DEPARTMENT OF CURRICULUM AND INSTRUCTION COURSE SYLLABUS
University of Maryland, College Park

Fall 2011

EDCI 455 – Methods of Teaching Mathematics in Secondary Schools
with
EDCI 355 – Field Experience in Mathematics Teaching

Tuesdays, 5:00 – 7:45 p.m. in Benjamin 2121

<table>
<thead>
<tr>
<th>Instructors:</th>
<th>Rick Hollenbeck with John Seelke</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail:</td>
<td><a href="mailto:rmhollen@umd.edu">rmhollen@umd.edu</a> and <a href="mailto:jseelke@umd.edu">jseelke@umd.edu</a></td>
</tr>
<tr>
<td>Office:</td>
<td>2226E Benjamin Building</td>
</tr>
<tr>
<td>Phone:</td>
<td>301.405.4896</td>
</tr>
<tr>
<td>Office Hours:</td>
<td>4 – 5 p.m. Tuesdays and by appt.</td>
</tr>
</tbody>
</table>

Course Overview
The goal of teacher education programs at the University of Maryland is to prepare knowledgeable, skillful, and reflective teachers for classrooms of diverse learners, through courses and field experiences that emphasize research-based principles and practices.

The main focus of EDCI 455 is to help prepare mathematics education majors to effectively manage large group interactions between secondary mathematics teachers and students around high school mathematics content. Taken concurrently with EDCI 455, the main focus of EDCI 355 is for mathematics education majors to observe and interact in middle and high school mathematics classrooms. EDCI 455 and EDCI 355 are closely linked and designed to provide prospective teachers a space to reflect on their current internship and experiences.

Course Philosophy
These are great and wonderful times to become a mathematics teacher. Who knows what will happen in mathematics education of the next 25 years! Will the ways in which we communicate change drastically? Will schools look and feel substantially different? Or will schools be much like they are today? What will mathematics teaching look like? Will it resemble the teaching you experienced in high school? What will we teach? Will the Common Core State Standards (CCSS) for Mathematics qualitatively change mathematics teaching and curriculum. With these types of questions in mind, we will engage you in a multi-dimensional
exploration of secondary school mathematics education. We have designed the semester to encourage and compel you to come to grips with what it takes and means to ‘teach mathematics to all students.’ The purpose is to get us all thinking -- really thinking -- about what is involved, both as individual teachers and as members of a professional community, and then ready to do something about this in schools.

Though in shorthand, courses like EDCI 455 are often called “methods” courses, this semester is not about telling you exactly how you should teach or what you should teach. Nor is it a collection of prefabricated lessons, units, and activities that we will give to you. The culture of your district and school will highly influence the curriculum materials you use and how you use them. But this doesn’t mean that we’ve planned the class to ignore your needs and avoid some definite ‘hows’ and ‘whats’ of secondary mathematics education. We will introduce you to several ‘activities of teaching’. We will have you think about high school mathematics course content, structure, and progression. We will have you review curriculum materials identified as resources for these courses. We will show and tell you ways to assess student learning and knowledge. It’s just that we’re not going to hand you any of these and decree, ‘You should teach this in that way.’

During this semester, we would like you to develop your own individual identity and personality as a secondary school mathematics teacher. We expect you to adopt a critical and questioning disposition toward all that we do and read in class, as well as what you see in your internships. By ‘critical,’ we don’t mean putting down, trashing, or even politely disagreeing, as the word is often used in everyday language. Instead, the sense is much closer to that expressed in:

**crit•i•cal** (kr t’-k l) adj. 2. Characterized by careful and exact evaluation and judgment....

**crit•i•cize** (kr t’-s z’) v. 1. To judge the merits and faults of; analyze and evaluate....


Assuming that all that is offered in class and all that you see in your internships are people’s best attempts to do justice to the task of educating all students in mathematics, we would like you to take a questioning stance that will help you learn why others do what they do and also help you decide what you would like to do when you are a teacher. And, of course, at the heart of all of this is the mathematics of high school. This semester we hope to deepen your knowledge and appreciation of the mathematics that we now teach to high school students.
Course Objectives (EDCI 455)

