

New Graduate Course Proposal

Form Procedure

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Course Title

Course Title: *

Proposed Banner Abbreviation: *

Banner limit of 30 characters, including punctuation, spaces, and special characters.

Department/Committee Information

The main contact person for the Graduate Curriculum Committee should fill out this form.

Requestor Name: *

Members of the Graduate Curriculum Committee:

Department / Unit Developing: *

Department Chair: * *

Academic Dean: *

Program Chair Yes
 No
The Program Chair for this request is among the people listed above.

Course Information

Course Description

* This course will focus on advanced topics in teaching mathematics to students with moderate to severe disabilities. Teachers will analyze strategies and solutions for reaching struggling learners while developing and implanting strategies for their own students. Teachers will develop a unit based on student(s) in their caseload. This unit will be comprised of many lessons and will be based off of the Massachusetts Mathematics State Standards. Teachers who have students with severe disabilities will develop plans to help their students on the MCAS alternate assessment. Not all students are at grade level, and it is the responsibility of the teacher to differentiate their lesson to meet the needs of their students. Therefore, this course will help teachers identify the level of their students in mathematics and build up basic math skills.

Rationale and expected outcomes of offering the Course

* Learning Outcomes are detailed in course syllabus and include: identification of key scholarly sources for teaching mathematics to students with disabilities and describe practical implications; evaluate and utilize a variety of specialized materials and strategies to teach mathematics in both inclusive and specialized settings to individuals with a variety of learning needs and disabilities; and determine math curricula that promote the development of cognitive, academic, and functional life skills for students with disabilities.

Number of Credits: *

Discipline Prefix or Prefixes: * Brief rationale if more than one prefix:

Level of Course: 7000
 8000
 9000

Brief rationale for level choice:
* This course is usually taken by graduate students who already hold an initial teaching license in special Education. This course focuses on more advanced strategies for teaching mathematics for students with disabilities. It was offered as a topics course - SPED 8044.

The course will be: Requirement
 Elective

Elective or Requirement Note/Special:

Is there a similar undergraduate course? Yes
 No

Does this course affect offerings in any other department or program? Yes
 No

Course Enrollment

Expected Average Enrollment:

This course is a replacement for: Course # / Name

Has the course been offered previously as a "Topics" course? Yes
 No
How often / when was it offered as a Topics course?

Is this an Extended Campus Course? Yes
 No

Which semester will this course be offered for the first time?:
How often thereafter to be offered?:

Course Requirements

Prerequisite course(s) if any:

Additional Requirements
Laboratory Hours: Fieldwork Hours:
Pre-Practicum Hours: Practicum Hours:

Other Requirements (specify):

Syllabus Upload

New Course Syllabus Upload: SPED 8044 Advanced Topics in Teaching Mathematics to Students with Disabilities 2.2022.docx

Signatures

*Click on the **Submit Form** button at the bottom of the page after you have signed the form. You should receive an email confirmation that your signature has been completed.*

...3330343538
Anne Howard 04/06/2022
Requester Signature Date

Academic Dean Signature Date

...3537393938
Denise Sargent 04/19/2022
Department Chair Approval Date

SGOCE Dean Signature Date

Graduate Council
The Graduate Council Chair Signature indicates that the Council has discussed this proposal and has decided it should move forward.

Graduate Council Chair Signature Date

Notifications

Approval of the President Date

SGOCE Dean Initials Date

Reviewed by the Registrar: Date

SPED 8044
Advanced Topics in Teaching Mathematics to Students with Disabilities
3 Graduate Credits
Fall 2021



Instructor: Amanda Noble, Ed.D.

Office Hours: Set up appointment as needed – Will do my best to be available through Blackboard IM

Telephone: 978-761-4724 Cell

E-mail: anoble2@fitchburgstate.edu

A. COURSE DESCRIPTION

This course will focus on advanced topics in teaching mathematics to students with moderate to severe disabilities. Teachers will analyze strategies and solutions for reaching struggling learners while developing and implanting strategies for their own students. Teachers will develop a unit based on student(s) in their caseload. This unit will be comprised of many lessons and will be based off of the Massachusetts Mathematics State Standards. Teachers who have students with severe disabilities will develop plans to help their students on the MCAS alternate assessment. Not all students are at grade level, and it is the responsibility of the teacher to differentiate their lesson to meet the needs of their students. Therefore, this course will help teachers identify the level of their students in mathematics and build up basic math skills.

