EDCI 42600  
Teaching Mathematics in the Middle and Junior High School  
August 25 – October 5, 2014  
Tuesday & Thursday 10:30 – 12:50 pm (BRNG 3276)

Instructor:  Hyunyi Jung  
Email:  jung91@purdue.edu  
Cell Phone:  (765) 637-1976  
Office:  BRNG 4135  
Office Hours:  By appointment

COURSE DESCRIPTION

This course is designed for students who are planning to be secondary mathematics teachers. The activities in this course have been designed to meet the following goals:

- To develop an understanding of students' thinking and the processes by which they come to learn mathematics and think mathematically.
- To develop an understanding of teaching and learning environments through analyzing classroom interactions and the interplay among mathematics, classroom tasks, teacher moves, and students' ways of thinking and being.
- To develop an understanding of the scope and significance of school mathematics through an examination of state and national standards and mathematics education research.
- To develop professional attitudes and work habits and identify professional organizations and resources locally and nationally.
- To continue learning mathematics, especially in ways that promote inquiry and investigation.
- To develop ambitious teaching perspectives with an attitude toward leadership and willingness to influence the profession in new and positive ways.

The overall philosophy of this course is that teaching is a highly complex activity, involving extensive knowledge and judgment. The activities, readings, and assignments in this course are designed to augment pre-service teachers' knowledge base for teaching and to foster the ability to see and analyze teaching in the classroom and make informed judgments with respect to organizing productive learning environments for mathematics students.

REQUIRED MEMBERSHIP

Student membership to the National Council of Teachers of Mathematics (NCTM) (your membership from last semester will still be active).

For information regarding a student e-membership and to apply online go to: http://www.nctm.org/membership/content.aspx?id=7618. Establishing yourself within this important organization for mathematics teachers is professionally beneficial and allows you to gain access to valuable resources. A student membership is half price and costs $42 per year and will allow you online access to The Professional Standards for Teaching Mathematics (NCTM, 1991) and Principles and Standards for School Mathematics (NCTM, 2000). Additionally, you

Anything stated herein is subject to change through email or in-class announcement.
will be given online access to *The Mathematics Teacher*. If you would like to purchase a paper copy of the *PSSM* or any of their other resources, your membership gives you a 20% discount.

**FIELD COMPONENT**

You will conduct a minimum of 12 hours (over a minimum of six visits) of observation in middle and/or high school mathematics classrooms; your placement will be with your future cooperating teacher(s) for your student teaching placement. A journal entry is required for each of the six visits. You will likely want to visit more frequently (and are encouraged to do so) to get to know the students, establish a relationship with your cooperating teacher and other colleagues, and to learn more about the curriculum, policies, and culture of the school.

**TASKSTREAM**

You will use Taskstream to submit your assessments this semester. Taskstream can be found online at: http://www.taskstream.com. Go to the Taskstream website and log-in to confirm that you have access. If you do not have access or would like a refresher training session, please contact Elizabeth A Kersey, e-Portfolio Coordinator, at edit@purdue.edu or by calling 494-3416.

**GRADING SCALE (based on policy of +/- grading):**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
<th>Grade</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>97 - 100.0%</td>
<td>C</td>
<td>72 - 76.9%</td>
</tr>
<tr>
<td>A</td>
<td>92 - 96.9%</td>
<td>C-</td>
<td>70 - 71.9%</td>
</tr>
<tr>
<td>A-</td>
<td>90 - 91.9%</td>
<td>D+</td>
<td>67 - 69.9%</td>
</tr>
<tr>
<td>B+</td>
<td>87 - 89.9%</td>
<td>D</td>
<td>62 - 66.9%</td>
</tr>
<tr>
<td>B</td>
<td>82 - 86.9%</td>
<td>D-</td>
<td>60 - 61.9%</td>
</tr>
<tr>
<td>B-</td>
<td>80 - 81.9%</td>
<td>F</td>
<td>&lt; 60%</td>
</tr>
<tr>
<td>C+</td>
<td>77 - 79.9%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**POINT DISTRIBUTION**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Participation/Preparation</td>
<td>25</td>
</tr>
<tr>
<td>Field Observation Journals</td>
<td>30</td>
</tr>
<tr>
<td>School and Community Report</td>
<td>20</td>
</tr>
<tr>
<td>edTPA</td>
<td>50</td>
</tr>
<tr>
<td>TOTAL</td>
<td>125</td>
</tr>
</tbody>
</table>

**ASSIGNMENTS**

During EDCI 426 you begin assembling your portfolio on TaskStream; all final assignments must be at a “B” level (80%) in order to be posted on Taskstream. In this course, six observation journals and the School & Community report will be uploaded on Taskstream.

Anything stated herein is subject to change through email or in-class announcement.
CLASS PARTICIPATION/PREPARATION (25 points)
Attendance (arriving on time), active participation in class discussions and activities, and thoroughly and punctually completed assignments are required (see policies section for details on late assignment and missed class penalties). This includes showing evidence of reading course readings by participating actively in reading discussions. Repeated tardiness/absence and/or lack of participation will result in lost points.

FIELD OBSERVATION JOURNAL (30 points)
As part of your portfolio you are expected to keep a Field Observation Journal during the six weeks of EDCI 426. Journal entries should be thoughtful, reflective responses to specified prompts. There are six journal prompts— one for each week. All journal responses should also be well written and free of typos. Topics may be adequately addressed in 1-2 pages, double-spaced.

Journal Prompts

- **Week 1**: Introduce yourself to your cooperating teacher, visit your classroom and observe a class. What were your impressions of the class? What was the classroom environment like? What classroom management strategies did the teacher employ?
- **Week 2**: Focus on the mathematics of the lesson. What was the topic? What did the teacher assume the students knew? Did not know? Where were the students mathematically in their understanding at the beginning of the lesson? Where were they at the end? Provide evidence and use examples to support your claims.
- **Week 3**: For the lesson you observed, was the emphasis on conceptual understanding, procedural fluency (with or without connections), problem solving, or something else? Provide evidence for your claims. You want to think about (a) the task(s) given, (b) the teacher’s questions (c) the answers students gave, and (d) the kinds of thinking expected of the students.
- **Week 4**: Observe any mathematics lesson and focus on the mathematical communication in the classroom. Think about and record the opportunities that were provided to develop language skills and an understanding of the language and symbols of mathematics. Assume you had to teach a similar lesson to a group of students, many of whom perhaps are not fully fluent with English or who struggle with symbolic notation and meanings. How would you approach or adapt the lesson to support these learners?
- **Week 5**: This observation is more like an exploration. Informally interview three educators at your placement school about students on Individual Educational Plans (IEPs). Ask about school polices, how IEPs are structured, and the kinds of accommodations that are typical for students to receive (either in a given subject area or across classes). If possible review several IEPs and student cumulative folders (remember to protect student confidentiality). Record what you have learned, questions you would like to ask and what you would like to learn more about before or during your student teaching.
- **Week 6**: You will teach a mini-lesson under the guidance of your cooperating teacher in the classroom. The lesson should be at least 30 minutes. Identify and describe three pedagogical challenges you faced and describe two or three pedagogical strategies you used (or would use in the future) to effectively meet these challenges. Be specific! You may also choose to share this reflection with your university supervisor and/or cooperating teacher.

Anything stated herein is subject to change through email or in-class announcement.
SCHOOL AND COMMUNITY REPORT (20 points)

- Get to know your school. Meet with your principal or assistant principal, the school counselor, the math department chair, and your cooperating teacher (At least three of them individually). If you get a chance, observe other classes. During these meetings, ask out about challenges facing the school, challenges facing the students, support from the community and parents, the vision or mission statement for the school, etc. If possible, attend a PTO/PTA meeting or talk with some parents. Review the data available for your school on the Indiana Department of Education web site.

- Summarize the relevant characteristics that may affect your instructional planning, assessment, classroom environment, or your students’ learning as well as the challenges you might face and the support staff available to help your students achieve (3-4 page, double spaced). In your summary consider:
  - Significant community, district and school factors such as the stability of population, political climate, community support for education, socio-economic profile and race/ethnicity.
  - Significant classroom factors such as the availability of resources and technology, scheduling of classes, school policies, classroom policies established by your cooperating teacher, and the extent of parental involvement.
  - Student characteristics you must consider as you plan learning goals, instruction and assessment. Include factors such as age, gender, race/ethnicity, special needs, achievement/developmental levels, culture, language, interests, learning styles/modalities or students’ skill levels.