- Candidates will demonstrate a belief that all children can learn mathematics. Candidates develop a repertoire of culturally responsive strategies that takes into account individual learners’ strengths, interests, and needs and that enable each learner to advance and accelerate his/her learning. (COE EC1) (INTASC 1) (NCATE/NCTM 7)
- Candidates will design lesson plans that incorporate: clear mathematical performance objectives; links to learners’ prior knowledge, understanding, and experiences; connections to other disciplines or applications to real life; attention to individual and group learner needs; engaging, challenging, and worthwhile mathematical tasks that promote sense-making; the use of technology, as appropriate; a summary of important mathematical concepts and skills; and assessment of student progress toward the lesson objectives. (COE EC7) (INTASC 1-4, 6-8) (NCATE/NCTM 4,8)
- Candidates use knowledge of mathematics to select and use appropriate technological tools. Candidates use technology as a vehicle for active learning. (COE EC5) (INTASC 4,5,7,8 ) (MTTS 5) (NCATE/NCTM 6)
- Candidates will read current literature in mathematics education and discuss key ideas and issues surrounding: the Common Core State Standards for Mathematics; the role of technology in mathematics instruction; equity issues in mathematics education including tracking, cultural diversity, gender, “mathematically promising” students, and special education; motivational issues in learning mathematics such as developing positive dispositions toward mathematics, perceiving the utility of mathematics, reducing mathematics anxiety and avoidance, and building confidence in mathematical ability; and communication with parents and others in the community to create partnerships in education. (COE EC4) (INTASC 1-10) (MTTS 1) (NCATE/NCTM 7,8)
- Candidates will explore and evaluate a variety of: secondary mathematics curricula, problem situations, learning and assessment tasks, instructional tools and resources. (COE EC7) (INTASC 1,3,4, 9) (NCATE/NCTM 1,4,5, 8)
- Candidates will participate in and evaluate a variety of learning experiences incorporating: multiple representations of mathematical concepts, multiple learning and teaching strategies, active engagement of learners, attention to student interests, varying teacher roles, informal on-going assessment, and multicultural perspectives. (COE EC1,7) (INTASC 1-6,8, 9) (NCATE/NCTM 4, 5, 7, 8)
- Students will design formal assessments that assess both conceptual and procedural knowledge, reflect important mathematical concepts and skills, enhance mathematics learning, and promote equity. (COE EC1, 7) (INTASC 8) (NCATE/NCTM 1,2,4-8)
• Students will present a mini-lesson demonstrating: effective classroom management techniques, presentation skills, use of supporting materials, positive reinforcement, facilitation of classroom discourse, respect for multiculturalism, and support and encouragement of learner risk-taking. (COE EC 7) (INTASC 1-9) (NCATE/NCTM 3, 8)

• Students will examine and reflect upon personal values, beliefs, and practices in relation to contemporary professional standards of the National Council of Teachers of Mathematics and enhance personal growth and development through classroom and professional activities. (COE EC 6) (INTASC 9,10) (MTTS 8) (NCATE/NCTM 7)

Course Objectives (EDCI 355)

• Candidates will demonstrate their ability to plan instruction (plan objectives with learner outcomes; plan instruction to achieve objectives) (COE EC7) (INTASC 2,3,4,7,8,9) (NCATE/NCTM 8,16)

• Candidates will demonstrate their ability to deliver instruction (implement a planned procedure for instruction; foster higher level thinking skills; vary teaching strategies and materials to address learner needs; motivate and involve students) (COE EC1,7) (INTASC 1,2,3,4,7,9,10) (NCATE/NCTM 7,8,16)

• Candidates will demonstrate their ability to assess student learning (use a variety of formal and informal methods of assessment; evaluate learner progress and provide feedback) (COE EC7) (INTASC 8) (NCATE/NCTM 8,16)

• Candidates will demonstrate their ability to manage and organize classrooms (organize instructional time; organize and utilize space, equipment, and materials; manage student behavior to enhance learning) (COE EC7) (INTASC 4,5,7,10) (NCATE/NCTM 8,16)

• Candidates will demonstrate their knowledge of academic content (demonstrate mastery of subject matter) (COE EC7) (INTASC 1) (NCATE/NCTM 10-15,16).

• Candidates will demonstrate their ability to create positive student-teacher interactions and interpersonal skills (create a positive learning climate; use effective communication skills to enhance learning) (COE EC1) (INTASC 6,7,10) (NCATE/NCTM 7,16)

• Candidates will demonstrate their understanding of professional behavior and of legal, social, and ethical issues (COE EC 6) (INTASC 9) (MTTS 3)(NCATE/NCTM 16)

• Candidates will demonstrate their understanding of multicultural, exceptional student, and inclusion issues in the planning and delivery of instruction (COE EC1) (INTASC 1-10) (NCATE/NCTM 8,16)

• Candidates will demonstrate their understanding of the use of technology in the delivery of instruction. (COE EC5) (INTASC 1-10) (MTTS 5) (NCATE/NCTM 8,16)
Course Assignments

The grading is based on your performance on four assignment categories.

I. Modified TPAC Assignment
   Spread out over the semester, you will be asked to
   o Submit two formal lesson plans designed to develop student mathematical knowledge by developing a balance of procedural fluency, conceptual understanding, and mathematical reasoning.
   o Submit a reflection of your lesson plans that focuses on how your plans support student learning, how you will monitor student learning, and the rationale that guided your selection of specific strategies and materials.
   o Deliver one of your two lesson plans in your field placement, videotape the lesson, select a 10 minute video clip to turn in, and write a reflection of your lesson.
   o Design or select an assessment that you would use to evaluate your students’ developing knowledge and skills related to your lesson plan and write a commentary of your assessment.

II. Final Paper
   For this culminating assignment, you will ‘submit’ a paper for publication in one of NCTM’s professional magazines (Mathematics Teaching in the Middle School or Mathematics Teacher). For this assignment, you will be asked to:
   o Identify an issue important to practitioners (i.e., how to teach a lesson on ______, how to get students to become persistent problem solvers, how to get students to communicate their ideas, etc . . . ).
   o Find out what has been written about your topic by other scholars and researchers.
   o Provide specific suggestions regarding how to address the issue you have identified
   o Use your field placement to collect ‘data’
   o Submit a paper

III. Homework Assignments
   Your weekly field observations are a critical part of learning to become a professional, to make the transition from someone who was a student in school to someone who is now a teacher. On a regular basis, you will have assignments that will ask you to use what you’ve learned in the field to identify teaching strategies that you favor and question, as you determine the sort of teacher you wish to be. We will also use your exploration of your placement to talk about school policies and practical concerns, like classroom management. Finally, we will also devote time to preparing for the Praxis pedagogy exam.
IV. Attendance and class participation:

Your participation in our class activities and discussions is important not only for your own learning but also the learning of others. Sharing your ideas and questions with the group, as well as responding to those of your classmates, are critical to our work together. As a teacher, you need to do more than understand your own thinking — you have to be able to track on others’ thinking, figure out what others are saying, and determine whether and how they make sense. In our class, the "others" will be your classmates. But in the field and in the future, they will be your students, and sometimes your fellow teachers. So listening to and interacting with others in our class is explicitly to help you develop dispositions and skills that matter for teaching. Talking in class is also crucial — as a goal, not a means. As a teacher, you will have to talk mathematics all the time. This course provides you the opportunity to learn to speak more clearly, with an attentive focus on your listener.

We expect you to attend every class, to arrive on time for a prompt start, and to participate in and contribute to class. You will be reading a variety of articles and other materials for this class. Some of the readings will be discussed explicitly in class, some you will comment on, and others will simply be used in the context of our work. We expect you to be able to bring these readings to bear in discussions. If circumstances prevent you from attending class, we ask that you call or send an email in advance and that you make plans for how you will make up the work you will miss.

Course Grades:

Required activities and assignments are worth points as follows:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance and class participation</td>
<td>50</td>
</tr>
<tr>
<td>Homework Assignments</td>
<td>150</td>
</tr>
<tr>
<td>Final Paper</td>
<td>150</td>
</tr>
<tr>
<td>Modified TPAC-Assignment</td>
<td>150</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>500</strong></td>
</tr>
</tbody>
</table>

Final course grades will be assigned based on the percentage of possible points earned. The scale used in grading will reflect the following guidelines and the bunching and distribution of total point scores (i.e., persons separated by one or two points will receive the same grade). In no case will you receive a grade lower than the scale indicates.

A  90 - 100%
B  80 - 89%
C  75 - 79%
D  70 - 74%
F  69% or less
University Policies

**Individual Needs Accommodation:** If you have a documented disability that requires course accommodations, please see the instructor as soon as possible. The University is legally obligated to provide appropriate accommodations for students with documented disabilities. In order to ascertain what accommodations may need to be provided, students with disabilities should inform the instructors of their needs at the beginning of the semester. The instructor will then consult with **Disability Support Services** (314-7682). DSS will make arrangements with the student to determine and implement appropriate academic accommodations.

**Religious Observance:** The University System of Maryland policy *"Assignments and Attendance on Dates of Religious Observance"* provides that students *should not be penalized because of observances of their religious beliefs; students shall be given an opportunity, whenever feasible, to make up within a reasonable time any academic assignment that is missed due to individual participation in religious observances.* We are a diverse community and enroll students of many religions; pursuant to policy, we will do what we can when there are students’ requests for excused absences and make-up test requests due to reasons of religious observances. *It is the student’s responsibility to inform* the instructor of any intended absences for religious observances in advance. Notice should be provided as soon as possible but no later than the end of the schedule adjustment period.

**Honor Code:** The University is one of a small number of universities with a student-administered *Code of Academic Integrity* and an *Honor Pledge*. The Code prohibits students from cheating on exams, plagiarizing papers, submitting the same paper for credit in two courses without authorization, buying papers, submitting fraudulent documents, and forging signatures. Students should write the following signed statement on the top of each examination or assignment: *I pledge on my honor that I have not given or received any unauthorized assistance on this examination (or assignment).* Compliance with the code is administered by the Student Honor Council, which strives to promote a “community of trust” on the College Park campus.

**Course Evaluation:** As a member of our academic community, you as a student have a number of important responsibilities. One of these responsibilities is to submit your course evaluations each term though CourseEvalUM in order to help faculty and administrators improve teaching and learning at Maryland. Please watch for the dates the system will be open for evaluation of this semester and make a note of the link at which you can access the submission system: *(www.courseevalum.umd.edu)*.