CIEP M80
SPRING 2011
LOYOLA UNIVERSITY
SYLLABUS

Colin Murphy Instructor
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Wednesday 4:15 – 6:45
Text: Principles and Standards for School Mathematics NCTM. A free 90 day trial is available on line at www.nctm.org
Office hours are after class or by appointment

Conceptual Framework

This course is designed for students whose goal it is to gain a teaching position in a school. "Professionalism in Service of Social Justice" represents the foundation upon which this course has been developed. In support of this fundamental tenet of teacher development, we will begin to understand the diversity and complexity of roles and responsibilities when teaching mathematics. We will simulate and create opportunities to practice what is "right," with respect to teaching mathematics.

Course Description

This course sequence provides the fundamental knowledge base teaching middle school mathematics. Candidates will study the underlying principles of mathematics appropriate for grades 6 – 8. To prepare teachers who can deliver high-quality mathematics education, the Loyola teacher preparation program must provide a strong knowledge base, positive attitude, and a wide range of instructional strategies.

Course Objectives

The objectives of this course are to give prospective elementary and middles grade teachers:

1. Understand the content, methods, and materials necessary to teach middle school mathematics.
2. Learn about research on students' mathematical thinking and reform principles about teaching and learning mathematics.
3. Understand what it means to build a learning environment that supports the teaching and learning of mathematics.
4. Understand connections between mathematical concepts and procedures within a problem-solving environment.
5. Understand the role of mathematical discourse in students' learning to communicate and make sense of mathematical ideas.

6. Learn how to ask students questions and interpret their answers to gain insight into their mathematical thinking.
7. Learn how to assess students' mathematical thinking and plan instruction based on that assessment.
8. Learn to make instructional decisions about the use of curricular materials, such as textbooks, other resources, manipulative materials, and technology in the teaching of middle school mathematics.

Course Requirements

Attendance, Participation, and Mathematical Disposition- Attendance is an important part of your grade. This course is not a read-and-lecture class. Your active participation in each class session is vital to your learning as well as to the learning of other students in the class. I expect you to attend all class meetings prepared and
to be engaged as an active, collaborative participant during each class session, whether whole-class discussion, collaborative-group activity, or individual reflection is involved. Being prepared means reading the assigned text for each session and preparing questions and comments on each reading. If you are unable to attend a particular class session, please let me know before class. You are responsible for contacting someone in the class to find out what transpired in your absence. I expect assignments to be completed on time even if you are absent.
Assignments are due at the beginning of the class period. They may be turned in after the class period in which they are due for a maximum of half credit.

Learning mathematics extends beyond learning concepts, procedures, and their applications. It also includes developing a disposition toward mathematics and seeing mathematics as a powerful way for looking at situations (National Council of Teachers of Mathematics [NCTM], Curriculum and Evaluation Standards for School Mathematics, 1989, p. 233). I will assess your mathematical disposition following the recommendations of Standard 10 in the NCTM Curriculum and Evaluation Standards:

The assessment of students' mathematical disposition should seek information about their-

- confidence in using mathematics to solve problems, to communicate ideas, and to reason;
- flexibility in exploring mathematical ideas and trying alternative methods in solving problems;
- willingness to persevere in mathematical tasks;
- interest, curiosity, and inventiveness in doing mathematics;

- inclination to monitor and reflect on their own thinking and performance;
- valuing the application of mathematics to situations arising in other disciplines and everyday experiences;
- appreciation of the role of mathematics in our culture and its value as a tool and as a language.

Course Assignment:

You will complete a variety of assignments during the semester. They are as follows:

Reflective Writing- You will prepare out-of-class and in-class reflective writings. All out-of-class reflective writings need to be typed. You will receive information about the reflective writings in class

Illuminations Lesson- You will select a problem/lesson from the Illuminations website at nctm.org. This problem/lesson must be at the middle school level. You will write a two-page review of the problem/lesson you chose. The typed review should include the reason you selected the activity, a brief summary of the activity, and a discussion of ways (how, when, etc.) that you will use this activity in your teaching of mathematics. Your problem presentation should conform to the "spirit" of this course. This implies that the problem should focus on development of conceptual knowledge, problem solving, and active student learning. You will receive detailed information on this assignment in class.

Questions for Student Assessment Interview- You will prepare questions to assess a middle school student on some concept. You will turn this typed report into me for feedback before you interview the student.

Student Interview Report- You will interview a middle school student. You will assess the student on the concept that you have prepared. In this typed report you will describe your student's understandings and suggest appropriate instruction based upon this assessment.

Collaborative Curriculum Evaluation- You will be required to examine some middle school mathematics lessons from mathematics basals. You will evaluate how these lessons fit into the framework of The Principles and Standards. You will be given and will also choose standards for each lesson and show how each lesson addresses these standards. You will prepare this evaluation with a small group. You will write a typed summary for each lesson..

Cooperative Group Lesson- Working with a small group you will select and teach a lesson on a mathematics topic assigned to you. You will choose the activity/activities for the lesson from a given selection of resources. You will develop the lesson for middle-school students and adapt it into a 45-minute lesson that you will teach to our class. Your lesson should conform to the "spirit" of the Principles and Standards for School Mathematics (NCTM, 2000). This implies that the lesson should focus on development of conceptual knowledge, problem solving, and active student learning. You will prepare a detailed typed lesson plan that you will distribute to each class member on the day of the

presentation. You will be asked to assess how your lesson fits into the framework of The Principles and Standards. Evaluation is based upon your preparation, knowledge, cooperative group work, and overall effectiveness. You will receive detailed information on this assignment in class.
Final Exam- The final exam will be comprehensive. You must take the final exam with your fellow classmates at the scheduled time.
You will receive further directions for each assignment throughout the semester.

In concert with the mission statement and conceptual framework for the School of Education, faculty, academic activities, and learning environments will be sensitive to and driven by individual, cultural, social, and economic diversity awareness and respect. It is expected the student will develop a respect for and a recognition of the myriad forms of diversity that compose the construct of the world of a school as an educator. We will simulate and create opportunities to practice what is "right" with respect to the teachings of mathematics, regardless of the circumstances of the day.

Technology

Teachers of the twenty-first century must demonstrate competencies in a variety of forms of communications. To ensure that students of mathematics possess technological skills and competencies they will be expected to use a word processing program to prepare all printed materials, to use the University Virtual Library for research, and to use e-mail as an external communication vehicle among classmates and instructor.

Academic Honesty

Academic honesty is an expression of interpersonal justice, responsibility and care, applicable to Loyola University faculty, students, and staff, which demands that the pursuit of knowledge in the university community be carried out with sincerity and integrity. The School of Education's Policy on Academic Integrity can be found at: http://www.luc.edu/education/academics_policies_integrity.shtml. For additional academic policies and procedures refer to:
http://www.luc.edu/education/academics_policies_main.shtml

Accessibility

Students who have disabilities which they believe entitle them to accommodations under the Americans with Disabilities Act should register with the Services for Students with Disabilities (SSWD) office. To request accommodations, students must schedule an appointment with an SSWD coordinator. Students should contact SSWD at least four weeks before their first semester or term at Loyola. Returning students should schedule an appointment within the first two weeks of the semester or term. The University policy on accommodations and participation in courses is available at: http://www.luc.edu/sswd/

Harassment (Bias Reporting)

It is unacceptable and a violation of university policy to harass, discriminate against or abuse any person because of his or her race, color, national origin, gender, sexual orientation, disability, religion, age or any other characteristic protected by applicable law. Such behavior threatens to destroy the environment of tolerance and mutual respect that must prevail for this university to fulfill its educational and health care mission. For this reason, every incident of harassment, discrimination or abuse undermines the aspirations and attacks the ideals of our community. The university qualifies these incidents as incidents of bias.

In order to uphold our mission of being Chicago's Jesuit Catholic University-- a diverse community seeking God in all things and working to expand knowledge in the service of humanity through learning, justice and faith, any incident(s) of bias must be reported and appropriately addressed. Therefore, the Bias Response (BR) Team was created to assist members of the Loyola University Chicago community in bringing incidents of bias to the attention of the university. If you believe you are subject to such bias, you should notify the Bias Response Team at this link: http://webapps.luc.edu/biasreporting/

Course Outline

January 19	Introduction to CIEP M80, expectations, and syllabus; Opening activity; Read overview of standards, introduction to standards and Number and Operations.
January 26	Numbers and Operations activities: Read the Algebra section from "Standards"
February 2	Continue Algebra activities Read the Geometry section from "Standards."
February 9	Geometry activities
February 16	Continue on Geometry activities. Read the section on Measurement from "Standards". Measurement activities Read the section on Data Analysis and Probability from "Standards". Data Analysis and Probability activities
February 23	Data Analysis and Probability activities
March 2	Continue Data Analysis and Probability activities Read the section on Problem Solving from "Standards".
March 9	No Class. Spring Break Problem
March 16	Solving activities. Read the section on Reasoning and Proof and Communication from

	"Standards".
March 23	Reasoning and Proof activities. Read the section on Connections from "Standards".
March 30	Connections activities. Read the section on Representation from "Standards". Presentations
April 6	Presentations
April 13	Presentations
April 20	No Class. Finalize *Assessment of Students' Mathematical Disposition* assignment and 1-2 page reflection on Common Core Standards
April 27	Presentations wrap up activities
May 4	Review and finish presentations
May 11	Tentative date for final

Use this format for your lesson plans. An engaging lesson with the use of manipulatives is expected. A set of worksheets is not acceptable. A bibliography is to be attached.

1. NCTM and ISBE objective
2. Multidisciplinary connections, you must have at least three
3. I can statement, purpose
4. Materials/ Manipulative
5. Vocabulary with definitions
6. Anticipatory set/ Opener (What will you do to capture the students interest)
7. Input (Dialog of what you will teach, what and where do you anticipate problems)
8. Modeling (Examples of what types of leveled problems will you use and how you will incorporate the manipulatives)
9. Independent Practice
10. Closure
11. Extended Response with answer

Grading Scale

100 - 93 A

92 – 85 B
84 – 77 C
76 – 69 D

Points for Grades

Attendance and Participation	5 Points
Lesson plans 10 points each	50 Points
Presentation	10 Points
Common Core Standards	5 Points
Assessment of Student Mathematical Disposition	10 Points
Final Exam	20 Points