ADOLESCENT LITERACY MODULE

As a result of the Professional Standards Advisory Board’s review of past educational practices, the Indiana Department of Education (IDOE) has instituted Rules for Educator Preparation and Accountability. Under REPA, all higher education institutions must ensure that teacher education candidates are proficient in the basic skills and must report this data annually to the IDOE via Title II reports. Throughout the duration of this course, students will be required to complete an online module to meet the aforementioned REPA requirements for reading in the content areas. Students must complete the module in order to pass this methods course and move on to the next Gate. To complete this module, students will be required to read various articles and chapters concerning adolescent literacy, view PowerPoint presentations and short video clips, and take a number of quizzes addressing key materials. The culmination of this module is a final project which will involve writing a lesson plan and reflection. This final project will serve as a way for students to demonstrate learning as they work through the module. Once students satisfactorily complete the module, they will receive a certificate of completion as documentation for individual records and for Purdue University College of Education Records. For this course we will approach this module in a cooperative way (to be discussed further in class).

Anything stated herein is subject to change through email or in-class announcement.
edTPA (50 points)

Task 1: Planning for Instruction and Assessment
You will complete Task 1 in this course and do the other tasks (Task 2: Instructing and Engaging Students in Learning and Task 3: Assessing Student Learning) in EDCI 498.
In Task 1, you will describe your plans for the learning segment (a set of 3-5 lessons that build one upon another toward a central focus, with a clearly defined beginning and end) and explain how your instruction is appropriate for the students and the content you are teaching.

You will write 1) lesson plans, 2) a description of your context for learning, and 3) commentary explaining your plans.

Step 1. Select a class: If you teach more than one class, select one focus class for this assessment.
Step 2. Provide context information: See the edTPA document (pages 34-35). No more than 3 pages, including prompts).
Step 3. Identify a learning segment to plan, teach, and analyze: Review the curriculum with your cooperating teacher and select a learning segment of 3-5 lessons (or, if teaching mathematics within a large time block, about 3-5 hours of connected instruction).
Step 4. Identify a central focus: Identify the central focus along with the content standards and objectives you will address in the learning segment. The central focus should support students to develop conceptual understanding, procedural fluency, AND mathematical reasoning and/or problem solving skills.
Step 5. Analyze language demands: Select a key language function (e.g., describe, predict, classify, represent), a learning task, and additional language demands (i.e., specific ways that academic language is used by students to participate in learning tasks through reading, writing, listening, and/or speaking to demonstrate their disciplinary understanding) required by the task.
Step 6. Write a lesson plan: for each lesson in the learning segment. Your lesson plans should be detailed enough that a substitute or other teacher could understand them well enough to use them. Follow the Purdue Lesson Plan format (see Blackboard Learn).
Step 7. Respond to prompts: listed in the Planning Commentary section (the edTPA doc., pages 9-11). No more than 9 single-spaced pages, including prompts.
Step 8. Submit your original lesson plans: If you make changes while teaching the learning segment, you will have opportunities to reflect on changes in Task 2 and Task 3.
Step 9. Select and submit key instructional materials: needed to understand what you and the students will be doing (no more than 5 additional pages per lesson plan). The instructional materials might include items as class handouts, assignments, slides, and interactive whiteboard images.
Step 10. Submit copies of all written assessments: Do not submit student work sample, but the blank instruments as given to students.

Anything stated herein is subject to change through email or in-class announcement.
REFERENCES


POLICIES

**Academic Dishonesty**

Purdue prohibits "dishonesty in connection with any University activity. Cheating, plagiarism, or knowingly furnishing false information to the University are examples of dishonesty." [Part 5, Section III-B-2-a, University Regulations] Furthermore, the University Senate has stipulated that "the commitment of acts of cheating, lying, and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cribs, plagiarism, and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid and abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest." [University Senate Document 72-18, December 15, 1972]

**Use of Copyrighted Materials**

Among the materials that may be protected by copyright law are the lectures, notes, and other material presented in class or as part of the course. Always assume the materials presented by an instructor are protected by copyright unless the instructor has stated otherwise. Students enrolled in, and authorized visitors to, Purdue University courses are permitted to take notes, which they may use for individual/group study or for other non-commercial purposes reasonably arising from enrollment in the course or the University generally. Notes taken in class are, however, generally considered to be “derivative works” of the instructor’s presentations and materials, and they are thus subject to the instructor’s copyright in such presentations and materials. No individual is permitted to sell or otherwise barter notes, either to other students or to any commercial concern, for a course without the express written permission of the course instructor. To obtain permission to sell or barter notes, the individual wishing to sell or barter the notes must be registered in the course or must be an approved visitor to the class. Course instructors may choose to grant or not grant such permission at their own discretion, and may require a review of the notes prior to their being sold or bartered. If they do grant such permission, they may revoke it at any time, if they so choose.

**Grief Absence Policy for Students**

Purdue University recognizes that a time of bereavement is very difficult for a student. The University therefore provides the following rights to students facing the loss of a family member...
Anything stated herein is subject to change through email or in-class announcement.
directions within the first week of your Beering classes. If you have any questions, contact your instructor.

**Attendance**
Your attendance to each class meeting is critical to the success of our learning community. You are expected to attend each class session, to arrive on time, and to stay for the entire class session. You should contact me as soon as you are aware that you will be unable to attend a class session. Additional work will be required to make up for missed class time. *An unexcused absence results in a 5% reduction of the total possible points available for this course.* Official documentation is required in order for an absence to be deemed as excused.

**Cellular Phones**
Please turn off cell phones before entering the classroom. If you must leave your cell phone on, please put the cell phone on vibrate and take calls outside of class.

**Late Assignments**
Assignments are due on the day class meets unless otherwise noted. Assignments submitted late resulting from an excused absence will be accepted without penalty. A revised due date for these assignments will be negotiated with the instructor the day you return to class; it is your responsibility to contact the instructor to discuss these arrangements. *Five percent per day late will be deducted from all other late assignments.* A pattern of lateness or absences may result in a formal disposition.

**Professionalism**
You are expected to demonstrate professionalism. When conducting observations and making professional presentations in class, students are expected to dress and act in a professional manner. Failure to do so may result in a formal disposition. You will sign a professionalism agreement in class.

**Revisions**
An assignment may be deemed unsatisfactory, and consequently, you will be expected to revise or redo the assignment. Under such circumstances, you are expected to schedule an appointment with the instructor, immediately, to discuss the revision. Rewrites are due one week from the date which the assignment is returned with a request for a resubmission.

**Work Submitted**
Unless otherwise noted, all assignments are to be submitted electronically on the due date. Assignments should be double-spaced and use 12-point font. References should follow the APA (American Psychological Association, 6th edition) format. Each assignment should be proofread before submission. Rewrites are not granted to address errors related to proofing or grammar.

**Course Evaluation**
During the last two weeks of the semester, you will be provided with an opportunity to evaluate this course and your instructor(s). Purdue now uses an online course evaluation system. Near the end of classes, you will receive an official e-mail from evaluation administrators with a link to the online evaluation site. You will have up to two weeks to complete this evaluation. Your
participation is an integral part of this course, and your feedback is vital to improving education at Purdue University. I strongly urge you to participate in the evaluation system.

**EDCI 42600 Tentative Course Schedule**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Date</th>
<th>Readings due</th>
<th>Assignments due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Course Introduction</td>
<td>Aug 26</td>
<td>-----</td>
<td>Meet cooperating teacher</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aug 28</td>
<td>-----</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Worthwhile Mathematical Tasks</td>
<td>Sep 2</td>
<td>Stein &amp; Smith (1998)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sep 4</td>
<td>-----</td>
<td>Journal 1</td>
</tr>
<tr>
<td>3</td>
<td>Mathematical Discourse</td>
<td>Sep 9</td>
<td>-----</td>
<td>Literacy Lesson Plan Draft</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sep 11</td>
<td>Driscoll (1999) Chapter 1</td>
<td>Journal 2</td>
</tr>
<tr>
<td>4</td>
<td>Learning Environment</td>
<td>Sep 16</td>
<td>-----</td>
<td>edTPA (Steps 1-5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sep 18</td>
<td>Hunt &amp; Andreasen (2011)</td>
<td>Journal 3</td>
</tr>
<tr>
<td>5</td>
<td>Analysis of Teaching and Learning</td>
<td>Sep 23</td>
<td>-----</td>
<td>School &amp; Community Report</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sep 25</td>
<td>Umbeck (2011)</td>
<td>edTPA (Step 6)</td>
</tr>
<tr>
<td>6</td>
<td>Assessment of Teaching and Learning</td>
<td>Sep 30</td>
<td>-----</td>
<td>Journal 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oct 2</td>
<td>Brahier (2005)</td>
<td>Literacy Lesson Plan Final</td>
</tr>
</tbody>
</table>

Anything stated herein is subject to change through email or in-class announcement.