**PURDUE UNIVERSITY**
REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF A GRADUATE COURSE
(50000-80000 LEVEL)

**DEPARTMENT** School of Engineering Education
**EFFECTIVE SESSION** Fall 2009

**TRUCTIONS:** Please check the items below which describe the purpose of this request.

1. New course with supporting documents (complete proposal form)
2. Add existing course offered at another campus
3. Expiration of a course
4. Change in course number
5. Change in course title
6. Change in course credit/typing

**PROPOSED:**
Subject Abbreviation ENE
Course Number 50310
Long Title Engineering Education Inquiry
Short Title ENGR EDUC INQUIRY

**EXISTING:**
Subject Abbreviation
Course Number
Long Title
Short Title

**TERMS OFFERED:**
Check All That Apply:
- Summer
- Fall
- Spring

**CAMPUS(ES) INVOLVED:**
- Calumet
- N. Central
- Ft. Wayne
- Tech Statewide
- Indianapolis
- W. Lafayette

Abbreviated title will be entered by the Office of the Registrar if omitted. (30 CHARACTERS ONLY)

**CREDIT TYPE:**
1. Fixed Credit: Cr. Hrs. __________
2. Variable Credit Range: Minimum Cr. Hrs. ________ to Maximum Cr. Hrs. ________
3. Equivalent Credit: Yes __________ No __________
4. Thesis Credit: Yes __________ No __________

**SCHEDULE TYPE:**
- Lecture
- Recitation
- Independent Study
- Laboratory
- Lab Prep
- Studio
- Distance
- Clinic
- Experiential
- Research
- Ind. Study
- Pract/Observer

**MEETINGS PER WEEK:**
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

**HOURS OF CREDIT:**
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

**PER CENT OF CREDIT ALLOCATED:**
- 100
- 90
- 80
- 70
- 60
- 50
- 40
- 30
- 20
- 10

**COURSE ATTRIBUTES:**
1. Pass/Not Pass Only
2. Satisfactory/Unsatisfactory Only
3. Repealable
4. Credit by Examination
5. Special Fees

**COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):**
This course is designed as a bridge between beginning graduate students' knowledge of technical research and modes of inquiry appropriate to the new field of engineering education. It is designed as the entryway to required research method courses taken as part of the students' Plan of Study. By the end of this survey course, students will be able to critique research in terms of the quality of the authors' arguments based on their chain of reasoning, and will recognize that the articulation of a research question, the significance of the question, the choice of methods in regards to the research goals, and the transparency of the explanation of the methodology are all parts of the chain of reasoning. Prerequisite: Student in Engineering Education or by consent of instructor.

Professors Evangelou and Streveler.

**DATE:**
- Calumet Department Head
- Calumet School Dean
- Fort Wayne Department Head
- Fort Wayne School Dean
- Indianapolis Department Head
- Indianapolis School Dean
- North Central Department Head
- North Central School Dean
- West Lafayette Department Head
- West Lafayette School Dean
- Grad Comm Conference
- Graduate Dean

**OFFICE OF THE REGISTRAR**

**printForm:**
- Graduate Council Doc. No. 10-24a
- EFD 55-10
- Fall 2011

**APPROVED:**
- Undergrad Curriculum Committee
- Date Approved by Graduate Council
- Date

**R. Sips:**
- Fort Wayne Chancellor
- Date
- 5/13/2010

**Varadraji:**
- North Central Chancellor
- Date
- 2/3/10

**West Lafayette:**
- University Registrar
- Date
- 11/3/10
PURDUE UNIVERSITY
REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF A GRADUATE COURSE
(50000-60000 LEVEL)

DEPARTMENT: School of Engineering Education
EFFECTIVE SESSION: Fall 2009

INSTRUCTIONS: Please check the items below which describe the purpose of this request.

