

Eastern Illinois University
NEW COURSE PROPOSAL

CGS Agenda Item:	09-16
Proposal Effective Date:	Summer 2010

Please check one: ☒ New course ☐ Revised course

PART I: CATALOG DESCRIPTION

1. **Course prefix and number, such as ART 1000:** MAT 5500
2. **Title (may not exceed 30 characters, including spaces):** Teaching Math Middle Level
3. **Long title, if any (may not exceed 100 characters, including spaces):** Methods of Teaching Mathematics at Middle Level
4. **Class hours per week, lab hours per week, and credit [e.g., (3-0-3)]:** 3-0-3
5. **Term(s) to be offered:** ☐ Fall ☐ Spring ☒ Summer ☒ On demand
6. **Initial term of offering:** ☐ Fall ☐ Spring ☒ Summer **Year:** 2010
7. **Course description (not to exceed four lines):** The study of the philosophy, techniques, methods, and materials used in teaching the concepts and skills of mathematics at the middle level.
8. **Registration restrictions:**
 - a. **Identify any equivalent courses** (e.g., cross-listed course, non-honors version of an honors course). None
 - b. **Prerequisite(s)**, including required test scores, courses, grades in courses, and technical skills. Indicate whether any prerequisite course(s) MAY be taken concurrently with the proposed/revised course. Admission to the Mathematics- Elementary/Middle Level Masters program or permission of the graduate coordinator/advisor for mathematics education programs.
 - c. **Who can waive the prerequisite(s)?**
☐ No one ☐ Chair ☐ Instructor ☒ Advisor ☐ Other (Please specify)
 - d. **Co-requisites** (course(s) which MUST be taken concurrently with this one):
 - e. **Repeat status:** ☒ Course may not be repeated.
☐ Course may be repeated to a maximum of _____ hours or _____ times.
 - f. **Degree, college, major(s), level, or class** to which registration in the course is restricted, if any: None
 - g. **Degree, college, major(s), level, or class** to be excluded from the course, if any: None
9. **Special course attributes** [cultural diversity, general education (indicate component), honors, remedial, writing centered or writing intensive]
10. **Grading methods** (check all that apply): ☒ Standard letter ☐ C/NC ☐ Audit ☐ ABC/NC (“Standard letter”—i.e., ABCDF—is assumed to be the default grading method unless the course description indicates otherwise.)
11. **Instructional delivery method:** ☒ lecture ☐ lab ☐ lecture/lab combined ☐ independent study/research ☐ internship ☐ performance ☐ practicum or clinical ☐ study abroad ☐ other

PART II: ASSURANCE OF STUDENT LEARNING

1. List the student learning objectives of this course:

- Compare and contract different curricula for teaching middle level mathematics. (effective critical thinking/problem solving, effective written/oral communication)
- Understand pedagogical issues unique to middle level mathematics teaching and learning. (advanced scholarship through research/creative activity)
- Develop a knowledge of appropriate mathematics teaching tools and how to use them. (depth of content knowledge)
- Understand the development of core mathematical ideas at the middle level. (depth of content knowledge)
- Understand how to adapt instruction in mathematics to the unique needs of early adolescents. (advanced scholarship through research/creative activity)
- Research and develop lessons and teaching materials demonstrating best practices of teaching middle level mathematics. (advanced scholarship through research/creative activity, effective written/oral communication)

a. If this is a general education course, indicate which objectives are designed to help students achieve one or more of the following goals of general education and university-wide assessment:

Not Applicable

b. If this is a graduate-level course, indicate which objectives are designed to help students achieve established goals for learning at the graduate level:

- **Depth of content knowledge**
- **Effective critical thinking and problem solving**
- **Effective oral and written communication**
- **Advanced scholarship through research or creative activity**

2. Identify the assignments/activities the instructor will use to determine how well students attained the learning objectives:

	Reading Reflections	Planning and Implementing a Lesson	Curriculum Analysis	Mathematics Journal/Notebook	Microteaching	Final Exam
Compare and contrast different curricula for teaching middle level mathematics.			X			X
Understand pedagogical issues related to middle level mathematics teaching and learning.	X	X	X		X	X
Develop a knowledge of appropriate mathematics teaching tools and how to use them.	X	X	X	X	X	X
Understand the development of core mathematical ideas at the middle level.	X		X	X		X
Understand how to adapt instruction in mathematics to the unique needs of early adolescents.	X	X	X		X	X
Research and develop lessons and teaching materials		X			X	X

demonstrating best practices of teaching middle level mathematics.						
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3. Explain how the instructor will determine students' grades for the course:

Reading Reflections	10%
Planning and Implementing a Lesson	20%
Curriculum Analysis	15%
Mathematics Journal/Notebook	10%
Microteaching	15%
Final Exam	30%

4. For technology-delivered and other nontraditional-delivered courses/sections, address the following:

- a. Describe how the format/technology will be used to support and assess students' achievement of the specified learning objectives:
- b. Describe how the integrity of student work will be assured:
- c. Describe provisions for and requirements of instructor-student and student-student interaction, including the kinds of technologies that will be used to support the interaction (e.g., e-mail, web-based discussions, computer conferences, etc.):

5. For courses numbered 4750-4999, specify additional or more stringent requirements for students enrolling for graduate credit. These include:

Not Applicable

6. If applicable, indicate whether this course is writing-active, writing-intensive, or writing-centered, and describe how the course satisfies the criteria for the type of writing course identified. (See Appendix *.)

PART III: OUTLINE OF THE COURSE

Provide a week-by-week outline of the course's content. Specify units of time (e.g., for a 3-0-3 course, 45 fifty-minute class periods over 15 weeks) for each major topic in the outline. Provide clear and sufficient details about content and procedures so that possible questions of overlap with other courses can be addressed. For technology-delivered or other nontraditional-delivered courses/sections, explain how the course content "units" are sufficiently equivalent to the traditional on-campus semester hour units of time described above.

Week 1

National and State Standards for Teaching Middle Level Mathematics
Teaching Middle Level Mathematics using a Student-Centered Philosophy

Week 2

Teaching Middle Level Mathematics using a Student-Centered Philosophy
Before-During-After Lesson Planning
Developing Number Sense and Problem Solving Ability in the Middle Level Grades

Week 3

Developing Number Sense and Problem Solving Ability in the Middle Level Grades

Week 4

Developing Number Sense and Problem Solving Ability in the Middle Level Grades

Week 5

Critically Analyzing Middle Level Mathematics Curricula
Assigned: Microteaching
Assigned: Curriculum Analysis

Week 6

Critically Analyzing Middle Level Mathematics Curricula
Assigned: Planning and Implementing a Lesson
Assigned: Thinking Through A Lesson Protocol

Week 7

Developing further pedagogical mathematics content knowledge for teaching at the Middle Level
Assigned: Planning and Implementing a Lesson
Assigned: Thinking Through A Lesson Protocol

Week 8

Developing further pedagogical mathematics content knowledge for teaching at the Middle Level

Week 9

Developing further pedagogical mathematics content knowledge for teaching at the Middle Level
Microteaching

Week 10

Developing further pedagogical mathematics content knowledge for teaching at the Middle Level

Week 11

Developing further pedagogical mathematics content knowledge for teaching at the Middle Level

Week 12

Assessment issues at the Middle Level

Week 13

Advanced content knowledge for teaching at the Middle Level

Week 14

Planning and Implementing a Lesson, Thinking Through a Lesson Protocol

Week 15

Planning and Implementing a Lesson, Thinking Through a Lesson Protocol

PART IV: PURPOSE AND NEED

1. Explain the department's rationale for developing and proposing the course. There are two reasons for developing this course:

a. The state of Illinois requires teachers who wish to be certified at the middle level to have completed a middle level mathematics methods course. Currently, students who graduate with an undergraduate degree that does not contain middle level mathematics methods have no graduate course options to meet the state requirement.

b. Students who are elementary or middle level teachers with a mathematics background in a Masters program that emphasizes education or mathematics education currently take MAT 5400, a general elementary mathematics methods course. MAT 5550 would provide a more directed, focused and content rich experience for those students. The course would better be able to meet their specific educational needs.

c. Young adolescents in middle level grades have unique needs that set them apart from elementary students and from older adolescents. This course would focus on content and pedagogy especially suited for students in this age category.

a. If this is a general education course, you also must indicate the segment of the general education program into which it will be placed, and describe how the course meets the requirements of that segment.

b. If the course or some sections of the course may be technology delivered, explain why.

2. Justify the level of the course and any course prerequisites, co-requisites, or registration restrictions.

The level of work required and time commitment to complete the required work are well above undergraduate course expectations. The course will be designed to build on classroom experience that most graduate students bring to the program. Additionally, students must have the mathematics background to benefit from the focused content discussions in the course.

3. If the course is similar to an existing course or courses, justify its development and offering.

While the course may share some content with MAT 3620- Teaching Mathematics 6-9, this course is substantially different in course requirements, time commitment and mathematical expectations.

a. If the contents substantially duplicate those of an existing course, the new proposal should be discussed with the appropriate chairpersons, deans, or curriculum committees and their responses noted in the proposal.

b. Cite course(s) to be deleted if the new course is approved. If no deletions are planned, note the exceptional need to be met or the curricular gap to be filled.

This course meets the needs of graduate students who teach middle level mathematics and need a middle level mathematics methods course.

4. Impact on Program(s):

- a. **For undergraduate programs, specify whether this course will be required for a major or minor or used as an approved elective.**
- b. **For graduate programs, specify whether this course will be a core requirement for all candidates in a degree or certificate program or an approved elective.**
This course will be an option for the methods course requirement in the Masters program in Mathematics Education- Elementary/Middle Level option. Currently, the majority of students in the Elementary/Middle Level option are middle level teachers. Other Masters programs in education may allow this course as an elective.

If the proposed course changes a major, minor, or certificate program in or outside of the department, you must submit a separate proposal requesting that change along with the course proposal. Provide a copy of the existing program in the current catalog with the requested changes noted.

PART V: IMPLEMENTATION

1. **Faculty member(s) to whom the course may be assigned:** Initial assignment of the course will be to any qualified mathematics education faculty in the Department of Mathematics and Computer Science

If this is a graduate course and the department does not currently offer a graduate program, it must document that it employs faculty qualified to teach graduate courses.

2. **Additional costs to students:** NONE

Include those for supplemental packets, hardware/software, or any other additional instructional, technical, or technological requirements. (Course fees must be approved by the President's Council.)

3. **Text and supplementary materials to be used (Include publication dates):**

Teaching Student-Centered Mathematics: Grades 5-8. Van de Walle, J. & Lovin, L. Allyn & Bacon: Columbus, OH 2006.

Teaching and Learning Middle Grades Mathematics. Rubenstein, R. N., Beckmann, C., & Thompson, D. Key Curriculum Press, 2004.

PART VI: COMMUNITY COLLEGE TRANSFER

If the proposed course is a 1000- or 2000-level course, state either, "A community college course may be judged equivalent to this course" OR "A community college course will not be judged equivalent to this course." A community college course will not be judged equivalent to a 3000- or 4000-level course but may be accepted as a substitute; however, upper-division credit will not be awarded.

PART VII: APPROVALS

Date approved by the department or school: March 2, 2009

Date approved by the college curriculum committee: April 10

Date approved by the Honors Council (*if this is an honors course*):

Date approved by CAA: CGS: