



Fall 2018 Syllabus – Online Course

EDUC 307: Math Strategies in the Elementary & Middle School Classroom, Course # xxxx, Section 2: 3
Semester Hours

Location and time: Online – Blackboard
Instructor: Dr. Pam L. Johnson, Assistant Professor, Division of Education
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Hours of availability: Monday, Wednesday, and Friday: 9:00 – 10:00 am & 11:00 – 12:00 am
Tuesday and Thursday: 2:00 pm – 4:00 pm
Outside of office hours: by appointment
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Preferred method of contact: Email

Office Location: Education Building 116H

Course Description:

In this course, students will learn and practice a variety of instructional methods pertaining to the teaching of mathematics. On campus and online participants will participate in activities which deepen their understanding of conceptual mathematics as well as the observation of elementary students. Students will write lesson plans incorporating math hands-on materials enabling their future students to be interactive with math. The course covers both National and State standards for mathematics teaching and content. Diversity topics of the elementary/middle school classrooms will be included. Prerequisite courses include: Math 103; Math 277

Purpose of the Course - *Why Am I Taking This Class?*

This course aims to provide opportunities for teacher candidates to demonstrate knowledge of strategies of teaching mathematics, prepare lesson plans, demonstrate skills using math manipulatives and technology, assess skill levels of students, create pre- and post-assessments, create a learning center, and journal about their experience teaching mathematical concepts to at least one elementary student.

The main purpose of this course is to empower teacher candidates with instructional strategies specific to facilitating deep conceptual mathematical understanding for their future students and to further prepare ensuing professionals to be able to: 1) review and experiment with theory-based instructional strategies; 2) better understand complex learning environments and how to provide for the unique needs of learners and investigate effective instructional approaches within the content area of mathematics; and 3) better understand that instructors are also motivators, managers, group leaders, counselors, and reflective persons who teach math conceptually ensuring student engagement and understanding.

The course is designed to prepare enrollees to be effective mathematics educators within grades 1-8 in public and private school settings.

Conceptual Framework

Teacher education courses are based upon the Conceptual Framework: Reflective Experiential Teacher. See Moodle document 'Conceptual Framework'

Interstate New Teacher Assessment and Support Consortium Standards (InTASC)	
1	The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.
2	The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards
3	The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self-motivation.
4	The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.
5	The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
6	The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making.
7	The teacher plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.
8	The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.
9	The teacher engages in ongoing professional learning and uses evidence to continually evaluate his/her practice, particularly the effects of his/her choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.
10	The teacher seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

Source: Council of Chief State School Officers, 2013.

Course Objectives

To successfully complete this course, the learner will be expected to:

1. Demonstrate an understanding of lesson planning and its connection to mathematics standards, objectives, curriculum, and assessment. (InTASC 1, 3, 5, 6, 7, 8)
2. Develop assessment procedures for evaluating students' academic needs. (InTASC 8)
3. Acquire and model effective instructional strategies to motivate and engage students. (InTASC 7, 8)
4. Develop a classroom management philosophy and apply classroom management theory and practice in simulated and real-life classroom settings. (InTASC 1-8)
5. Identify and apply multiple intelligences, learning styles, and modalities of learning to instructional planning in mathematics. (InTASC 1, 2, 3, 7, 8)
6. Communicate effectively with colleagues in a collaborative setting while providing reflective, constructive, and evaluative comments. (InTASC 1-10)
7. Model effective oral and written communication skills. (InTASC 2, 5, 9)
8. Implement techniques for promoting higher order questioning skills. (InTASC 1-6, 8)
9. Critically reflect on pre-service teaching experiences through dialogue and written journals. (InTASC 9)
10. Utilize technology to enhance instructional planning and mathematical understanding. (InTASC 7,8)
11. Display leadership abilities during teaching simulations and group projects. (InTASC 9,
12. Provide evidence of the ability to create a classroom environment which supports diverse learners (InTASC 2,3,7,8 & 9)
13. Provide reflective, constructive, and evaluative comments to peers (InTASC 9&10)

Diversity Objectives

1. Recognize assets and needs of diverse learners.
2. Understand cultural self-awareness and worldviews as they relate to teaching and learning decisions.
3. Reflect on context, multiple perspectives, actions and personal decisions as they relate to diversity.
4. Demonstrate actions consistent with the belief that all students are valued and can learn.

Technology Objectives

1. Use technology to support planning, differentiation, implementation, and evaluation of student learning experiences
2. Engage learners in using a range of learning skills and technology tools to access, interpret, evaluate, and apply information
3. Promote learner success with using appropriate technologies for diverse learners

Program Student Learning Outcomes Addressed in This Course

The Academic Program Student Learning Outcomes document can be found in your Moodle course shell. It contains all learning outcomes pertaining to Essential Studies courses and all majors and minors. The document has an index so you can quickly find the degree you are pursuing.

- SLO 1** Learner & Learning: Students understand diversity in learning and developmental processes and create supportive and safe learning environments for students to thrive.
- SLO 2** Content: Students understand subject matter deeply and flexibly so they can advance their students' learning, address misconceptions and connect ideas to everyday life.
- SLO 3** Instructional Practice: Students will plan instruction, utilize effective instructional strategies and technologies, and continuously assess students for mastery and decision-making purposes.
- SLO 4** Professional Responsibility: Students take responsibility for student learning, positive relationships, their own professional growth, and the advancement of the profession.

Course Groupings in Moodle

The students in this course will see the names, locations, email addresses, discussion forum postings, and contributions to group activities of all students enrolled in the grouped course within Moodle for the current semester. Moodle allows for access to enhanced course materials, greater diversity of opinions and life experiences in course discussion boards, and expanded class sizes for course activities.

Required Materials:

Willis, J. (2010). *Learning to love math: Teaching strategies that change student attitudes and get results*. Alexandria, Va: ASCD.

The use of journal articles and online educational resources will be used in EDUC 307. Many of these resources will be accessible from the Moodle site. In addition, students will be required to obtain professional articles through the Mayville State Library online resources to support assignments throughout the course.

Recommended Materials:

Hands-On Standards Ready to Teach Mathematics Toolkit, Grades K-9 from hand2mind.com (resources for using manipulatives to introduce math concepts) item #79628 or other ETA Toolkit if your major is early childhood or mathematics education.

Instructional technologies utilized in this course:

- Moodle – MSU’s learning management system and virtual class environment
- Blackboard Collaborate – web conferencing tool. This may be used to facilitate communication between instructors and students and between students in real time.
- Tegrity – screen and video recording.
- Atomic Learning – This online training resource is available 24/7 and open to ALL Mayville State students, staff and faculty using their Connect ND credentials.
- Online applications such as Kahoot, Desmos, National Council of Teachers of Mathematics (NCTM) Illuminations, and various applications which engage students with mathematics.
- Online webinars and presentations by leading mathematics educators

Expectations/Protocols

Active participation in the course through classroom discussions and assignments demonstrates your interest, engagement, and willingness to work with other students and the instructors in preparation for a teaching career. It is a recipe for successful learning. Here are some guidelines that will help you throughout this learning experience:

- ***Read the syllabus in its entirety.*** Knowing what is planned ahead is helpful for time management and allows you time to ask questions if you need any clarification. Check for assignment due dates and other scheduled learning experiences. They are located in the syllabus and on Moodle. After reading this syllabus, **complete the syllabus quiz on Moodle by 8/30/17/ (Wednesday).**
- ***Participate in on line forum discussions.*** This is required for successfully completing this course and prescribes to the attendance policy for required courses in your major. Participation is an expectation of students and teachers in the K-12 educational system, and so it is an expectation for teacher education candidates in any professional preparation course. Participation in both online and class discussions, demonstrations, and assignments will result in solidifying the readings and research you have done adding to the quality of your learning.
- ***Read all assigned readings and complete all activities as scheduled.*** The responsibility for your learning is shared by both student and instructor. It is the student’s responsibility to prepare each week and be able to ‘recall’ information from weekly course preparation so that concepts can be applied in course activities and discussions developed by the instructor. Casual conversations do not take the place of academic conversations focused on course content. All interactions are reviewed for use of course content and application of readings and other course preparation.
- ***Online Posting:*** You are required to check the course discussion three times each week. The online instructor can access reports which detail your online activity. If online discussion forums are held, students must use appropriate citation and reference formatting in APA style when referring to any resources. Substantive postings are postings that demonstrate understanding and application of course content, extension of ideas, and connecting to personal experiences. Note: The requirements for any online post will be indicated within the discussion forum instructions

and discussed in class. Conversational posts that do not contain reference to course readings and concepts do not associate with quality academic work.

- Adhere to the code of student conduct found in the MSU Student Handbook.** The student code of conduct contains information that all students must adhere to. The academic dishonesty statement is important to understand and acknowledge. * Disciplinary action may be taken if a student: “Engages in any form of dishonesty including, but not limited to: Scholastic dishonesty: cheating, plagiarism and other forms of academic dishonesty” (**Standards of Conduct, p. 28**). As we learn from others’ work, we make connections to develop our own knowledge. Citing and referencing an author’s work is the demonstration of honesty in academia. Violations of academic honesty to include any copying of another student’s assignment, having another person complete the work for you, using an author’s ideas or writing without properly giving that author credit either intentionally or unintentionally are examples of academic dishonesty. **Remember:** cite and reference whenever in doubt! Consult with the instructor if you have any questions. *Programs to detect plagiarism may be used on submitted assignments.

Instructor/Student Communication

1. Please contact me via email at: pamela.l.johnson@mayvillestate.edu . You can expect a response within 24 hours.
2. Schedule appointments to visit during office hours or at a time convenient for us to meet.
3. Students are accountable for all academic communications sent to their Mayville State University e-mail address. If I have questions or wish to give individual guidance to students, I will use student MSU email accounts to do so.
4. The Moodle course site will be used to post messages to all learners as a group mailing whenever necessary.

Method of Evaluation/Grading

Evaluation in this course will consist of the components outlined in the table below. Assessments will include both formative and summative activities. Rubrics and feedback will be used to grade assignments. The instructor will review assignments and due dates as class proceeds. It is the learner’s responsibility to meet assignment deadline dates and submit work to Moodle. Attention to timelines is an evaluated disposition for teacher education students. ALL assignments including weekly discussion forums must be completed in order to receive a D or higher in this course. The following grading scale will be used:

A= 94 – 100%, B= 87 – 93%, C= 80 – 86%, D= 70-79%, F= < 70%.

Activity	Points	Due Date
Classroom mathematics activities – through directions and Tegrity videos	50	Ongoing evaluation
Lesson Plans for Field Experience	50	First Draft of lesson plans are due November 13 Final draft of lesson plans are due December 8
Field Experience 3-week Field Experience	75	Dates: Nov. 20 – Dec. 6 Reflection journal due Dec. 8 rubric and template will be provided
Interactive Math Notebook with notes and materials - Anchor of Support	75	Due December 11 to use on Final Exam

Mathematics Learning Center Center must be complete with all components present with electronic copies uploaded	75	Due: October 27
Final Exam	75	Due: Monday, December 11, 8:00 – 10:00 a.m.
Total	400	

- Assignments must be submitted on the due dates that are provided. For the assignments or quizzes that are late, a 1 point deduction will be taken for each day the assignment is past due. If you would need an extension on an assignment, simply communicate with me in advance.
- The mark of “I”, Incomplete, will be assigned only to the student who has been in attendance and has done satisfactory work up to a time within four weeks of the close of the semester, including the examination period, and whose work is incomplete for reasons satisfactory to his or her instructor.
- Prior to submitting your assignment for grading, it is vital that you review the detailed assignment description and the grading rubric to ensure quality in your work production. Students are entitled to good grades only when they produce quality work. Simply completing assignments by meeting minimum assignment requirements will earn students a minimal amount of points.
- Should students have any questions or concerns about their grades, they are encouraged to visit with the instructor to ask questions and explain their concerns.
- Additional Student Evaluation: Every student who is working on a teaching degree or a credential must demonstrate proper dispositions to continue in the Teacher Education program. Proper dispositions include: understanding the principles of fairness as they apply to students and self; have an understanding that all students can learn; positive attitude, good taste in dress, free of distracting mannerisms, has good class attendance record, can balance personal life with professional and academic demands, is flexible, exhibits sound judgment and moral reasoning, adheres to standards of honesty and confidentiality, displays maturity and confidence, produces quality work, ability to self-reflect, recognizes areas of strength and make necessary improvements in areas of deficiency, and evidence of good physical and mental health. See the guidelines for *Continuance in Teacher Education* in the Mayville State University Catalogue.
- Reading Assignments: It is imperative that you have completed all preparation for each week of study. If you have not completed the weekly class preparation, it will be evident during discussions and learning activities. Modeling the attributes one expects of their own students is important!
- Special Accommodations:
 - Students with disabilities who believe they may need an accommodation in this class are encouraged to contact Disability Support Services (788-4675) located in the Classroom Building, CB 109 as soon as possible to ensure that accommodations are implemented in a timely fashion.
 - Students who have difficulties in professional writing are encouraged to contact the Writing Center at 788-5240, in the Academic Support Center, CB 109 or email the Coordinator at erin.kunz@mayvillestate.edu to receive assistance in skill development. Students who have difficulty with grammar, spelling, punctuation, sentence structure, and/or organization are strongly encouraged to take advantage of this opportunity.

Enrollment Verification

The enrollment verification activity in this course is the syllabus quiz. Please complete the syllabus quiz by the date.

Classroom Mathematics Activities 50 points

Each week students will be accountable to complete the assignments and participate fully in the online activities. A hands-on activity based math class is possible to do online with the understanding that the students diligently work at understanding the activity through the Tegrity demonstrations. We will explore many math concepts through two observation lens: 1) as a learner sense making for deep understanding of mathematical content, and 2) as a future teacher who will plan, facilitate, differentiate, and scaffold learning for a diverse student population. Professional participation is expected throughout each activity.

Lesson Plans for the Field Experience 50 points:

We will use the lesson plan format and guidelines provided by the Mayville State University Division of Education to develop interactive lessons for students for the field experience. Examples of lesson plans will be shared in correlation of the activities we do in the classroom. The first strong working draft of the lesson plans will be due on November 13 as we prepare for the Field Experience. Teacher candidates will be able to revise the plans based on their field experience and submit the final version on December 8.

Mathematics Learning Center 75 points:

The learning center will be a station created by the teacher candidate for a specific grade level and content standard (s). The learning experiences in the center will require the student to use mathematical processes to solve problems and communicate their thinking. The learning center will generate student products that can be assessed by teachers in an effort to support student learning. Specific directions for creating the math learning centers complete with the necessary components will be shared through the detailed assignment description with grading rubric. Electronic copies of the materials, handouts, and questions will be uploaded by the teacher candidates in this course for classmates to share with one another. Instead of taking away only your center, you will have electronic copies of all the centers created. The learning centers we create will be used during the classroom experience with students during the November 20-December 6 Field experience. There will be multiple examples of centers used in the weekly math classroom activities we participate in throughout the semester.

Interactive Math Notebook 75 points:

During the course, teacher candidates will participate in conceptual mathematics activities using critical and creative thinking and problem solving. Tools or Anchors of Support will assist learners of all ages during the sense making process of mathematics. A collection of these tools, reflection notes, representation notes, and solution strategies will be combined in an interactive notebook throughout the semester. This notebook will be used on the final exam and will be an artifact that the teacher can reference throughout their teaching experience. The final notebook is due on December 11, however, the developing notebook will need to be brought to each class. Formative assessment will be conducted on the development of the interactive notebook. What does formative assessment mean in this context? It means that the tools used in class will be a part of the creation of the notebook and will serve as evidence that students are participating and successfully mastering concepts throughout the course.

Field Experience – 75 points:

The purpose of this field-based experience is to provide future teachers with experiences within the classroom setting that will help in the preparation for professional service. Both instructor and peer observations will be completed during the Field Experience. Information for graded assignment will be handed out prior to the field experience. Written materials will be evaluated using the rubrics available for reference on Moodle.* **Remember to keep materials from this course for your electronic portfolio!**

Final Exam 75 pts. 12/11/17 from 10:00 am – 12:00 pm – date/time per MSU Final Exam Schedule

The final exam for this class will focus on all of the content covered in the course regarding strategies for teaching mathematics in both elementary and middle school classrooms. More information will be sent out the week before final exams. During the final exam time, you use the math interactive notebook created during the semester to answer the specific problems on the exam.

Important Student Information

Within your Moodle course shell that supports this course, you will find a document entitled, “Important Student Information,” which includes information about:

- ✓ English Proficiency and Other Academic Grievance Concerns
- ✓ Starfish Early Alert System
- ✓ Students with Disabilities
- ✓ Academic Honesty
- ✓ Emergency Notification
- ✓ Continuity of Academic Instruction for a Pandemic or Emergency
- ✓ Family Educational Rights and Privacy Act of 1974 (FERPA)

Tentative Course Timeline/Schedule: This is a tentative schedule: Readings and assignment dates may change. *Always check Moodle* for weekly preparation activities and assignments

Week	Date	Topic (Content and Strategies)	Preparation for class – Details posted on Moodle
1	August 23-25	Introductions Review syllabus/assignments Mathematics survey	Review syllabus on Moodle View Cathy Fosnot’s video clip on creating math communities at
2	August 28 – Sept 1	Conceptual Mathematics/Big Ideas, Strategies, and Models	Review the Landscapes of Learning
3	September 6 - 8	Conferring in math communities – Developing a Growth Mindset for learners in mathematics classrooms	Read Waggener, E.L. (2015) <i>Creating math talk communities</i> , NCTM View TED Talk – Jo Boaler
4	September 11 - 15	Understanding the Operations – Key Actions vs. Key words	Selected text from required book
5	September 18 - 22	Exchanging – Fair Trades	Selected text from required book
6	September 25 - 29	Geometry – Uncovering misconceptions	Selected text from required book
7	October 2 - 6	Measurement Stations – classroom management/competition in math classroom/management of materials	Selected text from required book
8	October 9 - 13	Components of a Math Learning - Hands on and Minds on	Bring draft idea for learning center – template will be provided to gather your ideas
9	October 16 - 20	Pattern Recognition and Algebraic Reasoning – Sponge activities	Add components (questioning and student recording sheet) to learning center – template will be provided
10	October 23 - 27	Understanding how fractions behave	Complete learning center – due 10/27

Week	Date	Topic (Content and Strategies)	Preparation for class – Details posted on Moodle
11	October 30 – November 3	Ratio Tables – Utilizing Graphic organizers	Article on Ratio Tables – on Moodle
12	November 6 - 8	Networks – Non routine problem solving	Review Lesson Plan draft
13	November 13 - 17	Integration of math throughout entire school day – Connections	First Draft of Lesson plan due on 11/13
14-15	Nov 20-Dec 6	Field Experience	Teach!
16	December 8	Debrief Field Experience	DUE: Lesson Plans, reflection notes, and Interactive notebooks
17	December 14	Final Exam Due	Utilize Interactive Mathematics Notebook during assessment

References

Council of Chief State School Officers. (2013). Interstate teacher assessment and support consortium InTASC: *Model Core Teaching Standards and Learning Progressions for Teachers 1.0: A Resource for Ongoing Teacher Development*. Washington, DC: Author.

Mayville State University (2013). “Student Handbook/Student Code of Conduct”. Retrieved from <http://www.mayvillestate.edu/about-msu/more-info/reports-policies/>.