B. READING LISTS/RESOURCES

Required Reading

- Allsopp, D.H., Kyger, M.M., & Lovin, L.H. (2018). *Teaching mathematics meaningfully: Solutions for reaching struggling learners* (2nd ed.). Paul H. Brookes Publishing.
- Allsopp, D. H., Farmer, J. L., Hoppey, D., & Kamp, B. L. (2018, March). *Adapting Mathematics Core Curricula to Meet the Needs of Students with Disabilities*. Retrieved from <https://www.cec.sped.org/Publications/CEC-Journals/TEACHING-Exceptional-Children/TEC-Plus/Adapting-Mathematics-Core-Curricula-to-Meet-the-Needs-of-Students-with-Disabilities>
- Spooner, F., Saunders, A., Root, J., & Brosh, C. (2017). Promoting access to common core mathematics for students with severe disabilities through mathematical problem solving. *Research and Practice for Persons with Severe Disabilities*, 42(3), 171-186.
- *Mathematics Framework*. 2017. Massachusetts Department of Education. Available online at <http://doe.mass.edu>.

C. LEARNING OUTCOMES

In the context of application to their own classroom situations, participants taking this course will:

- Identify key scholarly sources for teaching mathematics to students with disabilities and describe practical implications.
- Design and implement a mathematical unit for students with moderate to severe disabilities.
- Intensifying Math Instruction across Tiers with MTSS.
- Evaluate and utilize a variety of specialized materials and strategies to teach mathematics in both inclusive and specialized settings to individuals with a variety of learning needs and styles including students with disabilities.
- Use appropriate modifications, adaptations, and technology for mathematics, for individuals with a variety of learning styles and needs including needs associated with disabilities.
- Determine curricula that promotes the development of cognitive, academic, and functional life skills for students with disabilities.
- Create and implement mathematic lessons for students with disabilities.
- Create and analyze mathematic assessments for students with disabilities.
- Determine the best practices for teaching mathematics to students with disabilities.

D. INSTRUCTIONAL STRATEGIES

The instructor's approach to this class will utilize various models of instruction.

- Notes and Reading
- Discussion/questioning
- Viewing/listening/answering
- Reflective responses
- Role playing/simulation
- Independent learning
- Case Study

E. TECHNOLOGY INITIATIVES

Users of the Fitchburg State University computer systems are subject to all applicable federal, state, and international computer laws. Questions regarding regulations may be directed to the office of Information Technology Systems.

Candidates will utilize technology as:

- a research tool
- a communication method (email & discussion board)
- an enhancement tool for the design of lessons and curriculum units
- Submitting assignments

F. COURSE REQUIREMENTS

Participants will meet course requirements through actively participating in class discussions, by writing short analytic and application papers in response to readings and prompts, and by designing a math unit based on Common Core and using strategies discussed in Allsopp, Lovin, & Ingen (2018) that ensures access to grade level math instruction for students with moderate to severe disabilities.

Assignments

Discussion Board: Each week you will be required to answer a discussion board question relating to the reading for that week. The purpose of the discussions is to allow you to analyze the connections between theory, research, and practice and to apply these to classroom instruction. There will be a total of 14 discussion questions and each response should be at least 2 paragraphs in length. You will also be required to reply to at least **two** other colleagues. Your discussion responses to your colleagues should be thoughtful and thorough and engage one another in conversation. You will not be able to see others' discussions until you have answered your own first.

Take Action Activities: There are several activities in the text that apply the research from the reading. We will be doing five (5) of these activities throughout the course. You will do the activity and submit electronically.

Course Portfolio: By the end of the course, you will have completed one **unit** of math, based on students on your caseload and will complete a portfolio of your work. The portfolio will include three assignments that will be compiled into one final portfolio. Details of the class portfolio can be found at the end of the syllabus.

G. EVALUATION AND GRADING POLICY

<u>Discussion Board</u>	28 Points
Individual responses (14)	14 points
Response to (2) peers	14 points
<u>Take Action Activities</u>	50 Points
Each Activity (5)	10 points
<u>Course Portfolio</u>	90 points
Assignment A	30 points
Assignment B	30 points
Assignment C	30 points

All course portfolio assignments submitted on time may be redone throughout the course on a time schedule determined with the instructor.

All assignments must be professionally prepared and presented (e.g., word-processed with no spelling or mechanical errors, with proper citations for all sources, APA format).

Any late (after the due date) assignments not discussed with the instructor will get a 10% deduction. After one week, no late assignments will be accepted.

Evaluation Criteria

Any assignment below a 3.0 and submitted on time may be redone throughout the course on a time schedule determined with the instructor. Resubmitted assignments will receive a grade of no more than a 3.0. All assignments must be professionally prepared and presented (e.g., word-processed with no spelling or mechanical errors, with proper citations for all sources). Criteria for final grading are as follows:

4.0 (Superior) The participant demonstrates all required competencies at an exemplary level at the times specified by the instructor. Details of assignments are highly developed. Knowledge, application and synthesis of readings, concepts and strategies are demonstrated at an exemplary level. Products and performances are worthy of dissemination beyond the class. Class attendance and participation are at an exemplary level. (93-100 points)

3.5 (Very Good) The participant demonstrates all required competencies at expected graduate level standards, and products and performances are submitted or demonstrated on time. Details of assignments are highly developed. Knowledge, application and synthesis of readings, concepts and strategies are demonstrated at a proficient level. Class attendance and participation are at an acceptable level. (87-92 points)

3.0 (Good) The participant demonstrates required competencies at a satisfactory level. Most products and performances are submitted or documented on time and demonstrate attention to detail, and application of ideas and concepts are at a satisfactory level. Class attendance and participation are at an acceptable level. (80-86 points)

2.5 (Acceptable) The participant demonstrates all required competencies at a marginally adequate level. The participant is sometimes late in submitting products or demonstrating performances. Some understanding, application and synthesis of readings, concepts and strategies are evidenced. Class attendance and participation are at an acceptable level. (75-79 points)

2.0 (Passing) The participant demonstrates all required competencies at below standard graduate work. The participant is often late in submitting products or demonstrating performances. Understanding, application and synthesis of readings, concepts and strategies are at a superficial level. Class attendance and participation are at a minimally acceptable level. (70-74 points)

0.0 (Failure) The participant does not demonstrate required competencies.

W (Withdrew)

IN (Incomplete) Awarded with the recommendation of the instructor when the participant has completed 80% of the coursework but cannot complete the remainder due to illness or some other serious reason. The participant must complete the work and the instructor must submit a change of grade to the College Registrar within four weeks following the conclusion of the course. Failure to do so will result in an automatic grade of 0.0 for the course. An Incomplete (IN) will be awarded to participants who have not paid the required fee for course packs or have not completed the required pre-practicum documents.

H. COURSE CONTENT/ TOPICAL OUTLINE

<u>Week</u>	<u>Topic</u>	<u>Assignments to work on</u>	<u>What's due this week</u>
Week 1	<ul style="list-style-type: none"> •Introductions •Syllabus 	<ol style="list-style-type: none"> 1. Discussion board #1- Introduce yourself by answering questions on discussion board and post a picture of yourself. 2. Read the Syllabus 3. Read ch. 1 in Allsopp, Lovin, & Ingen (2018) 	Discussion #1
Week 2	The Big Ideas in Mathematics and why they are Important	<ol style="list-style-type: none"> 1. Read: <i>Adapting Mathematics Core Curricula to Meet the Needs of Students with Disabilities</i> 2. Read chapters 2 in Allsopp, Lovin, & Ingen (2018) 3. Discussion board response #2 4. Take Action Activity #1 	Discussion #2 Take Action Activity #1
Week 3	Children's Mathematics: Learning Trajectories	<ol style="list-style-type: none"> 1. Read chapter 3 in Allsopp, Lovin, & Ingen (2018) 2. Discussion board response #3 3. Begin course portfolio Assignment #1 	Discussion #3
Week 4	Barriers to Mathematical Success for Students with Disabilities and Other Struggling learners	<ol style="list-style-type: none"> 1. Read chapter 4 in Allsopp, Lovin, & Ingen (2018) 2. Discussion board response #4 3. Take Action Activity #2 	Discussion #4 Take Action Activity #2
Week 5	Math Assessment and Struggling Learners	<ol style="list-style-type: none"> 1. Read chapter 5 in Allsopp, Lovin, & Ingen (2018) 2. Discussion board response #5 3. Course portfolio Assignment A due. 4. Begin course portfolio assignment B 	Discussion #5 Assignment A
Week 6	What does the literature say about teaching math to students with disabilities?	<ol style="list-style-type: none"> 1. Find 1 article relating to your students with disabilities and how to teach them mathematics. 2. Discussion board response #6- summarize using citations, your article. 	Discussion #6 Take Action Activity #3