- [ ] New course with supporting documents (complete proposal form)
- [ ] Add existing course offered at another campus
- [ ] Expiration of a course
- [ ] Change in course number
- [ ] Change in course title
- [ ] Change in course credit/type

PROPOSED:
- Subject Abbreviation: ENE
- Course Number: 50300
- Long Title: Engineering Education Inquiry
- Short Title: ENGR EDUC INQUIRY

EXISTING:
- Subject Abbreviation
- Course Number

TERMS OFFERED:
- Check All That Apply:
  - [ ] Summer
  - [X] Fall
  - [ ] Spring

CAMPUS(ES) INVOLVED:
- Calumet
- Cont Ed
- Ft. Wayne
- Tech Statewide
- Indianapolis
- [X] W. Lafayette

Abbreviated title will be entered by the Office of the Registrar if omitted. (30 CHARACTERS ONLY)

<table>
<thead>
<tr>
<th>CREDIT TYPE</th>
<th>COURSE ATTRIBUTES: Check All That Apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fixed Credit: Cr. Hrs. 3</td>
<td>6. Registration Approval Type Department Instructor</td>
</tr>
<tr>
<td>2. Variable Credit Range: Minimum Cr. Hrs. (Check One) To Or Maximum Cr. Hrs.</td>
<td>7. Variable Title</td>
</tr>
<tr>
<td>3. Equivalent Credit: Yes No</td>
<td>8. Honors</td>
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</tbody>
</table>

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<tr>
<th>Schedule Type</th>
<th>Minutes Per Mto</th>
<th>Meetings Per Week</th>
<th>Weeks Offered</th>
<th>% of Credit Allocated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
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<td>Lab</td>
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<td>Laboratory</td>
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<td>Clinic</td>
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<td>Distance</td>
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<td>Clin Lab Prep</td>
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<td>Research</td>
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<td>Inst Study</td>
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<td>Prac/Observ</td>
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COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):
This course is conceived as a bridge between beginning graduate students' knowledge of technical research and modes of inquiry appropriate to the new field of engineering education. It is designed as the entryway to required research method courses taken as part of the students' Plan of Study. By the end of this survey course, students will be able to critique research in terms of the quality of the authors' argument based on their chain of reasoning, and will recognize that the articulation of a research question, the significance of the question, the choice of methods in regards to the research goals, and the transparency of the explanation of the methodology are all parts of the chain of reasoning.

Updated by: [Signature]
Info from EDE Dept. (Undergrad Undergrad Curriculum Committee Date)

OFFICE OF THE REGISTRAR

[Signatures and dates for various approval processes]
To: The Faculty of the College of Engineering
From: School of Engineering Education
Subject: New Graduate Course, ENE 503 – Engineering Education Inquiry

The faculty of the School of Engineering Education has approved the following new graduate ENE course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

ENE 503- Engineering Education Inquiry
Sem. 1, Class 3, Cr. 3.
Prerequisite: Open to students in Engineering Education or by consent of instructor.

Course Description:
This course is conceived as a bridge between beginning graduate students' knowledge of technical research and modes of inquiry appropriate to the new field of engineering education. It is designed as the entryway to required research method courses taken as part of the students' Plan of Study. By the end of this survey course, students will be able to critique research in terms of the quality of the authors' argument based on their chain of reasoning, and will recognize that the articulation of a research question, the significance of the question, the choice of methods in regards to the research goals, and the transparency of the explanation of the methodology are all parts of the chain of reasoning.

Reasons:
This is a required course for the graduate program in the School of Engineering Education (ENE). This new course will also be of interest to graduate students in other Departments, Schools, and Colleges with engineering education or related interests. The purpose of the course is to provide students

(1) An experience to demonstrate their ability to synthesize and critique diverse literature, identify a gap in the literature they want to research, and use appropriate methodology to answer this question;

(2) a bridge between student’s previous knowledge of technical engineering research and the new field of engineering education research; and

(3) an entryway for deeper investigation into research methodologies.

