New Course Request

Indiana University

South Bend Campus

Check Appropriate Boxes:
Undergraduate credit □
Graduate credit [x]
Professional credit □

1. School/Division  Education
2. Academic Subject Code  EDUC

3. Course Number  E544 (must be cleared with University Enrollment Services)
4. Instructor  Nash

5. Course Title  Mathematic Methodology, Research, and Teaching in the Elementary School

   Recommended Abbreviation (Optional)
   (Limited to 32 Characters including spaces)

6. First time this course is to be offered (Semester/Year):
   Fall/2009

7. Credit Hours: Fixed at 3 or Variable from ________ to ________

8. Is this course to be graded S-F (only)? Yes [x] No

9. Is variable title approval being requested? Yes [x] No

10. Course description (not to exceed 50 words) for Bulletin publication:

    This course in mathematics methodology is designed for candidates working on initial certification in elementary education at the graduate level. Opportunities will be provided for individual and group study of content, methodology and instructional materials for modern mathematics programs.

11. Lecture Contact Hours: Fixed at 37.5 or Variable from ________ to ________

12. Non-Lecture Contact Hours: Fixed at 0 or Variable from ________ to ________

13. Estimated enrollment: 20 of which 100% percent are expected to be graduate students.

14. Frequency of scheduling: once per year. Will this course be required for majors? Yes

15. Justification for new course: Current course has been revised for Transition to Teaching and new MAT program

16. Are the necessary reading materials currently available in the appropriate library? Yes

17. Please append a complete outline of the proposed course, and indicate instructor (if known), textbooks, and other materials.

18. If this course overlaps with existing courses, please explain with which courses it overlaps and whether this overlap is necessary, desirable, or unimportant.

19. A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of the new course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted.

Submitted by:

[Signature]
Department Chairman/Division Director

Date 3-9-09

Approved by:

[Signature]
Dean

Date 3/13/09

Dean of Graduate School (when required)

[Signature]
University Enrollment Services

Date 1/28/09

After School/Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.

UPS 724
University Enrollment Services Final—White; Chancellor/Vice-President—Blue; School/Division—Yellow; Department/Division—Pink; University Enrollment Services Advance—White
Course Title: Mathematic Methodology, Research and Teaching in the Elementary School

Course Number: E544
Section: (required each semester)

SCHOOL OF EDUCATION MISSION STATEMENT
The School of Education prepares professionals to be leaders in and beyond P-12 classrooms. In our initial programs, future teachers become classroom leaders who are competent, ethical, reflective, and ready to promote learning for a diverse student population. In our advanced programs, teachers, counselors, and principals build on these classroom leadership responsibilities to become advocates, decision-makers, researchers, and partners in school and community settings.

Instructor: Marilyn Nash
Phone:
Office:
Office Hours:
E-mail:
Livetext name (if appropriate):

Course Description
This course is designed to help the novice teacher working at a graduate level in the transition to teaching program in the teaching of mathematics. Opportunities will be provided for individual and group study of content, methodology and instructional materials for modern mathematics program.

COURSE PREREQUISITES: Entrance into a specified initial licensure program.

Required Course Text:
Mary Hatfield, Nancy Tanner Edwards, Gary Bitter, Jean Morrow
John Wiley & Sons, Inc.

UNIVERSITY POLICIES

SPECIAL STATEMENTS (Optional: Programs or individual instructors can add a sentence or two that addresses this particular section.)

Commitment to Professionalism (required statement)
All students in the School of Education are expected to maintain the highest professional and ethical standards. It is your responsibility to familiarize yourself with our Code of Ethics at: [http://www.dsa.indiana.edu/Code/](http://www.dsa.indiana.edu/Code/).

Commitment to Diversity
The School of Education at IUSB is committed to preparing preservice teachers, school leaders, and school counselors to support learning for all students. Each class and learning experience helps candidates develop the knowledge, dispositions, and performances needed to meet the needs of students in today's diverse classrooms. Examples from this class are

**Commitment to Technology**
The School of Education at IUSB is committed to preparing preservice teachers, school leaders, and school counselors who have the knowledge, dispositions, and performances needed to effectively use technology to help all students learn. Candidates are expected to incorporate technology throughout their course work and clinical experiences.

ACEI standards used for this course.

1. **Development, Learning, and Motivation**—Candidates know, understand, and use the major concepts, principles, theories, and research related to development of children and young adolescents to construct learning opportunities that support individual students’ development, acquisition of knowledge, and motivation.

