MED 335. Techniques in Middle & Secondary Education
MED 335- Section 1 Fall 2021

Tuesday 8:00-9:50 a.m. Thu 8:00-9:50 a.m.
Class sessions will be on campus or in the field. When on campus class meetings will be held in SCI A213.
Office: Sci D357 Wednesday: 8:00-9:00. a.m. Wednesday: Zoom 12:00-:00pm

Instructor: Dr. Sinan Kanbir
Email: skanbir@uwsp.edu

Course Description/ Intents :

M ED 335. Techniques in Secondary Education. 4 cr. Aims, methods, materials, techniques, planning, organization, assessment, and pre-clinical experience (formerly known as "practicum") Prerequisite: Junior status and admission to Professional Education Program. [UWSP Course Catalog]

Course Objectives and Goals

- Develop an understanding of how students learn middle and secondary school mathematics and gain a deeper knowledge of the K – 12 mathematics curricula.
- Develop organizational and instructional techniques for teaching mathematics in grades 6–12 and relating mathematics to other content areas.
- Begin developing the professional habits of successful educators.
- Examine and reflect on your beliefs relative to the teaching and learning of mathematics and develop a personal philosophy and vision of teaching mathematics.
- Explore and reflect on issues of learning environment and develop a working perspective on how to create a learning environment that enhances instruction.
- Practice and reflect the 3 phases of teaching mathematics: planning, instruction, and assessment.

Course Outcomes/Requirements

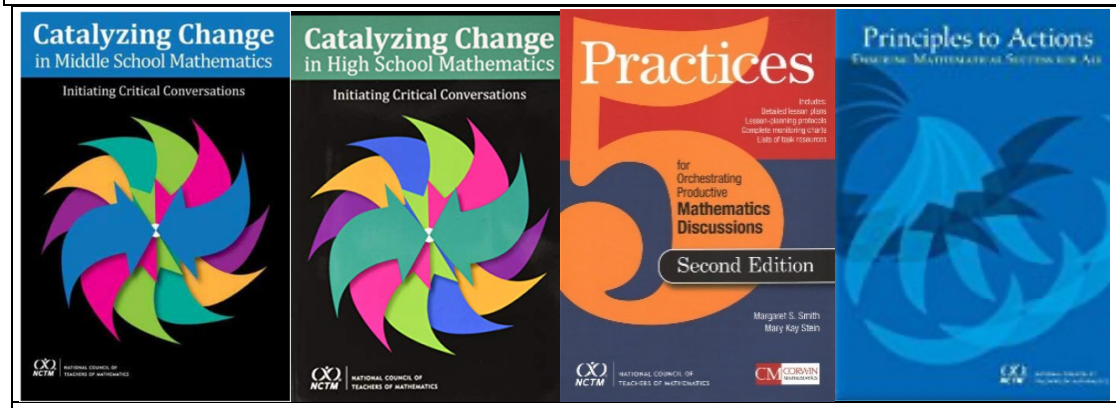
- Complete 30 hours of pre-clinical experience that includes time in classrooms at both the high school and middle school/junior high levels (10 hours will be completed as peer teaching in our regular classroom meetings).
- Plan, instruct, and assess a minimum of 2 lessons.
- Demonstrate a thoughtful approach to issues and challenges of teaching mathematics at the middle and secondary level.
- Use technology to complete a presentation summarizing a selected reading and its connection to teaching and learning.
- Demonstrate deep understanding of content, learning environment, and motivational issues through the completion of a culminating activity.
- Attend class regularly and participate in a manner appropriate for a pre-service teacher.

Course/Class Structure

This course tries prospective teachers of mathematics is like being the guide of a mountain expedition. Since mathematics is not a spectator "sport" which means that since all of us must climb the mountain, we will all be doing mathematics in a manner that emphasizes understanding WHY and HOW? Much of our work will emphasize analyzing important mathematical concepts and sharing explanations in order to dig deep into our understanding. I hope that some lessons will include a vision of what the focus of the lesson might look like in an actual classroom for both my practice and peer teaching practice. Finally, many of our class periods will have us scattered about in different classrooms. You must take responsibility for your growth and development.

Course Materials/ Resources /Not Required- Reading materials will be provided.

BOOKS



1. Catalyzing Change in Middle School Mathematics
2. Catalyzing Change in High School Mathematics Initiating Critical Conversations
3. 5 Practices for Orchestrating Productive Mathematics Discussions (Second Edition)
4. PRINCIPLES TO ACTIONS: Ensuring Mathematical Success for All

Online Resources

1. http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf
2. http://www.fosteringmathpractices.com/routinesforreasoning/
3. https://curriculum.illustrativemathematics.org/HS/index.html
4. https://www.nctm.org/classroomresources/
5. https://mathigon.org/
6. https://www.desmos.com/
7. https://globalmathdepartment.org/category/episodes/
8. https://www.youtube.com/watch?v=ppWPuXsnf1Q&list=PLZHQObOWTQDP5CVelJJ1bNDouqrAhVPev&index=1
9. https://www.3blue1brown.com/podcast
10. https://www.teachingchannel.com/
11. https://www.youcubed.org/
12. https://brilliant.org/paths/high-school-mathematics/
13. https://www.openmiddle.com/
14. http://www.wodb.ca/

Tentative Requirements/Expectations for Students:

1) Participation is a critical aspect of this class and constitutes almost 15% of your final grade. Participation will include three components (attendance, engagement, and effort) that will be monitored and assessed on a weekly basis.

Attendance (20 points): Because we will be seeking a way to teach mathematics in way that you were not taught, attendance and participation are crucial elements in this course to envision how it would be studied and/or practiced in classroom. You are expected to attend every class meeting. If you are absent more than 2 **times** without any special circumstances, it will be considered unprofessional, and it will result in a disposition concern form. If you are absent 4 virtual meetings or more, your course grade will be "F".

Participation (30 points): You are expected to participate in class activities and discussions. In your actively mode of learning environment, you are not only reading what others had written (***receptive***) but also to write and to speak using your *expressive* language. Not only listen my knowledge about mathematics (*receptive)* but also engage in small –group discussion and make verbal reports to the whole class (**expressive**). Your participation in class also means that you should not only share your ideas during class discussions and in small group work, but also listen and learn from me and from your course mates. **You will be asked to present solutions to the class, and your willingness to do so will be reflected in your grade. It is expected that you will present solutions and/or lead a discussion at least *6 times* during the semester.**

Engagement: Students are expected to begin upon arrival to class (this can be working on a warmup or talking with the instructor about assignments or other course considerations). During scheduled class time you should be "on task," listening for understanding and relevance, offer ideas, and ask questions that clarify or extend ideas. This includes challenging ideas in a respectful fashion.

Effort & attitude: Students are expected to consistently complete assignments, demonstrate a reasonable level of enthusiasm for the content, respect the entire cohort, be willing to work in a variety of settings (individual, pairs, small, groups, whole class), be organized in a way that shows thought and preparation, and accept feedback in a profession manner.

Presentation (80 points): You will present **series of assigned projects as follow**

1. Article Presentations (20 points): You and your partner will be getting an article from ***Mathematics Teacher*** and the ***Teaching Middle School Mathematic*** **(NCTM),** details will be presented later.
2. Lesson Segment- Peer teaching (20 points)
3. Problem Solving Project (15 points):
4. Math Games Presentations (10 Points)
5. Assessment Projects (15 points)

Read/Watch -Reflect (80 points): We will read some assigned reading from multiple sources. You will see a tentative schedule for reading assignments, but dates or even the readings themselves may change as we go along. You will be asked to submit your reflections approximately **Eight times** during the semester. The intent is to support you in developing a habit of reflection on your own thinking and learning; you may even find this record useful when you begin teaching. Only reflections that are typed will be accepted, unless otherwise specified

Lesson Plans for Pre-Clinical Experience **(30 points):** This course includes series of practicum experience. More information about the content and grading will be provided.

Pre-Clinical Experience Summaries and Reflections (30 points): You will write a summary and reflection of your teaching. Information about the format and content of the summary and reflection will be provided.

Pre-Clinical Experience Journal (40 points): This experience is key element of your initial teaching steps. You will write/report/reflect your observation/teaching experience. Information about the format will be provided.

Homework assignments (50 points): You will be asked to work on and hand in (scan-Canvas) some paper homework assignments. More information about the assignments will be given with each assignment.

Biweekly Quizzes (60 points): There will be quick biweekly evaluations based on two-week long topic (HW, and in-class materials).
In-Class Evaluation (60 points): There will be two in-class evaluations. Evolutions may be 60-minute length.
Mid-Term (60 points): There will be a cumulative test given (week 9-10). Study guide will also be provided.
Final Examination (80 points): The final examination time will be during finals week. More information about its format and content will be provided.

MED 335-Point Distribution (Dr. Kanbir)

Evaluation Item	**Points (Max)**
Attendance	20
Participations	30
Presentations	80
Read/Write-Reflection	70
Pre-Clinical Lesson Plans	30
Pre-Clinical Summaries/Reflections	20
Pre-Clinical Journal	40
Homework- SETs	50
Biweekly Quizzes -6 times	60
In-Class Evaluations (Two Evals)	60
Mid-Term	60
Final	80
Total	**600**

E. Grading

This 4-credit hour class requires 6–8 hours of outside of class study per week. Make sure that you schedule and put in those hours consistently throughout the semester. Your course grade will be calculated on a percentage basis (number of points earned out of number possible) and assigned a corresponding letter:

94-100% = A	90- 93 % = A-	
86-89% = B+	83-85% = B	80-82% = B-
76-79% = C+	73-75% = C	70-72% = C-
66-69% = D+	60-65% = D	
Less than 60% = F		

I will not use any kind of judgments to lower your final grade.

Additional Course policies & Expectations

1. Incomplete grades will be given only under special circumstances.
2. Any work that is turned in should be completely your own work. Even though students will be working in groups often each individual is responsible for their own work. Cheating/Academic dishonesty can result in failing the course.
3. Cell phones and SMART watches are not allowed on tests and quizzes.
4. Make-up tests/assignments will only be given under very special circumstances. Please look the course calendar and plan accordingly.
5. Calculators cannot be shared during quizzes and tests.
6. Cell phones and computers are a distraction to students and the instructor, please keep these devices silent and out of sight. If there is a situation that requires your attention to a cell phone contact, **please leave the classroom to deal with it.**

Disposition Concerns: The Mathematical Sciences Department takes the preparation of teachers seriously. As such, we expect pre-service teachers to treat their preparation with the same level of seriousness. As you may know, the School of Education evaluates teacher candidates based on certain disposition indicators:

- Collaboration Issues: The ability to work together, especially in a joint intellectual effort.
- Honesty/Integrity: The ability to demonstrate truthfulness to oneself and to others; demonstrate moral excellence and trustworthiness.
- Respect: The ability to honor, value, and demonstrate consideration and regard for oneself and others.
- Emotional Maturity: The ability to adjust one's emotional state to suitable level of intensity in order to remain engaged with one's surroundings.
- Reflection: The ability to review, analyze, and evaluate the success of past decisions in an effort to make better decisions in the future.
- Flexibility: The willingness to accept and adapt to change.
- Responsibility: The ability to act independently, demonstrating accountability, reliability and sound judgment.

While there are many behaviors that may result in the issuance of a disposition concern form, some of the most frequent causes are *poor attendance, consistently being late for class, and not completing assigned tasks*. We view each of these as an indication of lack of reverence for learning and lack of responsibility, and any of these will result in the filing of a disposition concerns form. Any student needing to arrange a reasonable accommodation for a documented disability should contact Disability Concerns at 715-346-3365 or emailing datctr@uwsp.edu and/or by completing the http://www.uwsp.edu/disability/Documents/Request%20for%20Services.pdf
For more information, check out the Assistive Technology website.
http://www.uwsp.edu/assistive/Pages/default.aspx

Religious Beliefs: Students' sincerely held religious beliefs will be reasonably accommodated with respect to all examinations and other academic requirements. According to UWS 22.03, you must notify the instructor within the first three weeks of classes about specific dates which require accommodation.

Teaching is not filling a bucket; it is lighting a fire.
Prepare to light some fires!

"Not everything that counts can be counted, and not everything we count, counts." – Albert Einstein.

"Since 1980 when the National Council of Teachers of Mathematics (NCTM) published An Agenda for Action, which included the recommendation that "problem solving be the focus of school mathematics" (p. 1), classroom teachers and curriculum writers have attempted to put this recommendation into practice. My work as a mathematics educator continually illuminates the challenge of creating a classroom environment that embodies authentic problem solving. It seems that there exist barriers to a consistent and genuine practice of problem solving at all levels of mathematics education."

Welcome! I look forward to sharing the semester with you and wish you the best over the coming weeks.
– Your instructor, Dr Kanbir

In MED 335 You Must NOT:

1. **Use the following 4-letter word beginning with F: "FOIL."**
2. **Talk about "plugging" values into formulae or function expressions. The correct word is "substitute."**
3. **Put arrows on the ends of graphs of quadratic functions.**
4. **Think that something like $y = 2x + 3$ completely specifies a function.**

If you are going to be a good mathematics teacher you must discipline yourself to use mathematically correct language at all times (and particularly *when* you are actually teaching mathematics).

Perhaps you need to be aware of the following:

Teacher Arrested at New York's John F. Kennedy Airport—Held in Isolation

A secondary school teacher was arrested today at New York's John F. Kennedy International airport as he attempted to board an international flight while in possession of a ruler, a protractor, a pair of compasses, a slide-rule and a calculator.

At a press conference, a U.S. Border Control spokesman said he believes the man is a member of the notorious Al-Gebra movement. He did not identify the man, who has been charged by the police with carrying weapons of math instruction.

"Al-Gebra is a problem for us," the spokesman said. '"hey derive solutions by means and extremes, and sometimes go off on tangents in search of absolute values. They use secret code names like *x* and *y* and refer to themselves as 'unknowns'." "But we have determined that they belong to a common denominator of the axis of medieval with coordinates in every country. As the Greek philosopher Isosceles used to say, 'There are three sides to every triangle'."

When asked to comment on the arrest, Republican leader Ed Milliband said, "If God had wanted us to have better weapons of math instruction, He would have given us more fingers and toes." Democrats told reporters they could not recall a more intelligent or profound statement by the Republican leader.

The vision of mathematics promoted by National Council of Teachers of Mathematics is based on the following six principles:

- Excellence in mathematics education requires equity —high expectations and strong support for all students.
- A curriculum is more than a collection of activities; it must be coherent, focused on important mathematics, and well-articulated across the grades.
- Effective mathematics teaching requires understanding what students know and need to learn and then challenging and supporting them to learn it well.
- Students must learn mathematics with understanding, actively building new knowledge from experience and prior knowledge.
- Assessments should support the learning of important mathematics and furnish useful information to both teachers and students.
- Technology is essential in teaching and learning mathematics; it influences the mathematics that is taught and enhances students' learning.

---Principles and Standards for School Mathematics
National Council of Teachers of Mathematics, 2000, pp.11–24

In the spirit of these principles and Standard for Mathematics Practices (SMP), this course is designed to provide you to opportunity to

1. Develop and understand mathematical knowledge for teaching related to 6-12 mathematics.
2. Analyze how diverse groups of students understand particular mathematics topics at various grade levels and construct instruction plans based on the analyses.
3. Learn about and become familiar with elementary school mathematics curriculum (e.g., Common Core State Standard for Mathematics (CCSSM 2010) and Standard for Mathematics Practice(SMP), etc.).
4. Become knowledgeable about teaching and learning materials (textbooks, resources, manipulatives, and technology) to assist them in planning meaningful activities for elementary students.
5. Be aware of current issues and topics of debate regarding mathematics education and learn to create an instructional environment independently and collaboratively so that it promotes problem solving with understanding and sense making for diverse groups of students.
6. Develop and practice habits of reflection and examination of teaching practices.

Preservice Teacher Outcomes:

Preservice teachers will be expected to develop and show competency in each the InTASC Model Core Teaching Standards' (2011) learning outcomes.

http://www.ccsso.org/Documents/2011/InTASC_Model_Core_Teaching_Standards_2011.pdf

Upon successful completion of this course students will be able to:

- Demonstrate an enhanced ability to provide multiple representations, analyze concepts and potential student difficulties, and communicate about mathematical situations involving number and operations. (InTASC #4)
- Effectively communicate their personal beliefs relative to teaching and learning of mathematics both orally and in writing. (InTASC #1, 8, 9, 10)
- Explore the issues and mathematical concepts required for teaching elementary mathematics and effectively communicate ideas and thoughts with peers via consistent dialog. This lays a foundation of confidence with mathematics that prepares prospective teachers for the ever-increasing demands within the professional of elementary teaching…not just able to do the mathematics bit able to explain WHY. (InTASC #1,3,4)
- Apply and adapt a variety of problem-solving strategies and develop the logical and critical thinking skills necessary to continue to read about and learn mathematical topics and how mathematics is used in real-world situations. (InTASC #5)
- Develop a deeper and broader understanding of mathematics as a whole by exploring the connections that exist among mathematical topics and between mathematics and other content areas. (InTASC #4, 5)
- Demonstrate deep understanding of the big idea of number sense, both at the elementary level and beyond. (InTASC #4, 5)
- Demonstrate personal and professional skills and habits that prepare one for the work of a public school teacher, especially the practice of reflecting on one's work and the work of students. (InTASC #10)
- Model persistence, conjecturing, and generalizing when working with mathematical situations/problems.
- Demonstrate, through field experience, the ability to create an engaging and inclusive learning situation. (InTASC #2, 3)