MAE 4310: Mathematics Content and Methods for Teaching Mathematics in Inclusive Elementary Classrooms, Part 2

University of Florida, School of Teaching and Learning, Spring 2018

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**Office Hours by Appointment Only (please email)

CLASS MEETING TIME: WEDNESDAYS 9:35AM – 12:25PM

REQUIRED TEXT:


RECOMMENDED TEXT (FOR EXAM PREPARATION):


COURSE DESCRIPTION:

This course is designed to present an analysis of the content and methods necessary to effectively teach mathematics in the inclusive elementary classroom. We will study the fundamental principles that underlie content areas from an advanced viewpoint, building on knowledge that you bring with you from your K-12 education. In the context of studying particular mathematical topics, we will explore more generally a variety of ongoing teacher practices that support effective mathematics teaching.

COURSE OBJECTIVES:

● Students will be able to reason mathematically, solve problems, and communicate mathematics effectively, using a variety of representations of mathematical concepts and procedures.
● Students will analyze and participate in instruction that is aligned with the Common Core State Standards for Mathematics (CCSSM), the National Council of Teachers of Mathematics (NCTM) Principles and Standards for School Mathematics, and the Mathematics Florida Standards.
● Students will be able to use teaching practices that are effective for the mathematics classroom, such as those reflected in the NCTM Effective Mathematics Teaching Practices and English for Speakers of Other Lanugages (ESOL) Performance Standards.
● Students will be able to differentiate mathematical instruction for diverse learners.

GROUP WORK EXPECTATIONS

This course requires you to work as a group on many assignments. Please communicate with your group members frequently and coordinate equitable work load for each. You are expected to be able to resolve interpersonal issues as mature young adults, and please discuss issues directly with your group members as they arise. There will also be in-class time for discussions about group work norms and expectations.
LESSON STUDY RELATED WORK

As a part of CANVAS course site, you will find most of the lesson study materials. Each time you meet as a lesson study group, you will take notes and submit on CANVAS.

COURSE ASSIGNMENTS (DETAILED ASSIGNMENT GUIDELINES WILL BE GIVEN IN CLASS):

1. **Readings and POWs (Problem of the week, due every week)** – Please post your reading reactions and POW solutions to the CANVAS site Saturday midnight prior to the class meeting. **Everyone is required to do this.** When it is your turn to be the reading and POW leader for the week, you are responsible to read your group members' posts and write a summary prior to the class meeting time. For POW, summarize the similar and different strategies your group members used to solve the problem. For reading discussion, summarize your group’s ideas, and please put 2 or 3 additional questions in your summary, which should address interesting questions/issues raised by your group member(s) and/or how you want to extend the discussion. After the class, the leaders will again post the summary of the discussion from the small-group time.

2. **Geometry with Children Assignment (Due 1/24)** – Please work with a child and talk to him/her about shapes. Sample shapes will be given in class. It can be your little sister/brother, friend’s child, neighbor, family acquaintance, etc., but please be careful approaching a stranger (I do not recommend this). You may even interview a child via Skype/FaceTime if you have a cousin/niece/friend who lives far away. Take careful notes on the child’s descriptions of the shapes. Write a short paragraph discussing your analysis of the child’s responses.

3. **Learning Progression Summary (Due 2/14)** – This is an in-class activity/assignment. As a group, you will create a chart, connecting and contrasting learning progressions illustrated in standards.

4. **Student Pre-Assessment Analysis (Due 3/21)** – Talk to 2 or 3 students in your practicum classrooms about shapes. Sample shapes will be given in class. Allow enough time and ask your mentor teachers in advance about this assignment. Each interview should take less than 5 minutes, and you can conduct this during recess time, etc. Take careful notes on the child’s responses and bring the data back to class (3/14). You will have in-class time to analyze the responses as groups. Post the summary of the data analysis on CANVAS.

5. **Lesson Plan (Due 4/4 and 4/11)** – You will write a draft lesson plan as a group. Post it on CANVAS prior to the class meeting on 4/4. After receiving feedback from another group, you will revise the lesson plan and repost it on CANVAS on 4/11.

6. **Lesson Feedback Circle (Due 4/4)** – You will provide feedback to another group’s lesson (in class). You will read the lesson plan prior to the lesson rehearsal, participate in the mock-up lesson, and provide written feedback.

7. **Lesson Study Participation** – you will be graded on your participation in the lesson study process. Attendance to the research lesson is mandatory.

8. **Lesson Observation Form (Due week of 4/11)** – you will fill out the lesson observation form after attending the research lesson.

9. **Lesson Study Group Reflection (Due week of 4/18)** – During the week of April 18th, please arrange a meeting time as a group. You may meet in person or virtually. Group reflection
guidelines will be available to you. Record your meeting, and take careful notes of the discussion.

10. Final Reflection Paper (Due 4/25) – Guidelines to the final reflection paper will be given in class.

**TOPICS AND ASSIGNMENT SCHEDULE:**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
<th>Readings and Assignments Due</th>
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<tbody>
<tr>
<td>1. 1/10</td>
<td>Introduction</td>
<td>None</td>
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<tr>
<td>3. 1/24</td>
<td>NO CLASS MEETING</td>
<td><strong>Geometry with Children Assignment due (post it on CANVAS)</strong></td>
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<tr>
<td>4. 1/31</td>
<td>Geometry Learning and Lesson Study</td>
<td>&gt;&gt; Read and post reactions: Lewis &amp; Tsuchida, 1998; Edutopia article: <a href="https://www.edutopia.org/teacher-learning-supports-student-learning">https://www.edutopia.org/teacher-learning-supports-student-learning</a> &gt;&gt; POW WEEK 4</td>
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<td>5. 2/7</td>
<td>Geometry Standards and Learning Progressions Setting Goals with Lesson Study</td>
<td>&gt;&gt; Read and post reactions: CCSS-M; Progressions document &gt;&gt; POW WEEK 5</td>
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<td>6. 2/14</td>
<td>Lessons Supporting Spatial Reasoning Examining Research in Lesson Study</td>
<td>&gt;&gt; Read articles placed in the folder on CANVAS and post reactions &gt;&gt; POW WEEK 6 <strong>Learning Progressions Summary due (CANVAS)</strong></td>
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<tr>
<td>7. 2/21</td>
<td>Geometry Learning (continued) Examining Curriculum Materials in Lesson Study</td>
<td>&gt;&gt; Read and post reactions: Clements, 2000; Minetola, 2012 &gt;&gt; POW WEEK 7</td>
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<td>8. 2/28</td>
<td>Assessment Constructing Pre-Assessment in Lesson Study</td>
<td>&gt;&gt; Read and post reactions: VW Chapter on Assessment; Tobias 2013 &gt;&gt; POW WEEK 8</td>
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<td>9. 3/7</td>
<td>SPRING BREAK</td>
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<td>10. 3/14</td>
<td>Elementary Mathematics Topics that Relate to Geometry Analyzing Assessment Data in Lesson Study</td>
<td>&gt;&gt; Read and post reactions: specific pages in VW book (TBA) &gt;&gt; POW WEEK 10 <strong>Assessment data due (bring to class)</strong></td>
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<tr>
<td>11. 3/21</td>
<td>What is a lesson? Lesson Planning (1) in Lesson Study</td>
<td>&gt;&gt; Read and post reactions: Adding it Up Chapter 4; VW Problem Based Teaching Chapter &gt;&gt; POW WEEK 11 <em>Student Assessment Summary due (CANVAS)</em></td>
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<tr>
<td>12. 3/28</td>
<td>Teacher Talk Moves, Representations, Cognitive Demands, and Facilitation Practices Lesson Planning (2) in Lesson Study</td>
<td>&gt;&gt; Read and post reactions: Principles to Actions. &gt;&gt; POW WEEK 12</td>
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<tr>
<td>13. 4/4</td>
<td>Group Teaching Lesson Planning (3) in Lesson Study</td>
<td><strong>Lesson Plan Draft due (CANVAS)</strong></td>
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<td>14. 4/11</td>
<td>MEET AT THE SCHOOL SITE FOR RESEARCH LESSON TEACHING</td>
<td><strong>Revised Lesson Plan due (CANVAS)</strong></td>
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<tr>
<td>15. 4/18</td>
<td>NO CLASS MEETING</td>
<td><strong>Reflect on your lesson study experiences as a group (guidelines will be provided). Your group may meet in person or online. Submit group reflection notes to</strong></td>
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COURSE GRADING POLICIES:

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<thead>
<tr>
<th>Assignments</th>
<th>I/G</th>
<th>Sub-assignment</th>
<th>%</th>
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<tbody>
<tr>
<td>1. Class Participation</td>
<td>I</td>
<td></td>
<td>15%</td>
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<td>2. Weekly readings and POW</td>
<td>I</td>
<td>a. Weekly posts</td>
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<td></td>
<td>I</td>
<td>b. Summaries</td>
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<td>3. Geometry with children</td>
<td>I</td>
<td></td>
<td>10%</td>
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<td>4. Lesson Study</td>
<td>G</td>
<td>c. Learning Progression Summary</td>
<td>5%</td>
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<td></td>
<td>G</td>
<td>d. Pre-Assessment Data Analysis</td>
<td>5%</td>
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<td></td>
<td>G</td>
<td>e. Lesson Plan</td>
<td>5%</td>
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<td></td>
<td>G</td>
<td>f. Lesson Rehearsal and Feedback</td>
<td>5%</td>
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<tr>
<td></td>
<td>G</td>
<td>g. Lesson Study Participation</td>
<td>5%</td>
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<td></td>
<td>I</td>
<td>h. Lesson Observation Form</td>
<td>5%</td>
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<td></td>
<td>G</td>
<td>i. Group Reflection</td>
<td>10%</td>
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<td>5. Final Paper</td>
<td>I</td>
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<td>25%</td>
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<tr>
<td>Total</td>
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<td>100%</td>
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* I/G indicates if the assignment is for individuals or groups.

While all students are capable of earning an A in the course, merely completing the work does not constitute A work. The final determination of a course grade relies primarily on the quality of work presented for the various assignments. To receive full credit, all written work must be submitted on time and be of high quality. (Excused absences provide for an adjusted time frame.)

See https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx for information on UF grading policies for assigning grade points.

ONLINE COURSE EVALUATIONS:

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments will be made available to students.

ATTENDANCE AND MAKE-UP POLICY**

- Since a large portion of this class involves group interaction and analysis of classroom mathematics instruction, regular punctual attendance and participation is expected. Repeated tardiness or unexcused absences will result in a reduction of class participation points.
- Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx.
- In the unusual event that you will be late or unable to make it to class, please inform instructor prior to class.
- You will be expected to do make-up work for each missed class. It will be your responsibility to speak with a peer about class material and review the posted PowerPoint slides. The instructor will determine an additional assignment based on circumstances.
UNIVERSITY POLICY ON ACCOMMODATING STUDENTS WITH DISABILITIES:

Students requesting accommodation for disabilities must first register with the Dean of Students Office (http://www.dso.ufl.edu/drc/). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore students should contact the office as soon as possible in the term for which they are seeking accommodations.

UNIVERSITY POLICY ON ACADEMIC MISCONDUCT:

Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the UF Student Honor Code at http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/ which states:

"UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.”

ESOL INFUSION:

The following domains, standards, and performance indicators from the ESOL Performance Standards are addressed in the content of this course as part of the infused ESOL program in the Unified Elementary Program (PROTEACH).

Domain 4: ESOL Curriculum and Materials Development

Standard 1: Planning for Standards-Based Instruction of ELLs Teachers will know, understand, and apply concepts, research, best practices, and evidence-based strategies to plan classroom instruction in a supportive learning environment for ELLs. The teacher will plan for multilevel classrooms with learners from diverse backgrounds using a standards-based ESOL curriculum.

Performance Indicators Addressed in MAE 4310:

4.1.a. Plan for integrated standards-based ESOL and language-sensitive content instruction.

4.1.c. Plan differentiated learning experiences based on assessment of students' English and L1 proficiency and integrating ELLs' cultural background knowledge, learning styles, and prior formal educational experiences.

For the second week of class, we will read and discuss Wiest, L. (2008). Problem-Solving support for English language learners. Teaching Children Mathematics, 14(8), 479 – 484, and later we will read and discuss "Planning, Teaching, and Assessing Culturally and Linguistically Diverse Students," which is chapter 5 of our textbook by Van de Walle et al (see textbook listing above). These readings will serve as preparation for you to incorporate ideas for accommodating English Language Learners in your lesson plan work for the course, where you will be meeting the ESOL performance indicators. During the lesson plan project you will specifically discuss, write up, and implement (with peers) the accommodations you design for ELL students of particular backgrounds. Additionally, we will collaboratively plan ESOL accommodations in class on a regular
basis, and your practicum field experience may provide you with the opportunity to work directly with an ELL student.

For support in planning for ELLs, you will explore the following online ESOL Resources:

Translating Word Problems (http://www.purplemath.com/modules/translat.htm)

Challenges for ELL Students in the Mathematics Classroom
https://ells.wiki.farmington.k12.mi.us/Challenges+for+ells+in+Math

Math Instruction for English Language Learners http://www.colorincolorado.org/article/math-instruction-english-language-learners

**IMPORTANT CAMPUS RESOURCES:**

**Health and Wellness**
U Matter, We Care:
- If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center:
- http://www.counseling.ufl.edu/cwc/Default.aspx, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Student Health Care Center, 392-1161.

**Academic Resources**
E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learningsupport@ufl.edu. https://lss.at.ufl.edu/help.shtml.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling.
- http://www.crc.ufl.edu/

- Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.
- http://teachingcenter.ufl.edu/

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.
- http://writing.ufl.edu/writing-studio/

Student Complaints Campus: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf
On-Line Students Complaints: http://www.distance.ufl.edu/student-complaintprocess