Professional Education Unit
Department of Middle Grades and Secondary Education

MATHEMATICS FOR DIVERSE LEARNERS
EDUC 618
T 6:00-8:40 pm
Spring 2010

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Office Hours: T 1:00- 6:00 p.m. and TH 2:00-4:00 p.m.

Course Description: Prerequisites/co-requisites – conditional or unconditional admission to the Master of Arts in Teaching in Special Education. This course will integrate the development of mathematical concepts and skills, and the differentiation of learning needs of students. An investigation of mathematical approaches to address the learning needs of students will be explored.
The instructor will emphasize best - practice teaching strategies, theories, and assessment procedures consistent with the *KY Teacher Standards*, the *KY Core Content for Assessment and Program of Studies (KERA)*, the *KY EPSB Themes*, and the *National Council of Teachers of Mathematics (NCTM)*. The instructor will also emphasize the review of Mathematics content in grades P-12. Diverse characteristics will be discussed such as methodologies, learning styles, modality preferences for learning, and performance preferences for showing what has been learned. The candidate will practice these in the development of differentiated lesson plans and evaluate his / her impact on student learning through written reflections, class discussions, and various activities performed in and outside class.

Required Field Experience Hours: Although there is no written requirement of field experience hours for this graduate course, the instructor has built into the course 2 hours of observation and one hour of teaching to a large group of students (20 plus students).

"Community Engagement: A Light to and from the Mountains"

The Professional Education Unit at Morehead State University delivers rigorous, high quality programs that prepare professionals informed by best national and international scholarship, plus research, literature, and experiences specific to Appalachia- preparing professionals to improve the schools, quality of life, and the communities in which they live and serve. This statement is not only the strategic mission for the College, but it also incorporates the conceptual framework that guides all our activities.

Conceptual Framework Outcomes (CFOs):

The Unit and the faculty within individual programs assess the degree to which its graduates:

1) Master the content knowledge, professional and the twenty – first century skills need to make an optimal contribution to "whole" and "all" student learning in education settings.

2) Competent in the collection and use of data to inform decision – adapt mathematical concepts to accommodate the needs of diverse learners in the classroom, including a range of ability, maturity, experiences, background, and parental involvement to support learning.

3) Demonstrate an understanding of how students learn mathematics, inclusive of developmental philosophy of how children learn and understand mathematics.

4) Demonstrate a knowledge base of mathematical pedagogy that is appropriate to develop students' ability to think critically.

5) Engage in authentic field experiences in collaboration with committed school – based partners and are empowered to improve the quality of education throughout this region and beyond.

Student Learning Outcomes (SLOs): By the end of this course, the candidate will be able to:

1. **articulate** major trends and current issues affecting mathematics education in our country today;
2. **identify** and **explain** the impact of student diversity (i.e., SES, ethnicity, ability, sexual orientation, etc.) on the teaching of mathematics in our country today; especially including the range of abilities, maturity, experiences, and background.;
3. **employ** numerous mathematics *teaching and learning strategies* which accommodate learners of all ability and interest levels;
4. **ascertain** *developmentally appropriate teaching strategies* for a diverse group of students;
5. **evaluate** and **reflect** upon the effectiveness of assessment procedures on student learning in diverse settings;
6. **integrate** technology (i.e., Smartboards, Powerpoint, United Streaming, etc.) for effective instruction and student learning;
7. **integrate** best – practice literacy strategies for effective instruction and student learning;
8. **adapt** mathematical concepts to local, state, and national mathematics standards in order to close the achievement gap and accommodate for diverse learners.
9. **demonstrate** conceptual understanding of mathematics skills and knowledge;
10. **demonstrate** resourcefulness in the acquisition of mathematics content for informed and competent teaching.

Required Textbooks:
Tucker, B. Singleton, A., and Weaver, T. (2006). Teaching mathematics to all children; Designing and adapting instruction to meet the needs of diverse learners (2nd Ed.). Upper Saddle River, NJ; Merrill/Prentice Hall.

Course Evaluation:
The candidate's course evaluation will be determined by in – class and out – of class assignments, to include: lesson plans / reflections, quizzes, exams, and papers. The course evaluation is based upon 500 points. The instructor expects all assignments to be turned in on time using Times New Roman (12 font) on all work. *** Explanation of assignments and their point values are explained in the following two tables.

NCATE/ EPSB Accreditation Alignment of SLOs and CFOs:

Program:	**MAT – Special Education (middle and secondary)**				**EDUC618**
Aligned with → **Assessment ↓ (point values)**	**Kentucky Teacher Standards (KYS)**	**Kentucky Education Reform Act (KERA)**	**Education Professional Standards Board (EPSB)**	**National Council of Teachers of Mathematics (NCTM) – Principles and Standards for School Mathematics**	**NCATE**
Attendance (50) **CFO: 3** **SLO: n/a**	7, 8, 9, 10	n/a	n/a	n/a	1
Field Experience (50) **CFO: 1 - 5** **SLO: 1 – 10**	1 - 9	2.7-2.13	Diversity, assessment, literacy, achievement gap,	Principles and Standards - all	1,3
Analysis of learning styles Paper (50) **CFO: 1-5** **SLO: 2 – 7**	1, 2, 3, 7	2.7-2.13	Diversity, achievement gap	Principles and process standards	1,4
NCTM Journal Review (50) **CFO: 1, 4** **SLO: 1 – 4, 7, 8**	2, 3, 4, 5, 7, 9	n/a	Diversity, assessment, literacy, achievement gap,	Principles and Standards – depending on articles reviewed	1
Principles and Standards paper (25) **CFO: 3-5** **SLO: 2 – 4**	1, 2, 3, 7	2.7-2.13	Diversity, assessment, literacy, achievement gap,	Principles and Standards – all	1-4
Comparative analysis of lesson plans with intelligences (50) **CFO: 1, 4** **SLO: 1 – 4, 7, 8**	1, 2, 4, 5, 6	2.7-2.13	Diversity, assessment, literacy, achievement gap,	Principles and Standards –all	1
Assessment with differentiation activity (50) **CFO: 1-5** **SLO: 1-10**	1-7	2.7-2.18	Diversity, literacy, achievement gap	Process and content standards	1,4
Project #1 – Lesson plan adaptations(50) **CFO: 1- 5** **SLO: 3 – 7**	1, 2, 4, 5, 6	2.7-2.18	Diversity, assessment, literacy, achievement gap,	Principles and Standards –all	1.4
Project #2 – Critique a lesson(50) **CFO: 1-5** **SLO: 2-8**	1-7	2.7-2.18	Diversity, literacy, Achievement gap	Principles and Standards –all	1
Project #3 Methodology and	1 - 9	**2.7-2.18**	Diversity, assessment,	Principles and Standards –all	1

teaching styles (50) **CFO: 1-5** **SLO: 1 – 10**			literacy, achievement gap,		
Project #4 – Manipulatives to teach (50) **CFO: 1-5** **SLO: 1-10**	**1-9**	**2.7-2.18**	Diversity, assessment, achievement gap,	Principles and Standards - all	1
Final Exam (75) **CFO: 1-5** **SLO: 1 – 10**	1 - 9	**2.7-2.18**	Diversity, assessment, literacy, achievement gap,	Principles and Standards - all	1

<u>Assignment Descriptions</u>:

Program: MAT – Special Education (middle and secondary) EDUC618	
Assessment (point value)	**Description**
Attendance (50)	Attendance is an important professional disposition within the College of Education. Attendance at all class meetings and Field Experiences is required. ***Please read "Attendance Policy" below.
Field Experience (50)	The candidate will visit the public schools 3 times during the semester. These visits will include observation and whole – class teaching. Observation hours will be included in a reflection paper.
Analysis of learning styles (50)	The Professor will assign the candidate to locate a lesson plan from a student mathematics textbook and analyze the learning styles and how to adapt to various other learning styles to be appropriate for diverse learners.
NCTM Journal Review (50)	The candidate will peruse recent issues of any of the four mathematics journals published by NCTM and choose three articles not from the same journal. The candidate will included all listed areas in the rubric when writing their review of the three articles.
Principles and Standards Paper (25)	The candidate will be assigned a principle, process standard or content standard to research from NCTM. The paper will address the NCTM definition, connection to KERA, and how to integrate into the mathematics classroom.
Cooperative analysis of lesson plan with multiple intelligences for diverse learners (50)	The candidate will review a lesson plan from a variety of NCTM materials such as lenses on learning, focus points, and investigations. The analysis will address how these lesson plans are designed to meet diverse learners via multiple intelligences.
Assessment activities with differentiation (50)	The candidate will design an alternative assessment activity for a mathematics activity; such as peer review, performance task, observation, interview, student self-assessment, etc.
Project # 1 – Lesson Plan adaptation (50).	The candidate will develop four adaptations for a selected lesson plan from a student mathematics textbook or NCTM mathematics series.
Project #2 – Critique a lesson (50)	The candidate will review a lesson observed inclusive of the lesson plan and give feedback according to learned knowledge of differentiated teaching and learning and coaching techniques.
Project #3 – Methodology and teaching styles (50)	The candidate will use lesson plans from a variety of resources to explore various methodologies and styles used in the classroom. KTIP format will be used for this project.
Project #4 – Manipulatives to Teach	The candidate will be assigned a mathematical manipulative to research, write a lesson plan, and teach the class how to use.
Final Exam (75)	The final exam will apply to course lectures, Field Experiences, readings, and activities.

Grading Scale:

90% - 100 %	A	600-540
80% - 89%	B	539-480
70% - 79%	C	479-420
60% - 69%	D	419-360
0% - 59%	E	359

Format for Completing Assignements:

1. Put name, course # and Section #, date and assignment title in upper right hand corner.
2. Use Times New Roman, 12 – font only
3. Double – space all assignments
4. Use 1" margins all the way around.

Attendance Policy: Attendance at class meetings is a professional disposition for the candidate. Therefore, attendance is a requirement for this course. The candidate may be excused from only one class-meetings. Every candidate begins the semester with 50 attendance points. The student loses 25 points for the 3rd excused or unexcused absence. Fourth excused/ unexcused absence results in a loss of 25 points for a total of zero points in attendance.

Links to Websites for NCATE/ EPSB Alignment:

http://www.kyepsb.net/teacherprep/standards.asp This site contains the revised KYS.

http://www.education.ky.gov/KDE/Instructional+Resources/Curriculum+Documents+and+Resources/Teaching+Tools/Combined+Curriculum+Documents/default.htm This site contains the KERA Combined Curriculum Documents 4.1 (Academic Expectations, Program of Studies, and Core Content for Assessment with DOK Levels).

http://www.kyepsb.net/teacherprep/cart/themes6.asp This site lists the four themes of pre-service teacher preparation that are integrated within this course.

http://www.nctm.org This site is the National Council of Teachers of Mathematics.

Academic Honesty
Cheating, fabrication, plagiarism or helping others to commit these acts will not be tolerated. Academic dishonesty will result in severe disciplinary action including, but not limited to, failure of the student assessment item or course, and/ or dismissal from MSU. If you are not sure what constitutes academic dishonesty, read the Eagle: Student Handbook or ask your instructor. An example of plagiarism is copying information from the internet when appropriate credit is not given. The policy is located at http://morehead-st.edu/units/studentlife/handbook/academicdishonesty.html

Americans with Disabilities Act (ADA)
In compliance with the ADA, all students with a documented disability are entitled to reasonable accommodations and services to support their academic success and safety. Though a request for services may be made at any time, services are best applied when they are requested at or before the start of the semester. To receive accommodations and services the student should immediately contact the Disability Services Coordinator in the Office of Academic and Career Services, 223 Allie Young Hall, 606-783-5188, www.moreheadstate.edu/acs/

Campus Safety Statement:
Emergency response information will be discussed in class. Students should familiarize themselves with the nearest exit routes in the event evacuation becomes necessary. You should notify your instructor at the beginning of the semester if you have special needs or will require assistance during an emergency evacuation. Students should familiarize themselves with emergency response protocols at http://www.moreheadstate.edu/emergency

***Please SILENCE your cell phones during class.

***Please DO NOT USE COMPUTERS / Laptops during class (unless otherwise approved by Dr. Lafferty) ---- Absolutely NO Emailing, Texting, instant messaging, net – surfing, etc during class!

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EDUC 618 – Mathematics for Diverse Learners
Fall 2009 Tentative Daily Schedule

Date	Topic	Readings	Assignments Due
1/12	Introduction of Course The historical development of the Mathematics Curriculum Principles and Standards for School Mathematics	Read chapter 1 Research your assigned Principle or standard and complete written assignment	
1/19	Principles and Standards for School Mathematics Reports Journal Article Reviews – Discussion of assignment	Journal Article Reviews Read chapter 2	Reports of Principles and Standards (25)
1/26	Journal article discussion Review of chapter one (4 learning objectives) and discussion of chapter two (learning styles)	Read chapter 3 Complete the assignment on learning styles Find a teacher in the classroom to work with for FE.	3 Journal Article Reviews (50)
2/2	Share learning style activities Discuss kinds of intelligences – discuss assignment		Learning style assignment (50)
2/9	How children learn mathematics and assessing learned skills and concepts.	Read pamphlets and design an alternative assessment Reread chapter 3	Kinds of intelligences assignment (50)
2/16	Designing a lesson plan for diverse learners-making adaptations. Explain project #1	Work on Project #1	Alternative assessment activity (50)
2/23	Discuss project #1 and review problematic situations	• Finish project #1 • Read chapter 4 and 5 • Observe one hour in the classroom	Project #1 – trial copy
3/2	Manipulatives for number sense – useful or detractors? Discuss project #2	• Project # 2 – get started • Read chapter 6 and 7	Project #1 – final copy (50)
3/9	Computer activities – number sense with multiplication and division	Finish Project #2 Observe one hour in the classroom.	• Project #2 trial run
3/16	NO CLASS – Spring break	*Ask your field experience teacher for a topic that you can teach a math lesson and bring to next class.	NO Class
3/23	Design a lesson plan to	Read chapters 8 and 9	Project #2 final copy

	teach in the classroom	• Teach a lesson in the classroom prior to 3/30. Reminder to gather student work.	
3/30	Manipulatives – Fractions, Decimals, and Percents Why do children struggle with these concepts? Discuss Project #3	Begin work on Project #3 Read chapter 10 and 11	Observation write-ups due for both hours.
4/6	Review project #3 Measurement and Geometry	Final Copy of Project #3 Read chapters 12 and 13	• Project #3 – trial run
4/13	Data analysis and Stats Assign topics for Project #4	Prepare project #4	Project #3 – final copy
4/20	Project 4 presentations	Prepare project #4	Project #4 presentations
4/27	Project 4 presentations	Study for Final Exam	Project #4 Presentations
5/4	Final EXAM		• FINAL EXAM