MATH 413 Teaching Mathematics in the Secondary School
Central Connecticut State University
Department of Mathematical Sciences
Spring 2021

Instructor: Dr. L. M. Frazee
Office: Marcus White Hall 117
Office Hours: Tuesday: 12:15 PM – 2:15 PM
Wednesday: 12:00 PM – 2:00 PM
Thursday: 9:00 AM – 10:00 AM
or by appointment
Access Office Hours through link provided in Blackboard

Office Phone: 860-832-2853
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Meeting Times: Wednesday, 4:30-7:10 pm, Bassett Hall 205; Online through Blackboard Collaborate

Description: This course is designed for students who plan to be teachers responsible for mathematics instruction in the middle and high school. Topics include planning for instruction, classroom management, promoting effective discourse, methods to address the needs of a diverse student population, and methods of assessment. Field experience is required. To be taken in conjunction with EDSC 425 in the semester prior to student teaching.

Field Experience Component: Field placements for Spring 2021 are all in Hartford and will be fully online. There is a requirement of 30 hours of field work over the course of the 16-week semester—this will work out to 2-3 hours per week, depending on when the placements can begin.

Pre-requisites: MATH 327 and admission into the Professional Program in Secondary Education.

Required Texts & Readings

NCTM Principles to Actions


Additional Required Reading Materials: Provided on Blackboard

Course Purpose
The purpose of this course is to prepare future secondary mathematics teachers to use the Mathematics Teaching Practices: establish mathematics goals to focus learning; implement tasks that promote reasoning and problem solving; use and connect mathematical representations; facilitate meaningful mathematical discourse; pose purposeful questions; build procedural fluency from conceptual understanding; support productive struggle in learning mathematics; elicit and use evidence of student thinking (NCTM, 2014). Additionally, there will be discussion of classroom experiences, classroom management situations, and other responsibilities of classroom teachers.

Learning Outcomes
1. Students will be able to align CCSS mathematics content with conceptual and procedural understandings appropriate for secondary mathematics students.
2. Students will be able to identify different types of reasoning that students use in the mathematics classroom and select and/or design tasks to foster such reasoning.
3. Students will be able to select and/or design appropriate tasks for fostering literacy in the mathematics classroom.
4. Students will be able to select and/or design assessments that assess both procedural and conceptual understandings.
5. Students will be able to develop lesson plans with components to support the learning of students with special needs.
6. Students will be able to analyze classroom teaching and identify examples of student reasoning.
7. Students will be able to write justifications of learning tasks and assessment grounded in principles of best teaching practices and tied to research in mathematics education.

Course Assignments & Grading

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<tr>
<th>Category</th>
<th>Description</th>
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<tr>
<td>Field Experience Reflections (10%)</td>
<td>This category consists of a Weekly Triple Entry Journal. From this journal, you will produce Observation Protocols and complete 5 formal observation entries in the journal from your field placement.</td>
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<td>Rehearsal Teaching (20%)</td>
<td>You will be learning about one of the following types of activities and presenting to the class: (1) A Desmos Task; (2) A GeoGebra Task; (3) A 3-Act Math Task to Launch a Lesson; (4) A Card Sort; (5) Manipulatives (e.g. Algebra Tiles, Paperfolding, online graphing calculator or other manipulative) The assignment will consist of planning for an activity, implementing the activity, and analyzing the usefulness of the resource.</td>
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<td>Lesson Presentation and Field Placement Teaching Lesson (20%)</td>
<td>You will be teaching one full lesson as part of this course. This assignment will include a lesson plan, implementation of the lesson with our class, implementation of the lesson in your field placement (if possible), and an analysis of the lesson.</td>
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<td>Teaching Resource Collection (25%)</td>
<td>This is a Project that will be ongoing. You will be setting up a virtual location (Google Folder or Microsoft OneNote folder) for the two categories of resources: Analyze and Create. Assignments for these folders will sometimes be part of class and sometimes outside of class. There is a place on Blackboard for you to share your link to this folder so that I can access it when assignments are due.</td>
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<tr>
<td>Final: The Learning Segment—edTPA Preparation (25%)</td>
<td>The final for this course is the planning and commentary for a 3-day Learning Segment in preparation for writing an edTPA in student teaching. Due by 11:59pm on Wednesday, May 12 (the day of our regularly scheduled final)</td>
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| Grading Scale Cut-off Scores                  | A 93% | B+ 87% | C+ 77% | D+ 67% | A- 90% | B 83% | C 73% | D 63% | B- 80% | C- 70% | D- 60% |

Because this course is preparation for teaching, there are no late work policies; the work of teaching requires time management and consistent preparation. All work must be submitted on time to receive credit. See Professor Frazee if you have any questions.
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<tr>
<th>Week</th>
<th>Topic</th>
<th>Readings</th>
<th>Assignments Due in Class</th>
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</table>
| Week 1 | January 25-29<br>The Work of Teaching<br>The CCSS and the Mathematics Practices | **NCTM Principles to Actions**<br>Introductory Chapter (p. 1-11) (time will be given in class)  
CCSS News Articles (time will be given in class)  
The CCSS and Math Practices (time will be given in class) | Teaching Resource Collection:  
Analyze a Classroom: The Mathematics Practices in Action (focus on 2, 7, 8) |
| Week 2 | February 1-5<br>Mathematics Teaching Practice: Establish Goals to Focus Learning | **NCTM Principles to Actions**  
Guiding Principle: Curriculum (p. 70-77)  
MTP: Establish goals to focus learning (p. 12-16)  
**Teaching Resource Collection:**  
**Analyze a Classroom:** The Mathematics Practices in Action (focus on 2, 7, 8) | Additional Readings TBA in Blackboard |
| Week 3 | February 8-12<br>Mathematics Teaching Practices: Build PF from CU Use and Connect Mathematical Representations | **NCTM Principles to Actions**  
MTPs: Build PF from CU (p. 42-48)  
and Use and Connect Mathematical Representations (p. 24-29)  
**Assignments TBA in Blackboard** | Schedule a meeting with Dr. Frazee to discuss Rehearsal Teaching |
| Week 4 | February 15-19<br>Mathematics Teaching Practices: Implement Tasks that promote reasoning and problem solving Facilitate meaningful discourse | **NCTM Principles to Actions**  
Guiding Principle: Tools & Technology (p. 78-88)  
MTPs: Implement Tasks that promote reasoning and problem solving (p. 17-24); Facilitate meaningful discourse (p. 29-35)  
**Assignments TBA in Blackboard** | Additional Readings TBA in Blackboard |
| Week 5 | February 22-26<br>Mathematics Teaching Practices: Pose Purposeful questions Support productive struggle Elicit and use evidence of student thinking | **NCTM Principles to Actions**<br>MTPs:  
Pose Purposeful questions (p. 35-41);  
Support productive struggle (p. 48-52);  
Elicit and use evidence of student thinking (p. 53-56)  
**Teaching Resource Collection:** Create a Resource: Literacy Strategies in Mathematics Classes  
Rehearsal Teaching #1 (one student will be teaching) | Assignments TBA in Blackboard |
| Week 6 | March 1-5<br>Assessing: Summative and Formative | **NCTM Principles to Actions**<br>Guiding Principle: Assessment (p. 89-98)  
**75 Practical Strategies** (p. 1-42)  
**Assignments TBA in Blackboard**  
Rehearsal Teaching #2 (one student will be teaching) | Assignments TBA in Blackboard |
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<tr>
<th>Week 7</th>
<th>March 8-12</th>
<th>Differentiated Instruction</th>
<th>NCTM Principles to Actions</th>
<th>Teaching Resource Collection: Create a Resource: Formative Assessment Techniques</th>
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<td>Guiding Principle: Access and Equity (Pg. 59-69)</td>
<td>Additional Readings TBA in Blackboard</td>
<td>Rehearsal Teaching #3 (one student will be teaching)</td>
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<td><strong>Weekly Triple Entry Journal:</strong> Plan to have completed 2-3 observations</td>
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<td>Week 8</td>
<td>March 15-19</td>
<td>Analyzing Instruction &amp; Assessments</td>
<td>edTPA Handbook: Task 1</td>
<td>Rehearsal Teaching #4 (one student will be teaching)</td>
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<td>Unit Planning</td>
<td>Additional Readings TBA in Blackboard</td>
<td>Schedule Meeting time with Dr. Frazee for Lesson Preparations</td>
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<td><strong>Teaching Resource Collection:</strong> Create a Resource: Students’ Mathematical Dispositions</td>
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<td>Week 9</td>
<td>March 22-26</td>
<td>Analyzing Instruction &amp; Assessments</td>
<td>edTPA Handbook: Task 2</td>
<td>Assignments TBA in Blackboard</td>
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<td>Unit Planning</td>
<td>Additional Readings TBA in Blackboard</td>
<td>Rehearsal Teaching #5 (one student will be teaching)</td>
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<td>Week 10</td>
<td>March 29-April 2</td>
<td>Teaching in the Online Environment: Focus on Middle School</td>
<td>edTPA Handbook: Task 3</td>
<td>Rehearsal Teaching #6 (one student will be teaching)</td>
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<td>Additional Readings TBA in Blackboard</td>
<td><strong>Teaching Resource Collection:</strong> Analyze Student Work: Sample edTPA Task 3</td>
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<td>Week 11</td>
<td>April 5-9</td>
<td>Lesson Presentations</td>
<td>Additional Readings TBA in Blackboard</td>
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<td>Week 12</td>
<td>April 12-16</td>
<td>Lesson Presentations</td>
<td>Additional Readings TBA in Blackboard</td>
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<td>Week 13</td>
<td>April 19-23</td>
<td>Teaching in the Online Environment: Focus on High Schools</td>
<td>Additional Readings TBA in Blackboard</td>
<td>edTPA Learning Segment Lesson Plans 1-2 due for feedback</td>
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<td>Week 14</td>
<td>April 26-30</td>
<td>Instruction: Classroom Management</td>
<td>Additional Readings TBA in Blackboard</td>
<td>Assignments TBA in Blackboard</td>
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<td><strong>Weekly Triple Entry Journal:</strong> Plan to have completed 2-3 observations</td>
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<td>Week 15</td>
<td>May 3-7</td>
<td>Student Teaching Panel</td>
<td>NCTM Principles to Actions</td>
<td>Lesson Plan 3 due if you would like feedback (returned by May 7)</td>
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<td>Guiding Principle: Professionalism (p. 99-109)</td>
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<td><strong>Finals Week</strong></td>
<td>edTPA Learning Segment Due</td>
<td>Wednesday, May 12 by 11:59 PM (day of our regularly scheduled final)</td>
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References