Week 7	Making Flexible Instructional Decisions	<ol style="list-style-type: none"> 1. Read chapter 6 in Allsopp, Lovin, & Ingen (2018) 2. Discussion board response #7 	Discussion #7
Week 8	Essential Instructional Approaches for Struggling Learners in Mathematics	<ol style="list-style-type: none"> 1. Read chapter 7 in Allsopp, Lovin, & Ingen (2018) 2. Discussion board response #8 3. Take Action Activity #4 	Discussion #8 Take Action Activity #4
Week 9	What does the literature say about teaching math to students with disabilities?	<ol style="list-style-type: none"> 3. Find 1 article relating to your students with disabilities and how to teach them mathematics. 4. Discussion board response #9- summarize using citations, your article. 	Discussion #9
Week 10	Changing Expectations for Struggling learners	<ol style="list-style-type: none"> 5. Read chapter 8 in Allsopp, Lovin, & Ingen (2018) 6. Discussion board response #10 7. Course Portfolio assignment B due 8. Start Course portfolio assignment C 	Discussion #10 Assignment B
Week 11	Mathematics MTSS/RTI and Research on Mathematics Instruction for Struggling Learners	<ol style="list-style-type: none"> 1. Read chapter 9 in Allsopp, Lovin, & Ingen (2018). 2. Discussion board response #11 	Discussion #11
Week 12	How to Intensify Assessment and Essential Instructional Approaches with MTSS/RTI	<ol style="list-style-type: none"> 1. Read chapter 10 in Allsopp, Lovin, & Ingen (2018). 2. Discussion board response #12 	Discussion #12
Week 13	Intensifying Math Instruction across Tiers with MTSS	<ol style="list-style-type: none"> 1. Read chapter 11 in Allsopp, Lovin, & Ingen (2018). 2. Discussion board response #13 3. Take Action Activity #5 	Discussion #13 Take Action Activity #5
Week 14	The Teaching Mathematics Meaningfully Process	<ol style="list-style-type: none"> 1. Read chapter 12 in Allsopp, Lovin, & Ingen (2018). 2. Discussion board response #14 3. Course Portfolio assignment C due 	Discussion #14 Assignment C

I. POLICIES

Attendance/Participation

This course is conducted with the expectation that students will participate fully and will make every attempt to attend all sessions. Participation in general class discussions and analysis and in demonstrating case preparation is required. One or more unexcused absences, for which work is not made up, may result in a reduced grade or a failing grade.

Participants are expected to be actively involved in course sessions, complete all activities within the class setting and be fully prepared for class. Additionally, since many classes include cooperative hands-on group learning activities, it is important for participants to be present to participate in these activities.

Policy on Writing

All submitted written work must be typed, proofread, and prepared with a sense of professionalism. Papers that do not meet this standard may be returned to the participant for resubmission. Papers that are submitted late without prior approval will receive an automatic grade.

Grade Appeal

If you disagree with the evaluation of your work or believe an improper grade has been assigned, an appeal may be followed. Please discuss the matter with the instructor and refer to the Fitchburg State University Grade Appeal Policy in your Student Handbook located at http://www.fitchburgstate.edu/uploads/files/EducationUnit_NCATE/Standard2/narrative/Student_Handbook_Web_1213.pdf

Academic Integrity Policy

The faculty in the Education Unit at Fitchburg State University that work submitted in fulfillment of course requirements will be solely that of the individual candidate and all other sources will be cited appropriately. University Academic Integrity Policy, as outlined in the University Catalogue, will be strictly adhered to.

Copyright Policy

You are reminded that, in preparing handouts for peers or the instructor, reproduction of copyrighted material without permission of the copyright owner is illegal. Such unauthorized copying may violate the rights of the author or publisher. Fitchburg State University adheres to federal laws regarding use of copyrighted materials. See the Electronic Use of Copyrighted Materials on the Fitchburg State University website for more details.

J. LIBRARY ACCESS

The Gallucci-Cirio Library at Fitchburg State University provides a full range of library services, including borrowing privileges; document delivery (books and articles mailed to your home); Interlibrary Loan; reference assistance via phone, email, I.M., Blackboard's Collaboration and Illuminate tools, Skype and in-person; library instruction; research help and more. Any questions relating to library services should be directed to Linda LeBlanc,

Access Services Librarian, at 978-665-3062 or dllibrary@fitchburgstate.edu. There is also a special section for Distance Learning and Extended Campus Services at <http://fitchburgstate.libguides.com/dlservices> outlining the full range of services available to you and how to access them.

Students who are currently registered with the university may access any of the Library's subscription databases, including an increasing number with full-text, by visiting the Gallucci-Cirio Library's homepage <http://www.fitchburgstate.edu/academics/library> and clicking on the Research Databases button in the center of the page. Select the resource you want to access from the alphabetical or subject listing. Once you click on the database title, you will be prompted for your Falcon Key login information; this is the same login you will use for your Fitchburg State email account and if you have any online Blackboard courses. If you do not know your Falcon Key username and password, or have any problems logging in, contact the university's Technology Help Desk at 978-665-4500 helpdesk@fitchburgstate.edu. The Library can issue you a temporary guest Falcon Key to use while the Technology Department is setting up your account: contact us at 978-665-3062 or dllibrary@fitchburgstate.edu

All registered Fitchburg State University students are eligible for a Fitchburg State University OneCard ID, which also serves as his/her library card. If you have not received your OneCard yet, you can still access all of our online services as long as you have activated your library account. Activate your library account online at <http://www.fitchburgstate.edu/librarycf/cardrequest.cfm> or in person at the Circulation Desk. After activation by the Gallucci-Cirio Library and receipt of your OneCard, students may also use any Massachusetts State College/University Library as well as participating libraries in the Academic and Research Collaborative (ARC) during the current semester. OneCards are available on campus all year round. Students wanting an OneCard must either complete the online Extended Campus OneCard request form <http://web.fitchburgstate.edu/technology/onecard/photoless/index.cfm> or present a course registration confirmation at the OneCard Office in the Anthony Building, main campus. Please call 978-665-3039 for available times or if you have any questions about your OneCard.

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Appendix A: Course Portfolio

Assignment A: (4-5 pages)

Intro and student demographics and needs

1. Who are your students?
 - b. How many students are in your caseload?
 - c. What are their disabilities?
 - d. What are their math levels?
 - e. What data do you have to help determine their math levels?
2. Choose a group of students that are similar in level and disability
 - a. What level did you choose?
 - b. What strengths do these students have?
 - c. What weaknesses do they have?
 - d. What are their learning styles in regard to learning math? (How do you know?)
3. Learning characteristics
 - a. What are the learning characteristics for each student in your “group”? Describe with detail and examples of how you determined their learning characteristic.
4. What are the needs of your students in regard to mathematics?

Assignment B (6-8 pages)

Planning and implementing responsive instructions

1. *Planning*
 - a. Choose a math unit that either you, or the general ed teacher, will teach this year. This unit could be a unit for MCAS alternative assessment (Discussion with professor is mandatory for this).
 - b. If you will teach the unit- determine what unit you will teach.
 - i. What are the standards that will be addressed? Please use [the Massachusetts Curriculum Frameworks for Students with Disabilities](#).
 - ii. What are the “Big Ideas”?
 - iii. How do these relate to the alternate MCAS the students will take?
 - c. If you will co-teach or reinforce teach- discuss with general ed teacher which unit to focus on.
 - i. What are the standards that will be addressed?
 - ii. What are the “Big Ideas”?
 - d. How will you implement the four buckets of effective mathematics practice? Please use resources to back up your reasoning.
 - i. What will they look like in your lesson plans?
 - e. What is the planning process for you and your co-teacher or general education teacher look like?
 - f. What are the big ideas for the unit and how can you plan to use the grade level standards, but also each students’ current level in mathematics?

- g. What are the learning outcomes for your students with consideration for the big ideas of math, learning characteristics of the student(s), disability of the student(s), and math understanding of the student(s)?
2. *Implementation*
- a. Literature research
 - i. What are the best ways to implement mathematic lessons to your students with disabilities?
 - a. Find at least 3 articles on students with disabilities and teaching mathematics.
 - ii. Using the literature, how will you implement the lessons for the unit you chose?
3. *Assessment*
- a. What types of assessment from Allsopp, Lovin, & Ingen will you use to determine your students' understanding of the concepts?
 - b. How will you continuously assess your students and change instruction if students are not understanding concepts.

Assignment C: (at least 5 lesson plans)

Lesson plans and assessments for entire unit

FSU lesson plan template is attached. You may use your own lesson plan template as long as it is approved by professor.

- c. Each lesson should include
 - i. Goal
 - ii. Big Idea and CCSS
 - iii. Modifications/Accommodations
 - iv. Assessments

FSU Lesson Plan Template

Teacher Candidate:
Lesson Plan Focus:

Date:

Grade/Class:

Essential Question(s):

Goal(s):

Rationale for Essential Question(s) and Goal(s):

State Framework Standards:

Objective(s) (<u>A</u> ctor, <u>B</u> ehavior, <u>C</u> ondition, <u>D</u> egree)	Assessments (Formative and Summative)	Materials (Include Materials Needed for Differentiation)	Differentiation (Content, Process, Product, Environment) *See guidelines

Outline of Lesson Process: (Within the lesson outline include the following: organization of the classroom, transitions, estimated timing of each lesson part; teaching of terms/vocabulary and key/guiding questions asked; and differentiated strategies.)

Introduction and Overview of Lesson

Source of Motivating Students:

Source of Activating Students' Prior Knowledge:

Instruction: (numbered steps of the lesson)

Closure of Lesson: