

**MAE 311**  
**INTRODUCTION TO TEACHING SECONDARY SCHOOL MATHEMATICS**

FALL 2017

**Instructor:** Lisa Berger

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**Current Office Hours:**

Mondays: 1-2:30, Room P-143

Tuesdays: 1-2:30, Room 4-100A

By appointment. Please send email to schedule.

Office hours may be adjusted to accommodate the instructor's schedule and/or student needs. Students unable to meet during scheduled office hours are encouraged to schedule an appointment with the instructor.

**General Information.** This course is an introduction to the theory and practice of teaching mathematics in the secondary schools. Emphasis will be placed on constructivist teaching and learning, on the NCTM Principles and Standards, and on the New York State Common Core Learning Standards for Mathematics. Students will also become familiar with the New York State Code of Ethics for Teachers and with INTASC dispositions. Students will observe 36 clock-hours, which is 48 regular class periods, in high school and middle school mathematics classes. A second main component of the course is to gain experience planning lessons and teaching. Students will write formal lesson plans and teach mathematics, secondary and post-secondary level, to their peers.

All written work for the class must be clear and grammatically correct, in addition to meeting its particular assignment guidelines. Work with significant errors in grammar or usage will not be accepted for credit. This course runs concurrently with MAE 510. Students registered for MAE 510 may complete additional assignments; written work for MAE 510 students will be expected to show a higher level of academic maturity.

**Learning Objectives.**

- Teacher candidates demonstrate a deep understanding of how students learn mathematics and of the pedagogical knowledge specific to mathematics teaching and learning.
- Teacher candidates plan and present lessons that demonstrate understanding of the New York State Common Core Standards for Mathematics, including the Standards for Mathematical Practice.
- Teacher candidates summarize, analyze, and critique current research in mathematics education.
- Teacher candidates recognize the INTASC critical dispositions and ethical standards of the New York State Code of Ethics, they demonstrate critical dispositions and ethics in their interactions with students and colleagues.
- Teacher candidates use understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.
- Teacher candidates work with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self-motivation.

- Teacher candidates engage in ongoing professional learning and use evidence to continually evaluate their practice, particularly the effects of their choices and actions on others (learners, families, and other professionals in the learning community), and adapt practice to meet the needs of each learner.
- Teacher candidates seek appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth and to advance the profession.
- Teacher candidates understand how children learn and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.
- Teacher candidates understand the central concepts, tools of inquiry, and structures of the discipline and creates learning experiences that make these aspects of the discipline accessible and meaningful for learners to assure mastery of the content.
- The teacher candidate understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
- The teacher candidate understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making.
- The teacher candidate plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills and pedagogy as well as knowledge of learners and the community context.
- The teacher candidate understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections and to build skills to apply knowledge in meaningful ways.

**Required Materials.** We will be reading the book:

Stigler, James W. and Hiebert, James *The Teaching Gap* 1999.

In addition, you will need to access on-line materials and information. These websites give you a start:

- <http://www.stonybrook.edu/commcms/dtale/resources/forms.php>
- <https://www.engageny.org/resource/new-york-state-p-12-common-core-learning-standards>
- <http://illustrativemathematics.org/>
- <http://ime.math.arizona.edu/progressions/>
- <http://commoncoretools.wordpress.com/>
- [http://www.ccsso.org/Resources/Publications/InTASC\\_Model\\_Core\\_Teaching\\_Standards\\_and\\_Learning\\_Progressions\\_for\\_Teachers\\_10.html](http://www.ccsso.org/Resources/Publications/InTASC_Model_Core_Teaching_Standards_and_Learning_Progressions_for_Teachers_10.html)
- <http://www.highered.nysed.gov/tcert/resteachers/codeofethics.html>

### **Observation Guidelines.**

Each student is required to observe 36 hours (48 school periods) of classroom teaching and learning. The student is responsible for arranging the visits, and the observation hours are to be verified by the sponsoring classroom teacher(s). As the semester progresses, students will be asked to focus on specific aspects of instruction and of the classroom environment during the observations. Students may also be asked to submit written reflections and/or analyses of various classroom visits. Additional details on observation requirements will be provided in class.

Please remember that you are a guest at each school where you observe; you are expected to dress and act professionally. Inappropriate or unethical behavior is grounds for course failure and dismissal from the teacher education program.

A student failing to complete the observation requirement may not receive a grade above a C- for the course.

**Attendance.** Regular attendance and active class participation are essential components of the course, and students are expected to attend class regularly. Participation and attendance make up 10% of the final course grade, and a student should not miss more than one class during the semester.

### Homework/Class Work/Quizzes.

Homework will be assigned and collected regularly, and late homework will not be accepted. Additional assignments may be completed and collected during class. Students are expected to be present for class, and missed quizzes or classwork may not be completed for credit. The lowest 2 scores in the homework/classwork/observations category will be dropped.

### Final Essay.

Details on the final essay will be given in class. In the 8-10 page essay students will effectively communicate their understanding of various course topics, as well as the INTASC Dispositions and the New York State Code of Ethics for Educators.

### Final Grades.

Course grades will be based on the following breakdowns.

- (1) Attendance and Active Participation 10%
- (2) Homework/Classwork/Observations: 35%
- (3) Lesson Plans and Formal Presentations: 40%
- (4) Final Essay: 15%

Students are expected to attend class regularly; more than one absence or late arrival to class may result in a significantly reduced attendance and active participation score. Failure to complete required observations will result in a score of zero in the homework/classwork/observation category. Additionally, as stated in the PEP Guide for Teacher Education:

*All teacher candidates are assessed at the end of each semester using the Teacher Candidate Professional Development Form (TCPDF). Teacher candidates must achieve a minimum average score on the TCPDF (2.5 for Pedagogy/Methods I, 4.5 for Pedagogy/Methods II, and 7 for student teaching) in order to progress to the next course in the professional education sequence and graduate from the program. Candidates may have no more than three unmet standards in Pedagogy/Methods I.*

Students who do not meet this minimum scoring on the TCPDF will not receive a grade above C- for the course. For students meeting the minimum scoring standard on the TCPDF, final course grades will be no lower than as determined by the following:

MAE 311		MAE 510	
A	90%-100%	A	90%-100%
B	80%-89%	B	80%-89%
C	70%-79%	C	70%-79%
D	60%-69%		

**0.1. Academic Integrity Statement:**

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at [http://www.stonybrook.edu/commcms/academic\\_integrity/index.html](http://www.stonybrook.edu/commcms/academic_integrity/index.html)

If you have any questions about the above policy, or if you have any questions regarding academic integrity or intellectual property, please ask.

**0.2. Disability Support Services (DSS) Statement:** If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room 128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential. Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website: <http://www.stonybrook.edu/ehs/fire/disabilities> .

**0.3. Critical Incident Management Statement:** Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.