

Curriculum and Methods of Teaching Mathematics
EDS 512
Course Syllabus
SUMMER 2014

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Class: EDS 512: Curriculum and Methods of Teaching Mathematics

Meeting Time/Place: Lippman 200 consult daily schedule for times

Course Description

Curriculum and Methods of Teaching Mathematics will include an analysis of classic and current secondary mathematics curricula including New York State Frameworks for mathematics, instructional techniques and strategies, designing and locating instructional materials, planning, implementing, and evaluating lessons and units.

Required Texts:

None, however various articles may be assigned throughout the duration of the course.

Additionally, students need the following:

Common Core State Standards Grade 6- Geometry (New York Version) (electronic or hard copy)

<http://www.p12.nysed.gov/assessment/ei/2013/math-sept-april-may-june.pdf> (K-8 Common Core Standards)

http://www.p12.nysed.gov/ciai/common_core_standards/pdfdocs/nysp12cclsmath.pdf (P-12 CC Learning Standards for Mathematics)

http://www.corestandards.org/assets/CCSSI_Mathematics_Appendix_A.pdf (High School Specific Standards)

<http://www.p12.nysed.gov/assessment/hsgen/archive/mc-ia-05.pdf> (Core Curriculum for Integrated Algebra)

<http://www.p12.nysed.gov/assessment/hsgen/archive/mc-geo-05.pdf> (Core Curriculum for Geometry)

2005 NYS Standards Algebra II/Trig, these can be found at the link below

<http://www.p12.nysed.gov/ciai/mst/math/standards/>

Course Objectives: SWBAT

1. **Analyze** the teaching and learning in secondary schools
2. **Distinguish** between modes of instruction, choosing appropriate methods for concepts and students
3. **Analyze** their own and others' teaching styles and fundamental teaching/learning concepts including:
 - Direct instructional models
 - Student-centered instructional models
 - Instructional planning techniques
 - Importance of a learning community and collaboration
 - Addressing needs of special education students
 - Classroom management and discipline
 - Grading
 - Assessment
 - Ethical/Professional issues
 - NYS Standards/ Common Core
4. **Write** their own standards-based lesson plans that fall within a specific mathematical unit of study
5. **Teach** lessons to their classmates
6. **Prepare** to utilize these skills and effectively implement curriculum using a variety of instructional methods

School of Education Learning Goals

The School of Education promotes the art of accomplished teaching and learning. Students in the school of education are expected to think critically, communicate effectively, demonstrate disciplinary excellence, and be socially and ethically responsible.

Disciplinary competence

Our students will demonstrate disciplinary competence. Students will understand the disciplinary material presented in class and will be able to interpret critical data, material and concepts in the field of study.

Critical thinking

Our students will demonstrate critical thinking. Students will be able to define a problem, decision to be made, and/or issue to be analyzed. They will be able to analyze, synthesize and apply important knowledge and concepts to solve problems. They will be able to propose a solution to a problem and evaluate that solution using appropriate criteria.

Effective communication (oral and written) skills

Our students will demonstrate effective communication (oral and written) skills. Students will be able to use effective oral communication skills that clearly articulate fundamental concepts and knowledge to relevant audiences in their profession. They will be able to use effective written communication skills that clearly articulate fundamental concepts and knowledge to relevant audiences in their profession.

Social and ethical responsibility

Our students will demonstrate social/ethical responsibility. Students will be able to articulate the rationales for professional and disciplinary codes of ethics within his/her discipline. They will be able to apply professional

and disciplinary codes of ethics to professional relationships and situations in order to determine whether a course of action is deemed ethical. Students will be able to exhibit decision making behaviors based on ethical principles that promote fairness, equity, respect and trust.

Co-Requisite Courses:

1. EDS 540: The Psychology of Teaching and EDS 541: Essential Reading Literacy
2. EDS 540L: Microteaching Laboratory

Pre-Requisites

- Educational Psychology
- Field Experiences
- Foreign Language

Course Grading:

Written assignments will be graded on a point scale. These assignments include but are not limited to lesson plans, reflection papers, problem sets, curriculum map, resource articles, and development of an assessment, other written assignments and the final unit project.

The marks received by each student in EDS 512 serve as a guide to reaching a final grade. The instructors retain the professional responsibility for determining the appropriate final grade for each student.

Final Exam (Final Unit Project): Students will complete a unit that contains six lessons, two assessments, and a study guide. (See attached requirements). The final exam is due by 10:00am on July 31st. **Late units will not be accepted.** (we need to edit the date, and I'm not sure if we want to edit the project at all.)

Course/Summer Expectations:

1. Attendance is mandatory in all classes. Failure to attend a class places a student in jeopardy of failing and/or of being requested to withdraw from the program.
2. Each student is expected to be in class on time as well. Being late more than once or twice places a student in jeopardy of failing the class and/or being asked to leave the program. When a teacher is late to class, all the students in the class are deprived of an opportunity to learn. Repeated lateness of a teacher in a school represents grounds for dismissal.
3. Active participation in all courses and in all program assignments is expected and required.
4. All class assignments must be completed on time. That is, all the reading and/or writing must be completed when the class for that day begins, not at the end of the class or later in the day.
5. Written assignments (including journals) should be word-processed. Hardware and software are available to students on a 24 hour basis in the UGC Computer Laboratory. Instruction in how to use the equipment is also available. All assignments should be grammatically correct.
6. A minimum grade of B is required in EDS 512 in order to enter the clinical internship phase of the program.

7. We expect personal involvement with the questions and materials used in each course and an active commitment to professional growth and development. Our assessments will be based, to a large degree, on how well each student measures up to this standard along with whatever quality standards are established for specific course assignments.

Additional Resources/Readings

- Brutlag, Dan. *Active Algebra: Strategies and Lessons for Successfully Teaching Linear Relationships : Grades 7-10*. Sausalito, CA: Math Solutions, 2009. Print.
- Chapin, Suzanne H., and Art Johnson. *Math Matters: Understanding the Math You Teach Grades*. Sausalito, CA: Math Solutions, 2006. Print.
- Elliott, Portia C., and Cynthia M. Elliott. Garnett. *Getting Into The Mathematics Conversation: Valuing Communication in Mathematics Classrooms : Readings from NCMT's School-Based Journals*. Reston, VA: National Council of Teachers of Mathematics, 2008. Print.
- Erlauer, Laura. *The Brain-Compatible Classroom: Using What We Know About Learning To Improve Teaching*. Alexandria, VA: Association for Supervision and Curriculum Development, 2003. Print.
- Martin, Tami S., and Terese Herrera. *Mathematics Teaching Today: Improving Practice, Improving Student Learning*. Reston, VA: National Council of Teachers of Mathematics, 2007. Print.
- Marzano, Robert J. *Classroom Assessment and Grading That Work*. Alexandria, VA: Association for Supervision and Curriculum Development (ASCD), 2006. Print.
- Marzano, Robert J., Debra Pickering, and Jane E. Pollock. *Classroom Instruction That Works: Research-based Strategies for Increasing Student Achievement*. Alexandria, VA: Association for Supervision and Curriculum Development, 2001. Print.
- Marzano, Robert J., Jana S. Marzano, and Debra Pickering. *Classroom Management That Works: Research-based Strategies for Every Teacher*. Alexandria, VA: Association for Supervision and Curriculum Development, 2003. Print.
- Muschla, Judith A., Gary Robert. Muschla, and Erin Muschla. *Teaching the Common Core Math Standards with Hands-On Activities, Grades 6-8*. San Francisco: Jossey-Bass, 2012. Print.
- Rectanus, Cheryl. *So You Have to Teach Math?: Sound Advice for Grades 6-8 Teachers*. Sausalito, CA: Math Solutions Publications, 2006. Print.
- Reeves, Anne R. *Where Great Teaching Begins: Planning for Student Thinking and Learning*. Alexandria, VA: ASCD, 2011. Print.
- Schuster, Lainie, and Nancy Canavan. Anderson. *Good Questions for Math Teaching: Why Ask Them and What to Ask, Grades 5-8*. Sausalito, CA: Math Solutions Publications, 2005. Print.
- Sousa, David A. *How the Brain Learns; Third Edition*. Thousand Oaks, CA: Corwin, A Sage Publications, 2006. Print.
- Tomlinson, Carol A., and Marcia B. Imbeau. *Leading and Managing a Differentiated Classroom*. Alexandria, VA: ASCD, 2010. Print.
- Vatterott, Cathy. *Rethinking Homework: Best Practices That Support Diverse Needs*. Alexandria, VA: ASCD, 2009. Print.
- Whitman, Carmen, Cathy Seeley, and Jamie Ann. Cross. *It's All Connected: The Power of Proportional*

Reasoning to Understand Mathematics Concepts : Grades 6-8. Sausalito, CA: Math Solutions Publications, 2011. Print.

Wickett, Maryann, Katharine Kharas, and Marilyn Burns. *Lessons for Algebraic Thinking.* Sausalito, CA: Math Solutions Publications, 2002. Print.

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