edTPA Secondary Mathematics Handbook


Important Online Resources

Illustrative Mathematics Tasks by CCSS

The Shell Center: Mathematics Assessment Project

Connecticut Model Curriculum
University Policies

Academic Integrity
All students are expected to demonstrate integrity in the completion of their coursework. Academic integrity means doing one's own work and giving proper credit to the work and ideas of others. It is the responsibility of each student to become familiar with what constitutes academic dishonesty and plagiarism and to avoid all forms of cheating and plagiarism. Students who engage in plagiarism and other forms of academic misconduct will face academic and possibly disciplinary consequences. Academic sanctions can range from a reduced grade for the assignment to a failing grade for the course. From a disciplinary standpoint, an Academic Misconduct Report may be filed and a Faculty Hearing Board may impose sanctions such as probation, suspension or expulsion. For further information on academic misconduct and its consequences, please consult the Student Code of Conduct (http://www.ccsu.edu/StudentConduct/codeofconduct.asp) and the Academic Misconduct Policy (http://www.ccsu.edu/AcademicIntegrity/).

Withdraw Deadlines
The last day to withdraw from a course without instructor approval is April 19th. It is strongly recommended that students consult with their academic advisors prior to deciding to withdraw. Cessation of attendance, notice to the instructor, or telephone calls to the Registrar’s Office are not considered official notice of a student’s intention to drop the course. After April 19th, withdrawals are allowed only under extenuating circumstances and require approval of the course instructor and department chair (in that order). Low grades are not considered extenuating circumstances.

CCSU ADA Statement
Central Connecticut State University provides reasonable accommodations in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act for students with documented disabilities on an individualized basis. If you are a student with a documented disability, and would like to request academic accommodations, you are encouraged to contact Student Disability Services (SDS) at 860-832-1952, or email disabilityservices@ccsu.edu. Please visit the SDS website at http://www.ccsu.edu/sds/ to download an Intake form and documentation requirements. Once approved, SDS suggests that students discuss their approved accommodations with their professors, as well as any other additional medical emergency needs. Temporary impairments may also qualify for accommodations. Please note that accommodations are not retroactive and must be requested each semester.

CCSU Statement on Discrimination and Harassment
Central Connecticut State University strives to maintain our campus as a place of work and study for faculty, staff, and students that is free of all forms of prohibited discrimination and harassment based upon age; ancestry, color; gender identity and expression; intellectual disability; learning disability; mental disorder; physical disability; marital status, national origin; race; religious creed; sex, (including pregnancy, transgender status, sexual harassment and sexual assault); sexual orientation; or any other status protected by federal or state laws. Any student who has concerns about should contact the Office of Equity & Inclusion (OEI) at 860-832-1652, Student Affairs at 860-832-1601, or their faculty member. The OEI is located on the main floor of Davidson Hall, room 119.

CCSU Statement on Sexual Misconduct, Intimate Partner Violence and Stalking
Central Connecticut State University (CCSU) will not tolerate sexual misconduct against students, staff, faculty, or visitors in any form, including but not limited to: sexual assault, sexual exploitation, sexual harassment or stalking, as defined in CCSU policies. For additional information, please consult the CCSU policy at https://www.ccsu.edu/diversity/policies/index.html. All faculty members and staff have a duty to report incidents of sexual harassment including sexual misconduct, intimate partner violence and stalking to Pamela Whitley, Title IX Officer, Office of Equity & Inclusion, Davidson Hall, 119.

To file a report, contact: Equity & Inclusion (860-832-1652), Student Conduct (860-832-1667) or Student Affairs (860-832-1601). For criminal complaints, contact the University Police (860-832-2375).

For support and advocacy, contact: Office of Victim Advocacy at 860-832-3795 or jflanagan@ccsu.edu; Student Wellness Services at 860-832-1945(confidential); Women’s Center at 860-832-1655; the local YWCA’s Sexual Assault Crisis Services Hotline at 860-223-1787 (confidential) and Prudence Crandall Center for Domestic Violence (confidential) at 888-774-2900(24-hour hotline).