2. **Mathematics**—Candidates know, understand, and use the major concepts and procedures that define number and operations, algebra, geometry, measurement, and data analysis and probability. In doing so they consistently engage problem solving, reasoning and proof, communication, connections, and representation;

3. **Integrating and applying knowledge for instruction**—Candidates plan and implement instruction based on knowledge of students, learning theory, connections across the curriculum, curricular goals, and community;

4. **Adaptation to diverse students**—Candidates understand how elementary students differ in their development and approaches to learning, and create instructional opportunities that are adapted to diverse students;

5. **Development of critical thinking and problem solving**—Candidates understand and use a variety of teaching strategies that encourage elementary students' development of critical thinking and problem solving;

6. **Active engagement in learning**—Candidates use their knowledge and understanding of individual and group motivation and behavior among students at the K-6 level to foster active engagement in learning, self motivation, and positive social interaction and to create supportive learning environments;

7. **Professional growth, reflection, and evaluation**—Candidates are aware of and reflect on their practice in light of research on teaching, professional ethics, and resources available for professional learning; they continually evaluate the effects of their professional decisions and actions on students, families and other professionals in the learning community and actively seek out opportunities to grow professionally.

8. **Assessment for instruction**—Candidates know, understand, and use formal and informal assessment strategies to plan, evaluate and strengthen instruction that will promote continuous intellectual, social, emotional, and physical development of each elementary student.

<table>
<thead>
<tr>
<th><strong>ACEI /IUSB Standards</strong></th>
<th><strong>Performance Objectives IUSB</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 Content Knowledge</td>
<td>The teacher :</td>
</tr>
</tbody>
</table>
| ACEI 2.3 | • Effectively uses multiple representations and explanations of disciplinary concepts that capture key ideas and link them to students’ prior understandings and engages students in generating knowledge and testing hypotheses according to the methods of inquiry and standards of evidence used in the discipline.  
• Develops, evaluates, and uses interdisciplinary curricula that encourage students to see, question, and interpret ideas from diverse perspectives. |
| #2 Child Growth and Development | The teacher:  
• Assesses individual and group performance in order to design instruction that meets learners’ current needs in each domain (cognitive, social, emotional, moral and physical) leading to the next level of development.  
• Stimulates student reflection on prior knowledge and links new ideas to already familiar ideas, making connections to students’ experiences, providing opportunities for active engagement, manipulation, and testing of ideas and materials, and encouraging students to assume responsibility for shaping their learning tasks. |
| ACEI 1.0 |  |
| #3 Diversity | The teacher:  
• Uses teaching approaches that are sensitive to the multiple experiences of learners and that address different learning and performance mode.  
• Creates a learning community in which individual differences are respected, understood, questioned, and interpreted from diverse perspectives. |
| ACEI 3.2 |  |
| #4 Instruction | The teacher:  
• Constantly monitors and adjusts strategies in response to learner feedback and varies his or her role in the instructional process (e.g. instructor, facilitator, coach, audience) in relation to the instruction and the needs of students.  
• Uses developmentally appropriate resources and instructional strategies to engage children in active learning opportunities. |
| ACEI 3.1-3.4 |  |
| #5 Learning Environment | The teacher:  
• Applies the concepts of learning and inquiry to create learning experiences that inspire the excitement of learning and foster risk-taking and collaboration.  
• Creates a smoothly functioning learning community in which students assume responsibility for themselves and one another, participate in decision making, work collaboratively and independently, and  |
|  |  |
| #6 Communication | The teacher:  
| ACEI 5.1 |  
| | • Knows how to ask questions and stimulate discussion in different ways for particular purposes, for example, probing for learner understanding, helping students articulate their ideas and thinking processes, promoting risk-taking and problem-solving, facilitating factual recall, encouraging convergent and divergent thinking, stimulating curiosity, helping students to question.  
| | • Communicates in ways that demonstrate sensitivity to cultural and gender differences |
| #7 Instructional Planning | The teacher:  
| ACEI 3.1-3.4 |  
| | • As an individual and a member of a team, selects and creates learning experiences that are appropriate for curriculum goals, relevant to learners, and based upon principles of effective instruction.  
| | • Creates short-range and long-term plans that are linked to student needs and performance, and adapts the plans to ensure and capitalize on student progress and motivation. |
| #8 Assessment | The teacher:  
| ACEI 4.0 |  
| | • Appropriately uses and interprets a variety of formal and informal assessment techniques to enhance her or his knowledge of learners, evaluate students’ progress and performances, and modify teaching and learning strategies.  
| | • Uses assessment information to enhance his/her knowledge of learners, to monitor student progress and performance, to communicate with parents, to support children in self-assessment, and to modify teaching/learning strategies. |
| #9 Professionalism | The teacher:  
| ACEI 5.1 |  
| | • Pursues ongoing professional development and seeks out professional literature, colleagues, and other resources to support his/her own development as a learner and a teacher.  
| | • Draws upon professional colleagues within the school and other professional arenas as supports for reflection, problem-solving and new ideas, actively sharing experiences and seeking and giving feedback. |
| #10 Collaboration | The teacher:  
| ACEI 5.2 |  
| | • Can identify and use community resources to foster student learning, and establishes respectful and productive relationships with parents and guardians from diverse home and community situations, and |
Course Objectives:
(Parentheses indicate IU South Bend Standards addressed.)
The student will be able to demonstrate how mathematics helps children make sense of their world. (IU South Bend #1, 2, 3- ACEI 2.3, 1.3, 1.0)

- The student will be able to understand the “big ideas” and concepts that are the foundation for children’s mathematical thinking and reasoning. (IU South Bend #4, 5, ACEI 3.1-3.4)
- The student will be able to show how children learn mathematics by being actively engaged in problem solving. (IU South Bend #3, 7, ACEI 3.1-3.4)
- The student will be able to articulate various standards for mathematics teaching and learning as described by the National Council of Teachers of Mathematics (NCTM). (IU South Bend #3, 7, ACEI 3.1-3.4)
- The student will be able to help children view themselves as mathematics learners through the design and implementation of developmentally appropriate activities and lessons. (IU South Bend #3, 7, 8, ACEI 3.1-3.4, 4.0)
- The student will be able to assess student performance in mathematics through a variety of methods. (IU South Bend #4, 8, 9, ACEI 3.1-3.4, 4.1, 5.0)
- The student will be able to integrate mathematics teaching and learning with other disciplines. (IU South Bend #9, 10, ACEI 5.1, 5.2)
- The student will be able to utilize technology in the teaching of mathematics. (IU South Bend #4, 7, 8, ACEI 3.1-3.4, 4.0, 5.1)
- The student will be able to describe mathematical topics and concepts that comprise the elementary school mathematics curriculum for students of varying age and ability. (IU South Bend #3, 6, 10, ACEI 3.2, 5.1, 5.2)

Course Performance Tasks: IUSB Requirement Descriptions

➤ Attendance and Participation: Attendance and active participation in class activities at every class session is essential to your performance and skill development. Daily sign in sheets will be signed for attendance records. Points will be given based on your physical presence and engagement in class sessions for a possible total of 100 points. (Standards #3, #9 and #10).

➤ Journal Abstracts: Every class participant will be required to read two mathematics journal articles published within the last five years and write a separate abstract for both articles. The mathematics journal articles may address any topic related to methodology, pedagogy, classroom management, manipulatives, math subjects taught, textbooks, technology and/or assessment. The journal articles should be 5 or more pages in length. Students will select two journal articles from the three-ring binder on reserve in the Educational Resource Commons (ERC). Each abstract is to be 4-5 pages typed, double-spaced, 1” margins with a cover page. The cover page should list your name, the course title, date, campus and instructor titles.
The abstracts are to include the following information:

1. A separate title page with student, university and instructor’s name, course title, dates and an APA listing of the journal from which the article was taken. 4-5 pages typed reflection addressing:
   - Overview of information written by journal author
   - Positive Input: What article information did you find helpful in the elementary classroom? Why?
   - Constructive Input: What contributions and/or points in the article did you disagree with or find unclear? Why?
2. A copy of each journal article must accompany the journal abstracts.

Students will informally share with peers: discussions will be over what articles were read and a brief summary of information gleaned in journal process. Students can earn a possible 25 points for each of their abstracts for a possible total of 50 points. (Standards #9)

➤Children’s Book/Self Introduction: Each student will be required to write, illustrate and assemble story pages into a durable and creative children’s book which introduces themselves mathematically. Introduction content should be appropriate to IUSB Performance Standards as well as attractive to children of a wide age range, skill ability and interest level. Your children’s literature scores will also include a 2-3 page typed self-reflection on your experience of preparing and reading your book aloud to the class (see self assessment included in this syllabus). Self reflections should be free of spelling and grammar errors with 1” margins and a title page. The time allotment for the presentation will be specified by your instructor based on the number of students enrolled in the class. Students can earn a possible 60 points for their children’s book and another 15 points for their peer/self evaluations for a total of 75 points. Your instructor will provide samples of children’s literature in class. (Standards #1, #4 and #6).

CHILDREN’S LITERATURE INFORMATION:

➤Materials to be included in the creation of your children’s literature/self introduction book (and in this order): front cover, title page, acknowledgements, dedication, standards, content pages, conclusion, author’s page with a photo of author and back cover. Size: Your children’s book should be no smaller than 5x7" and no larger than an 8½ x11". Book Length: Your book should be 15-20 pages in total. Your page count can but doesn’t have to include the front cover through the back cover. Illustrations: The pictures and/or objects in your book can be hand drawn, electronically generated, painted, cut out of magazines/newspapers, created by stickers, Ellison cut-outs, or other commercial products. NOTE: On your acknowledgements page, be sure to give credit to all of your resources such as publishing tools, and/or persons that helped you create your piece of children’s literature.

➤Chapter Praxis Reflections: Chapter questions will be given in class by your instructor as listed on your course schedule. Quizzes must be a 2-3 page typed response and include a cover page. All quiz responses MUST include at least FIVE text references from the assigned text chapters for the given quiz. Quizzes will be open book and peer input activities. Quizzes will begin in cooperative learning groups, and you will be accountable to your group for contributions. Quizzes are due at the next class. Quizzes missed due to absence or leaving class early cannot be made
up. Students will respond to four reflective question sets for a possible total of 100 points (Standards #1, #2, #5, and #6).

**Two Numeracy Lesson Plan Unit:** You will develop an integrated standard based unit with two numeracy lesson plans. You will develop two numeracy lesson plans to teach specific mathematical concepts using children’s literature, manipulatives and problem solving strategies. Lesson plans must include adaptations and/or modifications made for students with diverse, advanced or special learning needs. All lesson plans must be developmentally appropriate and referenced to the IUSB Standards listed in this course syllabus. All lesson plans, accompanying materials and annotated bibliography are to be submitted in a one-inch three-ring binder. All binders should include a title/cover page with your name and/or the names of your group members, course title, lesson theme, university, instructor’s name and semester. You will share your thematic unit with the class. Sign up sheets will be available from your instructor. Copies of units are to be provided for your peers. The presentation should last 10-15 minutes and should include one activity that involves the participation of your classmates (additional presentation time may be allowed once your instructor can assess the class roster and time allotted). All unit lessons will receive peer feedback following the presentation which will be summarized into a self evaluation reflection. Each student will submit an evaluation whether they have chosen to work individually, with their partner or as a triad. A self evaluation format and reflective questions are provided in the course syllabus. Students can earn a possible 75 points for this project (Standards #4, #6-#10).

**Unit Layout (Materials to include in your three-ring binder):**
- a. Cover page
- b. Title page
- c. Table of Contents
- d. Two Numeracy Lesson Plans
- e. All Black line Masters for lessons and file folder construction

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**University and School of Education policies (required)**

☐ Electronic mail (email) is the official means of communication with students at Indiana University South Bend. A student’s failure to receive or read official university communications sent to the student’s official email address does not absolve the student from knowing and complying with the content of the official communication. It is recommended that students check email messages at least once daily. The university provides a simple mechanism for students to forward email from the official university email address to another email address of the student=s choice. However, students who choose to have email forwarded to another email address do so at their own risk.

☐ **ACCOMMODATIONS FOR RELIGIOUS OBSERVANCES STATEMENT:** If any student will require academic accommodations for a religious observance, please provide me with a written request to consider a reasonable modification for that observance by the end of the second week of the course. Contact me after class, during my office hours, or by individual appointment to discuss the issue. If after discussion we reach no consensus, either party or both should seek the advice of
the Department Head or the Dean, and if no consensus is reached, then the advice of the Vice Chancellor of Academic Affairs (“VCAA”). Either the instructor or the student may appeal the VCAA’s decision to the Office of Affirmative Action within ten business days of the determination.

DISABILITIES STATEMENT: If you have a disability and need assistance, special arrangements can be made to accommodate most needs. Contact the Director of Disability Support Services (Administration Building, room 113, telephone number 520-4832), as soon as possible to work out the details. Once the Director has provided you with a letter attesting to your needs for modification, bring the letter to me. For more information, please visit the web site for Office of Disabilities Support Services [http://www.iusb.edu/~sbdss/](http://www.iusb.edu/~sbdss/)

ACADEMIC HONESTY STATEMENT: It is the responsibility of the student to know of the prohibited actions such as cheating, fabrication, plagiarism, academic, and personal misconduct, and thus, to avoid them. All students are held to the standards outlined in the code. Please reference the entire code for a complete listing (http://www.dsa.indiana.edu/Code/). Any violation may result in serious academic penalty, including receiving a warning, failing the assignment, failing the course, or expulsion from the University.

Field Experience Note: You may be required to provide a criminal history check to school corporations before participating in field placements and/or student teaching. School corporations may deny a field placement or student teaching assignment based on a misdemeanor or felony conviction. The application process for a teaching license in Indiana requires a current criminal history check. Convicted felons may not hold a teaching license in Indiana.

Please Note: (required statement)

Students in the School of Education are required to post select artifacts (assignments) on LiveText or in Oncourse. