MAE 8550: Teacher Learning in Mathematics
Teacher Education Division, Mathematics Education Program Area
WAYNE STATE UNIVERSITY
Winter 2014

Course Instructor:

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<th>Jennifer Lewis</th>
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<td>office location</td>
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Class Meetings: Thursdays 5:00-7:45 p.m. in 131 State Hall.

Office Hours: Thursdays 1:00-4:00 p.m. and Tuesdays 1:00-3:00 p.m. and by appointment; I'm happy to meet with you at your convenience. I check my email often and can be reliably reached that way. (I am terrible about answering my cell phone.)

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Course Description, Outcomes, and Themes

This course will explore the following issues:
- How do teachers learn to do the work of teaching?
- What resources do teachers bring to their work?
- What challenges do teachers face in developing as professionals, particularly in mathematics?
- What forms of professional development have been designed for teachers?
- What does it take to facilitate (mathematics) teacher learning?
- How can the impact of professional development be measured?

This course examines how teachers learn to teach and what supports their continuing development as professionals. We begin with a general overview of the literature on teacher learning, and then focus on mathematics teacher learning in specific. We then look at specific forms of professional development for mathematics teachers and consider their demands and their expected outcomes.

The course provides a thorough grounding in the literature on teachers’ professional development, including the research base for the design of professional development, its history, and its ongoing evaluation.

The course also establishes a base for becoming a scholar in mathematics education. Across the course, we will be intentional about reading carefully, writing clearly, analyzing research critically, and making records of your intellectual work to support your teaching and your continued learning.

And, the course will provide opportunities to become a practitioner of professional development as well. Participants will observe, design, lead, and analyze professional development sessions as part of the work for this course.

Course Requirements and Grading

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. If circumstances prevent you from attending a class, please call me in advance. Because much of the learning
for this class will be real-time and in the presence of your colleagues, it is essential that you
attend every class, since much of the work in the class is done together and in an interactive
way with others. This is not a class in which reading the articles and writing papers suffices;
what you will learn is in great part also through your interactions with your colleagues in
class around the readings and the video and audio materials that we will view together. For
this reason, please do not use laptops or cell phones during class so that you can be fully
engaged with your colleagues. (If you have learning needs that necessitate technology
please let me know.)

Reading:
Required readings are found on our Blackboard website.

A highly recommended text is available at the Wayne State University Barnes and Noble bookstore, or
through online booksellers:

Designing professional development for teachers of science and mathematics. Thousand

Other readings are available on our Blackboard website under "Readings." For each class
session, you will need to print out the readings for that week and bring them to class, as well
as any written notes or assignments that go along with them.

In this course, you will read in a number of genres, and each demands its own mode of
reading. The first and most significant genre of literature in this course is a sampling of the
major learning theorists and their works. We will read these in their own words rather than
someone else's summary of them, since these are foundational to our field and worth the
effort. This can be daunting—such theory is not always easy to read. Thus, we will opt for
reading relatively short excerpts from each author, which will allow for a careful parsing of
these works. Expect to read these pieces slowly; we will work together on ways to take
notes, annotate, highlight, and write while we read in order to best digest these very
significant pieces of literature in the field of education.

Other readings for this class are more contemporary research studies, which constitute a
different genre and demand a different kind of attention. Our aim in reading these works is
to understand how learning theories inform such research efforts, what various research can
tell us and its warrants, and to appraise these contributions accordingly.

We will also be reading other genres that figure into mathematics education: works from
popular press; professional journal articles directed at teachers; and materials from a range
of mathematics curricula. Each demands its own approach to reading, and we will endeavor
to be explicit about this as we work together.

Writing: Each week you will be writing in response to the readings in the class in relation to
your own experiences as a teacher and learner of mathematics. Explicit directions will be
given for each. You will want to keep both digital and hard copies of your writing, and we will
give attention to the various formats that you can use in doing the writing for this class. It
will help to be intentional about the kind of notebook that you use for MAE 8550: in the first
class meetings we will consider the virtues of loose-leaf binders, spiral notebooks, art
journals, composition notebooks, electronic portfolios, and the like. You may also want to
experiment with graph paper, blank paper, and ruled paper; colored pencils and pens,
various post-its, paper clips, etc. Your intellectual work is supported by different media, so we will give some time to making such choices and noticing what they enable.

Just as we are reading in a number of different genres, the forms of writing for this course will also vary. At times you will write formal pieces, and other times you will keep sketchier notes. The course is meant to support your growth as a scholar in developing these different forms of writing that serve a variety of purposes.

Because writing is a strong focus in this course, you may want to take advantage of the services offered by the Wayne State University Writing Center. The Writing Center (2nd floor, UGL) provides individual tutoring consultations free of charge for students at Wayne State University. The Writing Center serves as a resource for writers, providing tutoring sessions on the range of activities in the writing process – considering the audience, analyzing the assignment or genre, brainstorming, researching, writing drafts, revising, editing, and preparing documentation. The Writing Center is not an editing or proofreading service; rather, students are guided as they engage collaboratively in the process of academic writing, from developing an idea to correctly citing sources. To make an appointment, consult the Writing Center website: http://www.clas.wayne.edu/writing/. To submit material for online tutoring, consult the Writing Center HOOT website (Hypertext One-on-One Tutoring) http://www.clas.wayne.edu/unit-inner.asp?WebPageID=1330.

Professional development proposal assignment: A synthesizing experience in this course will be the development of a professional development proposal that you will create for a group of teachers, a school, or a school district. This proposal will draw together your ideas and experiences from across the semester. Your proposal must be a detailed description of at least six two-hour professional development sessions, including your rationale for the design of each session, a timeline, expected outcomes, materials to be used, evaluation measures, and reflections. You will need to develop a budget and a summary letter to accompany your proposal. More details will be provided in class and on Blackboard.

Grading: Your final grade will be determined as follows:

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<th>Grade</th>
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<td>Attendance and participation in class sessions</td>
<td>25%</td>
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<td>Weekly reading responses</td>
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<td>Professional development proposal</td>
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<td>Final synthesizing essay</td>
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Grading range
A+ 100%
A  91-99%
A-  90%
B+  89%
B  81-88%
B-  80%
C+  79%
C  71-78%
C-  70%
D+  69%
D  61-68%
D-  60%
F 59% and lower

Course outcomes:

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<th><strong>Student Learning Outcomes</strong></th>
<th><strong>Assessment of Outcomes</strong></th>
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<td>From your work in this class, you will...</td>
<td>Your learning will be assessed from by your:</td>
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<td>...gain familiarity with the theory and research on professional learning of mathematics teachers</td>
<td>Weekly written responses to assigned readings; Participation in weekly discussions of assigned readings; Final written class synthesis</td>
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<td>...design, conduct, and evaluate professional development experiences for mathematics teachers</td>
<td>Professional development proposal; Observation and/or conduct of professional development sessions during the semester</td>
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<td>...appraise the efficacy of various professional development formats for mathematics teachers</td>
<td>Use of various evaluation instruments for measuring efficacy of professional development</td>
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<td>...develop the knowledge, skills, and dispositions for ongoing scholarly work in the field of mathematics education</td>
<td>Weekly written responses to assigned readings; Participation in weekly discussions of assigned readings; Final written class synthesis; Use of bibliographic software; Regular revisiting and revision of written assignments</td>
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TENTATIVE COURSE OUTLINE: SUBJECT TO CHANGE!!

Class 1, Thursday, January 9, 2014  The state of professional development for teachers  
   Discuss readings: Hill; CCSS

Class 2, Thursday, January 16, 2014 How do teachers learn?  
   Discuss readings: Feiman-Nemser; Putnam & Borko

Class 3, Thursday, January 23, 2014 The socialization of teachers  
   Discuss readings: Lortie; Kennedy; Cohen

Class 4, Thursday, January 30, 2014 The aims of professional development  
   Discuss readings: NCTM; Borko; DeMonte; Ball, Thames & Phelps

Class 5, Thursday, February 6, 2014 Forms of professional development; learning a complex practice  
   Discuss readings: Borko; Ball & Cohen; Lampert; Gawande

Class 6, Thursday, February 13, 2014 Coursework and action research  
   Discuss readings: Monk; Begle; Edwards & Hensein; Hill & Ball

Class 7, Wednesday, February 20, 2014 “Professional learning communities”  
   Discuss readings: from Stiles et al.

Class 8, Thursday, February 27, 2014 Lesson study  
   Discuss readings: Lewis, Perry & Hurd; Stigler & Hiebert

Class 9, Thursday, March 6, 2014 Studying student work  
   Discuss readings: Kazemi & Franke; Jacobs et al.

NO CLASS Thursday, March 13, 2014: Spring Break

Class 9, Thursday, March 20, 2014 Video clubs  
   Discuss readings: van Es & Sherin; Sherin & Han

Class 10, Thursday, March 27, 2014 Mentoring  
   Discuss readings: Feiman-Nemser & Beasley

Class 11, Thursday, April 3, 2014 (AERA?) Coaching  
   Discuss readings: from Stiles et al.; Goldsmith & Seago

Class 12, Thursday, April 10, 2014 Instructional rounds  
   Discuss readings: City et al.

Class 13, Thursday, April 17, 2014 Teachers learning across the career span  
   Discuss readings: Corey et al.; Gawande

Class 14, Thursday, April 24, 2014 Evaluating professional development  
   Discuss readings: Desimone et al.; Birman et al.

Final, Thursday, May 1, 2014
Course Bibliography

We will be reading a selection from the articles and excerpts from books listed in this bibliography. The bibliography will grow and change over the semester as we discover new interests; this is starting point!


University Policies

Enrollment/Withdrawal Policy
Beginning in Fall 2011, students must add classes no later than the end of the first week of classes. This includes online classes. Students may continue to drop classes (with full tuition cancellation) through the first two weeks of the term.

Students who withdraw from a course after the end of the 4th week of class will receive a grade of WP, WF, or WN.

- WP will be awarded if the student is passing the course (based on work due to date) at the time the withdrawal is requested
- WF will be awarded if the student is failing the course (based on work due to date) at the time the withdrawal is requested
- WN will be awarded if no materials have been submitted, and so there is no basis for a grade

Students must submit their withdrawal request on-line through Pipeline. The faculty member must approve the withdrawal request before it becomes final, and students should continue to attend class until they receive notification via email that the withdrawal has been approved. Beginning in Fall 2011, the last day to withdraw will be at the end of the 10th full week of classes. The withdrawal date for courses longer or shorter than the full 15-week terms will be adjusted proportionately.

For Students with Disabilities:
If you have a documented disability that requires accommodations, you will need to register with Student Disability Services (SDS) for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TDD only). Once you have your accommodations in place, I will be glad to meet with you privately during my office hours to discuss your special needs. Student Disability Services’ mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University.

Please be aware that a delay in getting SDS accommodation letters for the current semester may hinder the availability or facilitation of those accommodations in a timely manner. Therefore, it is in your best interest to get your accommodation letters as early in the semester as possible.

Religious Observance Policy:
Because of the extraordinary variety of religious affiliations represented in the University student body and staff, the Wayne State University calendar makes no provision for religious holidays. It is University policy, however, to respect the faith and religious obligations of the individual. Students who find that their classes or examinations involve conflicts with their religious observances are expected to notify their instructors well in advance so that alternative arrangements as suitable as possible may be worked out.

Plagiarism: All work for this class, and in your academic career, must be your own original work. You may not use others’ words or ideas without careful attribution. Plagiarism includes copying material (any more than 5 consecutive words) from outside texts or presenting outside information as if it were your own by not crediting authors through citations. It can be deliberate or unintended. If you’re in doubt about the use of a source, cite it. Students found to be plagiarizing information from other sources will receive a failing grade in the course and will be reported to university authorities. University policy states that students can be subject to multiple sanctions, from reprimand to expulsion as a consequence of academic dishonesty. To enforce this policy, all outside references must be submitted with assignments.