The research philosophy adapted in this graduate level course on inquiry in the newly established field of Engineering Education rests on the assumption that multiple modes and disciplines of inquiry should be explored, adopted and advocated, as they are representative of contemporary academic thought. Research on learning, teaching, practice and policy as well as research design are discussed through diverse paradigms of inquiry (positivist, post-positivist, post-modernist, constructivist and critical theory). On-going discourse on the use of mixed and blended approaches and relationships between quantitative and qualitative methods allows for creative thinking and innovative practice that can reveal the complexity of phenomena under study.
This course was previously offered in Fall Semester of 2007, 2008, and 2009 as ENE 695N—Engineering Education Inquiry. It was co-taught by Ruth Streveler and Demetra Evangelou. For Fall 2009 the course enrolled 18 students – 16 from the ENE program and 2 from other programs (e.g., Nuclear Engineering). Evaluation results indicate the course is well received by students, is achieving its intended learning outcomes, and provides a foundation for students to articulate a research proposal.

David Radcliffe, Interim Head
School of Engineering Education
Supporting Document for a New Graduate Course

To: Purdue University Graduate Council
From: Demetra Evangelou/Ruth Streveler
Department: School of Engineering Education
Campus: Purdue University, West Lafayette
Date: 
Subject: Proposal for New Graduate Course-Documentation Required by the Graduate Council to Accompany Registrar's Form 40G

Contact for information if questions arise:
Name: Cindey Hays (Temporary)
Phone Number: 43884
E-mail: isenberg@purdue.edu
Campus Address: ARMS 1321

Course Subject Abbreviation and Number: ENE 503
Course Title: Engineering Education Inquiry

A. Justification for the Course:

- Provide a complete and detailed explanation of the need for the course (e.g., in the preparation of students, in providing new knowledge/training in one or more topics, in meeting degree requirements, etc.), how the course contributes to existing fields of study and/or areas of specialization, and how the course relates to other graduate courses offered by the department, other departments, or interdisciplinary programs.

- Justify the level of the proposed graduate course (50000- or 60000-level) including statements on, but not limited to: (1) the target audience, including the anticipated number of undergraduate and graduate students who will enroll in the course; and (2) the rigor of the course.

B. Learning Outcomes and Method of Evaluation or Assessment:

- Describe the course objectives and student learning outcomes that address the objectives (i.e., knowledge, communication, critical thinking, ethical research, etc.).

- Describe the methods of evaluation or assessment of student learning outcomes. (Include evidence for both direct and indirect methods.)

- Grading criteria (select from dropdown box); include a statement describing the criteria that will be used to assess students and how the final grade will be determined.

Criteria: Papers and Projects
- Identify the method(s) of instruction (select from dropdown box) and describe how the methods promote the likely success of the desired student learning outcomes.

  **Method of Instruction**  
  
  **Lecture**

C. **Prerequisite(s):**

- List prerequisite courses by subject abbreviation, number, and title.
- List other prerequisites and/or experiences/background required. If no prerequisites are indicated, provide an explanation for their absence.

D. **Course Instructor(s):**

- Provide the name, rank, and department/program affiliation of the instructor(s).
- Is the instructor currently a member of the Graduate Faculty?  
  
  - Yes  
  - No  
  
  (If the answer is no, indicate when it is expected that a request will be submitted.)

E. **Course Outline:**

- Provide an outline of topics to be covered and indicate the relative amount of time or emphasis devoted to each topic. If laboratory or field experiences are used to supplement a lecture course, explain the value of the experience(s) to enhance the quality of the course and student learning. For special topics courses, include a sample outline of a course that would be offered under the proposed course.

F. **Reading List (including course text):**

- A primary reading list or bibliography should be limited to material the students will be required to read in order to successfully complete the course. It should not be a compilation of general reference material.
- A secondary reading list or bibliography should include material students may use as background information.

G. **Library Resources**

- Describe the library resources that are currently available or the resources needed to support this proposed course.

H. **Example of a Course Syllabus** (While not a necessary component of this supporting document, an example of a course syllabus is available, for information, by clicking on the link below, which goes to the Graduate School's Policies and Procedures Manual for Administering Graduate Student Programs. See Appendix K.)


(Revised and Approved by the Graduate Council 2/08)
How to read this document

This is the supplemental document to the Form 40 which is required through University policy to establish or rename a 50000-60000 level course. This document is organized in terms of 7 sections (Sections A-G). We have included an italicized description for each section to help the reader understand what should be included in that section. A table of contents for this document is listed below.

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
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</thead>
<tbody>
<tr>
<td>A. Justification for the Course</td>
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<td>B. Learning Outcomes and Method of Evaluation or Assessment</td>
<td>3</td>
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<td>C. Prerequisite(s)</td>
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<td>D. Course Instructor(s)</td>
<td>8</td>
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<tr>
<td>E. Course Outline</td>
<td>9</td>
</tr>
<tr>
<td>F. Reading List (including course text)</td>
<td>10</td>
</tr>
<tr>
<td>G. Library Resources</td>
<td>11</td>
</tr>
</tbody>
</table>
A. Justification for the Course:
Provide a complete and detailed explanation of the need for the course (e.g., in the preparation of students, in providing new knowledge/training in one or more topics, in meeting degree requirements, etc.), how the course contributes to existing fields of study and/or areas of specialization, and how the course relates to other graduate courses offered by the department, other departments, or interdisciplinary programs.
Justify the level of the proposed graduate course (50000- or 60000-level) including statements on, but not limited to: (1) the target audience, including the anticipated number of undergraduate and graduate students who will enroll in the course; and (2) the rigor of the course.

Explanation of the course: The course is explicitly identified in the ENE PhD requirements as a “foundation course” required for all students. This course is intended to be taken early in a graduate student’s curriculum and therefore is designed to be a bridge between the student’s previous knowledge of technical engineering research and the new field of engineering education research. It is seen as the entryway for other required research methodology courses taken as part of the student’s Plan of Study. This course is intended to help students identify what research methods are appropriate to their interests rather than providing in-depth discussion of specific research methods. To meet this aim, the course provides a balanced overview of the landscape of quantitative and qualitative approaches with an emphasis on the overall scholarly endeavor.

By the end of the course students will be able to critique research in terms of the quality of the authors’ argument based on their chain of reasoning, and will recognize that the articulation of a research question, the significance of the question, the choice of methods in regards to the research goals, and the transparency of the explanation of the methodology are all parts of the chain of reasoning.

The research philosophy adapted in this graduate level course on inquiry in the newly established field of Engineering Education rests on the assumption that multiple modes and disciplines of inquiry should be explored, adopted and advocated as they are representative of contemporary academic thought. Research on learning, teaching, practice and policy as well as research design will be discussed through multiple paradigmatic lenses including positivist, post-positivist, post-modernist, constructivist and critical theory. On-going discourse on the use of mixed and blended approaches and relationships between quantitative and qualitative methods allows for creative thinking and innovative practice that can reveal the complexity of phenomena under study.

Major topics to be explored are:
• The nature of inquiry and exploration of the individual as “inquirer”
• The changing nature of engineering education research, particularly as it complements and contrasts with engineering research
• Diverse paradigms of inquiry (positivist, post-positivist, post-modernist, constructivist and critical theory)
• Survey of engineering education research conducted in a broad spectrum of settings
• Research design and methodology appropriate for differing research questions

Justification for course level: The proposed course is at the 50000-level because:
(1) The target audience is ENE PhD students (approximately 10-20 graduate students per Fall term).
(2) Successful completion of the course requires that students develop a research proposal that demonstrates they can synthesize and critique diverse literature, identify a gap in the literature that they want to research, and use appropriate methodology to answer their research question. These activities require creative thinking and an ability to synthesize large amounts of knowledge.
(3) Pedagogical methods used in the course require that students demonstrate independent and critical thinking, and reflection.

B. Learning Outcomes and Method of Evaluation or Assessment:
Describe the course objectives and student learning outcomes that address the objectives (i.e., knowledge, communication, critical thinking, ethical research, etc.).
Describe the methods of evaluation or assessment of student learning outcomes.
(Include evidence for both direct and indirect methods.)
Grading criteria (select from dropdown box); include a statement describing the criteria that will be used to assess students and how the final grade will be determined.
Identify the method(s) of instruction (select from dropdown box) and describe how the methods promote the likely success of the desired student learning outcomes.

The course objectives with associated learning activities and assessment methods are listed in the table on the following page. Course objectives are organized into two categories: knowledge development objectives and professional development activities.
<table>
<thead>
<tr>
<th>COURSE OBJECTIVES</th>
<th>ACTIVITIES</th>
<th>ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides a <em>pathway into the discipline</em> that characterizes the <em>diversity of approaches</em> to engineering education research and research topics</td>
<td>Reading and presentations around a diversity of approaches. Design a research study selecting methodology appropriate for the research question.</td>
<td>Discussion of readings Formulation of a research proposal</td>
</tr>
<tr>
<td>Create opportunities to discuss the need for <em>rigorous</em> engineering education research</td>
<td>Readings and discussions of rigor</td>
<td>Critiques of engineering education articles</td>
</tr>
<tr>
<td>Develop <em>critical understanding of relationships between research problem, method, and design</em></td>
<td>Readings, presentation and discussion of the research process</td>
<td>Formulation of a research proposal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professional development</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Foster <em>community development and collaborative efforts among students and engineering education researchers</em></td>
<td>Formation of study groups and a collaborative learning environment</td>
</tr>
<tr>
<td>Help students identify <em>conceptual hurdles</em> and individual pathways into research activities</td>
<td>Keeping a reflective journal Guiding questions around conceptual hurdles</td>
</tr>
<tr>
<td>Support students’ <em>identity development</em> as an engineering education researcher</td>
<td>Keeping a reflective journal Guiding questions around developing an identify as an engineering education researcher</td>
</tr>
</tbody>
</table>
Methods of evaluation and assessment: Grading criteria - Papers and projects

Grading criteria used to assess students and articulate final grades listed below.

80% of the final grade is based on the research proposal, completion of the Purdue CITI training (IRB certification) and class participation.

20% of the final grade is based on the reflective summary of your weekly journal questions.

Rubrics used to score the final proposal and the reflective journal will be found on the following pages.
Engineering Education Inquiry Proposal Grading Sheet: Fall 2009

Points will be assigned using the following scale: 0 = absent, 1 = weak, 2 = moderate, 3 = strong

1. **Cover section**
   - Cover page
   - Table of contents
   - Abstract

2. **Introductory section (\* = mandatory)**
   - Statement of problem *
   - Significance of problem *
   - Statement of purpose *
   - Limitations of the proposed study *
   - If applicable Definitions
   - Assumptions
   - Delimitations of the proposed study

3. **Review of literature section**
   - Integrated findings (NOT a list)
   - Summary statement with gap identified
   - Research question(s)

4. **Methods section**
   - Introduction that provides an overview of methods and includes a brief lit review of methodology.
   - Participants [selection, how many]
   - Informed consent [append one sample informed consent letter and a list of the other documents you would submit with the IRB application]
   - Procedures
   - Instruments or protocols [if applicable, append a copy of one of the instruments/protocols you would use. List all instruments/protocols.]
   - Future directions (anticipated analysis results)

5. **Style**
   - References in APA format
   - Citations and quotations in APA format
   - Tables and figures in APA format
   - Methods section written in future tense
   - Spell check
   - Writing and grammar
Engineering Education Inquiry
Final Reflective Journal Paper scoring grid
Fall 2009

Yes, No (needs to receive “yes” in all categories to be assigned a grade of A)

___ Is the paper of the assigned length?

___ Does the paper discuss two themes that the student has identified?

___ Is the paper professionally written (grammar, spelling, etc.)?

Points will be assigned using a four point scale based on the following scale:
0 = does not illustrate this point,
1 = present but weakly illustrated,
2 = attribute moderately present
3 = attribute strongly illustrated

<table>
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<tr>
<th>Quality of reflection</th>
<th>Score</th>
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<tbody>
<tr>
<td>To what degree does the journal paper indicate that the student’s thinking has changed over the course of the semester? *</td>
<td></td>
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<tr>
<td>To what degree do included journal excerpts illustrate that change? *</td>
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<tr>
<td>To what degree does the student tie reflection to course concepts?</td>
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<tr>
<td>To what degree does the student use examples from outside the class content to illustrate points?</td>
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</tbody>
</table>

* = student needs to receive at LEAST “moderate” in these two categories to receive a grade of A. Expected that at least one category will be “strong.”

Inclusion of 3rd and 4th categories (reflection to course concepts, and examples from outside the class content) are optional but will be considered a plus.
Method of instruction: Seminar

The instructional approach for this course emphasizes discussion, synthesis and reflection. Critical thinking will be facilitated through discussion of readings from a variety of sources. To provide a balanced discussion of quantitative and qualitative methods, example articles using both approaches are read and discussed throughout the semester. Students are often asked to work in pairs or small groups to analyze articles and discuss principles of educational research. This small group work is the starting point for larger discussions. Students are asked to share their technical research experience and knowledge to compare or contrast to educational research approaches.

The major deliverable of the course, the final research proposal is written in a way that allows for formative feedback by the instructors and by peers. Successively more expansive drafts are written during the course of the semester and are uploaded to Blackboard where they receive written instructor comments. Drafts are also shared with peers for peer feedback. The students use the rubric for scoring the proposal as a way to provide feedback to peers on their penultimate draft.

These instructional methods promote likely success of desired student learning outcomes because they allow students to practices the skills which are assessed, and to receive formative feedback from the instructors and peers to continuously improve the final product. Standards of assessment are transparent to the students as the final grading rubrics for the two course deliverables (proposal and journal summary) are posted on Blackboard from the first day of the class. These are discussed several times over the semester and are refined based on student questions.

C. Prerequisite(s):

List prerequisite courses by subject abbreviation, number, and title.
List other prerequisites and/or experiences/background required. If no prerequisites are indicated, provide an explanation for their absence.

There are no course prerequisites but students must currently be enrolled in a graduate program at Purdue. The course is designed to be the first educational research methods course ENE PhD students take. Thus it is not appropriate to have course prerequisites.

D. Course Instructor(s):

Provide the name, rank, and department/program affiliation of the instructor(s).
Is the instructor currently a member of the Graduate Faculty? (If the answer is no, indicate when it is expected that a request will be submitted.)

Course Instructor(s):
Dr. Demetra Evangelou, Assistant Professor, School of Engineering Education
Dr. Ruth Streveler, Assistant Professor, School of Engineering Education

Both instructors are currently members of the Graduate Faculty.

E. Course Outline:
Provide an outline of topics to be covered and indicate the relative amount of time or emphasis devoted to each topic. If laboratory or field experiences are used to supplement a lecture course, explain the value of the experience(s) to enhance the quality of the course and student learning. For special topics courses, include a sample outline of a course that would be offered under the proposed course.

Course Outline:
The tentative syllabus below describes course topics and indicates the relative amount of time devoted to topic areas.

### Class Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Assignments / Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>How technical research compares and contrasts to engineering education research.</td>
<td></td>
</tr>
</tbody>
</table>
| Week 2     | Inquiry Processes in engineering education. Making a claim in research and supporting it with evidence. How is this process similar or different in engineering education research and technical engineering research? | Creswell 1, 2, 3  
Craft of Research, pages 31-67  
Streveler and Smith 2006  
DUE: One paragraph draft of Concept Paper |
| Week 3     | Using the library to find engineering education literature            | DUE: Concept Paper  
Creswell 4, 5  
Craft of Research, pages 68-101 |
| Week 4     | Literature reviews in engineering educational research  
Practice making lit maps | Creswell 6, 7  
Craft of Research, pages 105-151  
Turns, Atman, Adams and Barker 2005 |
| Week 5     | Conceptual hurdles for beginning engineering education researchers. Understanding warrants. | Creswell 8, 9  
Craft of Research, pages 152-170  
Borrego 2007 |
| Week 6     | Peer review of first drafts                                           | DUE: 1st draft of Introduction and Literature Review                                   |
| Week 7     | Quantitative approaches in engineering education research  
Discussion of IRBs and ethical | Creswell 11, 12  
Ohland et al. 2008  
Olds, Moskal and Miller 2005 |
<table>
<thead>
<tr>
<th>Week 8</th>
<th>October break – <strong>no class</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 9</td>
<td>Conceptual frameworks in engineering education research</td>
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<tr>
<td></td>
<td><em>Creswell 13</em> Svinicki, Conceptual framework</td>
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<tr>
<td>Week 10</td>
<td>Reflection on your journey as an engineering education researcher. Discussion of your journals.</td>
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<tr>
<td></td>
<td><em>Creswell 14</em> DUE: CITI training certificate</td>
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<tr>
<td>Week 11</td>
<td>Qualitative approaches in engineering education research.</td>
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<tr>
<td></td>
<td><strong>DUE: 1st draft of Method (includes revision of Introduction and Literature Review)</strong></td>
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<tr>
<td></td>
<td><em>Creswell 15, 16</em> Chism et al., Qualitative research basics.</td>
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<tr>
<td>Week 12</td>
<td>Mixed methods in engineering education</td>
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<td><em>Creswell 17, 18</em> Borrego, Douglas and Amelink 2009</td>
</tr>
<tr>
<td>Week 13</td>
<td>Reporting and writing in engineering education research (especially contrasts with technical report writing)</td>
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<td><em>Creswell 10</em> Koro-Ljungberg and Douglas 2008</td>
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<tr>
<td>Week 14</td>
<td>One-on-one discussions with professors about final paper</td>
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<td><strong>DUE: Journal paper</strong></td>
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<tr>
<td>Week 15</td>
<td>Student presentations</td>
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<td>Oral presentations</td>
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<td>Week 16</td>
<td>Student presentations</td>
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<td>Oral presentations</td>
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<tr>
<td>Finals week</td>
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<td><strong>DUE: Full proposal</strong></td>
</tr>
</tbody>
</table>

F. Reading List (including course text):
- A primary reading list or bibliography should be limited to material the students will be required to read in order to successfully complete the course. It should not be a compilation of general reference material.
- A secondary reading list or bibliography should include material students may use as background information.

Reading List (including course texts):
Textbooks
Additional resources developed for engineering education researchers with NSF funding (Rigorous Research in Engineering Education: Creating a Community of Practice: DUE-0341127)


Secondary Readings


Each student will also compile an extensive, individualized list of readings pertinent to their research topic.

G. Library Resources

Describe the library resources that are currently available or the resources needed to support this proposed course.

Library resources:

- Engineering librarian Amy Van Epps provides a lecture in week 3 to assist students in finding engineering education research articles in the Purdue libraries. She has created an online study guide for students in this course at [http://www.lib.purdue.edu/subjectguides/ENEinquiry/](http://www.lib.purdue.edu/subjectguides/ENEinquiry/)
To: School of Engineering Education – Linda Higgins
From: The Graduate Programs Office
Date: July 27, 2010

Subject: The Form 40G is being returned for the following information:

☐ Supporting Document for a New Graduate Course page 1, please fill out top section (included)
☐ Course Description is blank
☐ Effective Session indicates Fall 2009
☐ Schedule Type Section, Weeks Offered is blank

Please return to: Debbie Fellure/Graduate School, Room 160/YONG

Debra Fellure
765-494-6963
dfellure@purdue.edu

Deb - Updated doc
Attached. Please let me know if you have questions. This is incorrect. Thank you.

Linda 449966