Washington State University
MAJOR CURRICULAR CHANGE FORM -- COURSE
(Submit original signed form and ten copies to the Registrar’s Office, zip 1035.)

Future Effective Date: 08/16/2011
(effective date cannot be retroactive) □ New course □ Temporary course □ Drop service course
□ There is a course fee associated with this course (see instructions)

□ Variable credit ________
□ Increase credit (former credit ________)
□ Number (former number ________)
□ Crosslisting (between WSU departments)
(Must have both departmental signatures)
□ Conjoint listing (400/500)
□ Request to meet Writing in the Major [M] requirement (Must have All-University Writing Committee Approval)
□ Request to meet GER in ________ (Must have GenEd Committee Approval) □ Fulfills GER lab (L) requirement
□ Professional course (Pharmacy & Vet Med only) □ Graduate credit (professional programs only)
□ Other (please list request) ________

MATH 535 Research Paradigms in Mathematics Education

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<thead>
<tr>
<th>Credit</th>
<th>Lecture hrs</th>
<th>Lab hrs</th>
<th>Studio hrs</th>
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<td>3</td>
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Math 534 prerequisite

Description (20 words or less) Introduction to current research paradigms in mathematics education research. Students will critique research designs used in current mathematics education research articles. They will design and carry out a research project of their own design.

Instructor: Libby Knott
Contact: Sandy Cooper
Campus Zip Code: 643113

- Please attach rationale for your request, a current and complete syllabus, and explain how this impacts other units in Pullman and other branches (if applicable).
- Secure all required signatures and provide 10 copies to the Registrar’s Office.

Chair/date 9/30/2011
Dean/date
General Education Com/date

Chair (if crosslisted/interdisciplinary)*
Dean (if crosslisted/interdisciplinary) *
Graduate Studies Com/date

All-University Writing Com/date
Academic Affairs Com/date
Senate/date

* If the proposed change impacts or involves collaboration with other units, use the additional signature lines provided for each impacted unit and college.
Rationale for MATH 535 Research Paradigms in Mathematics Education

Prior to this time, we have required our graduate (masters and doctoral) students in the Mathematics with an Emphasis on Teaching option to learn about educational research via courses in the College of Education. This is less than satisfactory for them, however, since COE does not have a course in mathematics education research. Students have gained a broad background in educational research but are lacking the foundation in mathematics education research that this course would provide. Furthermore, this course would serve as vehicle for students to prepare their research and/or project proposals. This will reduce their time to degree.
Syllabus for MATH 535 Research Paradigms in Mathematics Education (3 credits)

Instructor: Professor Libby Knott
Office: Neill 301
Email: lknott@wsu.edu
Phone: (509) 335 4122 (Office)
       (406) 370 3292 (Cell - do not call before 7am or after 10 pm)
Office Hours: TBA
Prerequisites: Graduate Standing in Mathematics
Meeting time & place: TBA

Course description: In this course, students will be introduced to different research paradigms in mathematics education. Students will be introduced to both qualitative and quantitative research methods.

Students will be evaluated on their participation in discussions of, and critical written reflections on the weekly readings assigned in the first 10 weeks of the course, as well as on their final research project, written during the last five weeks of the course. Students will be required to identify and elaborate on research methodologies used in research papers from current mathematics education journals, such as Educational Studies in Mathematics, The Journal for Research in Mathematics Education, from the proceedings of the meetings of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA), and the proceedings for the Research in Undergraduate Mathematics Education (RUME) Conference. Students will be required to try to obtain funding to attend one of these meetings. PME-NA conference is held each fall, and CRUME is held each spring. Students will also be required to design, carry out and analyze a mini research project in a chosen area of mathematics education research. They will be required to develop a theoretical framework for their study, a research methodology, implement their study, collect data, analyze their data, and write a research report. The goal of this project will be to develop a research report that will be submitted to PME and/or RUME for presentation at their annual meeting. Although not mandatory, their research project should ideally serve as a proposal and possibly a pilot study for their master's project or doctoral dissertation work.

Grading:
Weekly written critiques of assigned readings: 10 @ 20 points each 200 points
Research project 200 points
Weekly participation in discussions 10 @ 10 points each 100 points
Total 500 points

450 – 500 points A
400 – 449 B
Selected readings will be chosen from:

And from the aforementioned journals.

**Students with Disabilities:** Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, please visit the Disability Resource Center (DRC). All accommodations MUST be approved through the DRC (Washington Building, Room 217). Please stop by or call 509-335-3417 to make an appointment with a disability specialist.

**WSU's Academic Integrity Statement:** As an institution of higher education, Washington State University is committed to principles of truth and academic honesty. All members of the University community share the responsibility for maintaining and supporting these principles. When a student enrolls in Washington State University, the student assumes an obligation to pursue academic endeavors in a manner consistent with the standards of academic integrity adopted by the University. To maintain the academic integrity of the community, the University cannot tolerate acts of academic dishonesty including any forms of cheating, plagiarism, or fabrication. Washington State University reserves the right and the power to discipline or to exclude students who engage in academic dishonesty.

**Cell-phone policy:** If a cell phone rings during class, its owner will be obligated to bring cookies for all students to the next class. Any other cell phone use during class time (reading or replying to text messages, surfing the internet, gaming etc.) will result in you be penalized with a 0 for class participation for that day.

**Safety:** Please familiarize yourself with these websites concerning your safety at WSU:

http://safetyplan.wsu.edu/

http://alert.wsu.edu/

http://oem.wsu.edu/emergencies
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300 – 349 D
< 300 F

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MATH 535 Research Paradigms in Mathematics Education
Weekly Meeting Topics

Week 1: Designing a qualitative study
        How is it defined? Reasons for such a study. Phases. Format for planning.

Week 2: Five different traditions of qualitative study
        Biographical life history; Phenomenological study; Grounded theory study;
        Ethnography; Case study

Week 3: Philosophical and theoretical frameworks – how to use theory in each tradition
        Ideological perspectives – Postmodernism; critical theory; feminist approaches

Week 4: Introducing and focusing the study:
        The problem statement
        The purpose statement
        The research questions
        The central question and sub-questions

Week 5: Data collection considerations:
        Issues related to collecting, accessing, sampling, interviewing, observing,
        recording and storing data, in each tradition.

Week 6: Data analysis and representation:
        Analysis strategies, analysis spiral, analysis within each of the five traditions of
        inquiry.

Week 7: Writing the narrative report, with attention to each of the five traditions of inquiry.

Week 8: Standards of quality and verification, with attention to each of the five traditions of
        inquiry:
        Exploring perspectives and terms
        Exploring procedures.

Week 9: “Turning the story” and the conclusion, with attention to each of the five traditions of
        inquiry.

Week 10-15: A critical look at examples of studies in each of the five traditions. At the same time,
        students will work to complete a study based on one of the five traditions explored above.
        They will assemble the parts of such a study, as outlined in the topics discussed in weeks
        1 through 10. The paper will be due at the end of the semester. It is assumed that most
        students in the course will use this as an opportunity to outline and plan their doctoral
        dissertation research study.