation marks and give the proper citation. This means that, when copying great quotes to save, you must be extremely careful to record what parts of your notes are direct quotes from the author, and what parts are your own words or interpretation. Using quotes without both a citation and quotation marks (or appropriate formatting as suggested by the APA standards) is plagiarism and will be treated as such. This includes quotes from Web sites as well as from other sources. I encourage you to discuss the course material, papers, writing assignments, and projects with peers and advisors, both in and out of class. However, I expect that all submitted written work is completed by you and is the result of your own thoughts and ideas, unless otherwise indicated (by citation). Students who violate MSU rules may receive a penalty grade, including but not limited to a failing grade on the assignment or in the course and/or removal from the program.

If you have any questions about the appropriateness of your coursework, the limits of collaboration, or about using and citing sources, contact me to ask for clarification.

Spartan Code of Honor Academic Pledge

"As a Spartan, I will strive to uphold values of the highest ethical standard. I will practice honesty in my work, foster honesty in my peers, and take pride in knowing that honor is worth more than grades. I will carry these values beyond my time as a student at Michigan State University, continuing the endeavor to build personal integrity in all that I do." (https://spartanexperiences.msu.edu/about/handbook/spartan-code-of-honor-academic-pledge/index.html)

Disclaimer

Information contained in this syllabus was, to the best knowledge of the instructor, considered correct and complete when distributed at the beginning of the term. The instructor reserves the right, acting within the policies and procedure of MSU, to make changes in course content or instructional technique and to adapt written policies and requirements if conditions change significantly.