

EMS 570: Methods and Materials for Teaching Mathematics

In Workflow

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Approval Path

1. Mon, 21 Dec 2015 21:24:39 GMT
Kathy Trundle (kctrundl): Approved for 13EMS Grad Head
2. Mon, 21 Dec 2015 21:35:02 GMT
Mary Morris (mmmartin): Approved for CED CC Coordinator GR
3. Mon, 21 Dec 2015 21:36:49 GMT
Mary Morris (mmmartin): Approved for CED CC Meeting GR
4. Tue, 22 Dec 2015 13:25:31 GMT
Aaron Clark (aaron_clark): Approved for CED CC Chair GR
5. Tue, 22 Dec 2015 14:07:53 GMT
Mary Morris (mmmartin): Approved for CED Final Review GR
6. Tue, 22 Dec 2015 14:56:39 GMT
Ellen Vasu (ellen_vasu): Approved for CED Dean GR
7. Thu, 07 Jan 2016 21:08:30 GMT
George Hodge (george_hodge): Approved for ABGS Coordinator
8. Wed, 20 Jan 2016 18:33:21 GMT
Karen Keene (kakeene): Rollback to ABGS Coordinator for kakeene
9. Thu, 21 Jan 2016 21:25:44 GMT
Mary Morris (mmmartin): Approved for mmmartin
10. Mon, 01 Feb 2016 21:19:50 GMT
George Hodge (george_hodge): Approved for ABGS Coordinator
11. Mon, 01 Feb 2016 23:39:08 GMT
Karen Keene (kakeene): Approved for kakeene
12. Mon, 08 Feb 2016 16:48:55 GMT
George Hodge (george_hodge): Approved for ABGS Meeting

Date Submitted: Mon, 21 Dec 2015 21:14:45 GMT

Viewing: EMS 570 : Methods and Materials for Teaching Mathematics

Changes proposed by: awmccull

Course Prefix

EMS (Math & Science Education)

Course Number

570

Course ID

007384

Dual-Level Course

Yes

Dual-Level Course Number:

470

Cross-listed Course

No

Title

Methods and Materials for Teaching Mathematics

Abbreviated Title

Method Matl Tea MA

College

College of Education

Academic Org Code

Math, Science, and Technology Education (13EMS)

CIP Discipline Specialty Number

13.1309

CIP Discipline Specialty Title

Technology Teacher Education/Industrial Arts Teacher Education.

Term Offering

Fall and Spring

Year Offering

Offered Every Year

Effective Date

Fall 2016

Previously taught as Special Topics?

No

Course Delivery

Face-to-Face (On Campus)

Grading Method

Graded/Audit

Credit Hours

3

Course Length

16

weeks

**Contact Hours
(Per Week)****Component Type**

Lecture

Contact Hours

3

Course Attribute(s)**Course Is Repeatable for Credit**

No

Instructor Name

Dr. Karen Norwood

Instructor Title

Associate Professor, Mathematics Education

Grad Faculty Status

Full

Anticipated On-Campus Enrollment

Open when course_delivery = campus OR course_delivery = blended OR course_delivery = flip

Enrollment Component	Per Semester	Per Section	Multiple Sections?	Comments
Lecture	20	20	No	N/A

Course Prerequisites, Corequisites, and Restrictive Statement

Graduate standing in MED, MSM, MSD.

Is the course required or an elective for a Curriculum?

Yes

Which Curricula are Affected?

SIS Program Code	Program Title	Required or Elective?
13MATMGMA	Master of Arts - Teaching Middle Grades Math	Required

Catalog Description

Purposes, methods, curricula and evaluation practices for teaching mathematics in middle school and high school. Taught during the first seven weeks of the semester. Credit for both EMS 470 and EMS 570 is not allowed.

Justification for each revision:

We are requesting to change the course from an 8 week course to a 16 week course. Currently the course is offered during the professional semester in conjunction with the student teaching internship. We plan to move the course out to the semester before student teaching to allow students to have a full time student teaching semester with no other course work. This will provide our students with more time in the classroom and an opportunity to participate in student teaching abroad opportunities.

Does this course have a fee?

No

Is this a GEP Course?

No

Consultation

Instructional Resources Statement

This course is taught by faculty as part of their normal work load. No additional resources are needed.

Course Objectives/Goals

EMS 570 is an academic class in the professional block that will require scholarly work as in other university courses. You must demonstrate intellectual understanding of the subject matter through readings, reports, homework, discussions, and projects. The main emphasis of this course will be on helping you acquire professional teaching skills. In this regard, you are receiving job training. Soon, you will be teacher to more than 100 students! Now, you may not fully appreciate the significance of changing from your role as university student to that of mathematics teacher. You may also not understand the effect this metamorphosis will have on your self-image. But students, teachers, counselors, administrators, and parents at your school will relate to you as they would any other teacher. They will expect you to assume the demeanor, bearing, duties, and responsibilities of a public school teacher. You are expected to demonstrate through your actions that you are ready to enter the profession of mathematics teaching. Exhibiting qualities of initiative, willingness to take on responsibilities, assertiveness, promptness, cheerfulness, consideration of others, independence, and a love of hard work are indicators that you are seriously preparing to teach mathematics. These qualities should be exhibited in your school visits and in our class time together.

Some of the content found in this course is included because it will prepare you for your internship. However, preparation for the profession must include content that grows in value over time as you continue teaching. In your career you will be asked to set curricular policy, choose textbooks, write curriculum materials, develop school- or system-wide tests, counsel students and parents, participate in school self-studies, and participate and provide leadership in professional organizations such as NCCTM, NCTM, NCSTA, NSTA, and SSMA.

During our time together, it is my hope that you become part of a community of learners who are committed to learning about teaching and learning through reading, writing, discussing, and collaborating. Your overall involvement in the course includes the following:

-
- **Intellectual risk taking:** demonstrated willingness to offer and pursue ideas and suggestions that go beyond the ordinary
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- **Making connections:** demonstrated ability to connect the theoretical and the practical, to relate specific ideas to larger themes
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- **Thinking clearly on paper:** demonstrated proficiency in expressing ideas, organizing information, and communicating in writing
-
- **Contributing to the community:** demonstrated willingness to share information and ideas with the group and to support others in their efforts to build understanding
-
- **Commitment to developing listening and speaking skills:** demonstrated effort to develop effective speaking skills and active listening and responding skills.
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- **Commitment to exploring new ways to think about teaching and learning mathematics:** demonstrated willingness to being open to trying out new ways of teaching mathematics and to allowing students opportunities to make sense of mathematics.
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Student Learning Outcomes

By the end of this course students will be able to:

- 1.
2. Demonstrate that they can create a plan for teaching a coherent content unity for MS or HS mathematics.
3. Explain and implement strategies for differentiated instruction in mathematics.
4. Create and evaluate assessment instruments (both formative and summative) for MS or HS mathematics.
5. Apply their knowledge of equitable mathematics instruction in lesson creation and assessment.

Student Evaluation Methods

Evaluation Method	Weighting/Points for Each	Details
Written Assignment	85%	classroom management plan and parent letter; unit plan; summative assessment creation and rubric; Common Core STEM project

Participation 15% participation and preparedness

Topical Outline/Course Schedule

Topic	Time Devoted to Each Topic	Activity
Unit planning & revised Bloom's taxonomy	1 week	<ul style="list-style-type: none"> - Have students identify the level of various math problems - Have students take a problem at the knowing level and rewrite it for each of the other levels of Bloom's Revised Taxonomy - Create a Concept Map
Unit Planning & Revised Blooms Taxonomy Cooperative Learning	1 week	<ul style="list-style-type: none"> - Review writing objectives and essential questions An Overview of Cooperative Learning - Mystery Op 1 - 5 (United We Solve/Tim Ericson) - Function 1- 5 (United We Solve/Tim Ericson) - Geometry 1-5 (United We Solve/Tim Ericson)
The effective teacher	1 week	<p>Wong & Wong reading, classroom observation assignment, video clip reflections</p> <ul style="list-style-type: none"> - Discuss with students the characteristics/ qualities of the teachers that made a lasting impression on them possessed - Stages of Teacher Development - Effective Teachers (Wong) - Pedagogy in Practice
Classroom management	2 week	<p>Reading from Wong & Wong, Classroom management interview and observation, Classroom management plan, parent letter</p> <ul style="list-style-type: none"> - How to Prepare for the First Days of School Classroom Procedures - "The Routine Rhyme" - Procedures for Instruction - Calling on Students - Wait Time - Count Down Timer <p>Classroom Rules</p> <ul style="list-style-type: none"> - Student Responsibility Card - Guideline Infraction Notice
Assessment	1 week	<ul style="list-style-type: none"> - Types of Assessment - Discuss formal vs informal assessments - Given a concept, students will brainstorm different types of assessment that could be used. - Mathematics Assessment Project - Grading
Alternative Assessment	1 week	<p>Read and reflect on differentiated instruction, planning for ELL students</p> <p>Have students design an alternative assessment for a mathematics concept</p>
Questioning	1 week	<p>Read and reflect Principles to Actions, use NCTM video examples for analysis, planning for questioning</p> <p>Have each student bring a test/quiz that they found online or from their CT. Take the test/quiz and rewrite the questions to address the higher levels of Bloom's Revised Taxonomy.</p>

Differentiation	1 week	Differentiated Instruction for Math Assignment: Prior to meeting with your groups, do an internet search to learn more about differentiation in the mathematics classroom. Take notes to share with your group members. When you get together with your group, "differentiate" an assignment/task for any topic or lesson you like. Include the original assignment/task and, a detailed explanation of how the assignment/task was differentiated and the purpose for the differentiation. Remember to cite your research.
Communicating Mathematical Ideas & Tools for Studying	1 week	Chunking Graphic Organizers - More Foldables - Graphic Organizers
Test Construction & Rubrics	2 weeks	Have each student bring a test/quiz that they found online or from their CT. Students will then use the rubric to classify the types of items on the test and determine the overall percent of items at the various levels of Bloom's Revised Taxonomy. Homework: Students will design their own test base on the criterion discussed in class. Assignment: Use your PLT to critique your test. Each person should email copies of their test and rubric to their group members. Each group member is responsible for giving constructive criticism/feedback to their other group members to help improve the test they constructed.
Worthwhile Mathematical Tasks	1 week	Wong and Wong and NCTM documents, read, discuss and reflect
Equity	1 week	Dan Meyers Social Justice tasks- Driving While Black in Charlotte Task (Probability) Culturally Relevant Teaching
Teachers as Leaders	1 week	Teachers as Leaders Characteristics of Effective Teacher Leaders Leadership Framework (Wong and Wong text)
Assessment	1 week	Final Project

Syllabus

EMS 570 Syllabus_2016 revised course_20151115 (3).docx

Additional Documentation

Additional Comments

mgnosbis 1/5/2016: No overlapping courses outside College of Education. Since College has approved, no external consultation required.

ghodge 1/7/2016 Changed enrollment per semester to 20. If this is only a change in format from 8 weeks to 15 weeks does this need review and approval? Ready for ABGS reviewers.

ABGS Reviewer comments:

-approve of scheduling change

-note that no previous enrollment numbers are listed

-there is no explanation of distinction between 400 and 500-levels of the course. Note: the EMS 470 and 570 course actions were entered separately in error. Since both are already in the workflow, and 470 is fully approved, we will administratively combine the two courses after both are approved. The instructor should still provide evidence of the difference between undergraduate and graduate levels.

-the abbreviated title could be longer and more descriptive
-CIM action lists 4 learning outcomes while syllabus lists 6
-syllabus does not contain the required paragraph on university PRR.

1/19/2016 ghodge Send to department

expand abbreviated title

add additional learning outcomes to CIM

edit syllabus to include PRR required paragraph

address issue of dual level course in syllabus or at ABGS meeting since their syllabus format may not allow for dual courses

ghodge 2/1/2016: suggested changes were made. Ready for ABGS meeting.

Course Reviewer Comments

mmmartin (Wed, 04 Nov 2015 16:31:49 GMT): Rollback: To update additional fields in CIM.- Thank you. Mary

mmmartin (Tue, 17 Nov 2015 19:26:07 GMT): Rollback: Roll back to generate changes to CIM and syllabus - then to Aaron Clark for Committee approval

akeene (Wed, 20 Jan 2016 18:33:21 GMT): Rollback: Needs to be changed to 16 weeks and a week added to say Project in week 16.

Key: 2096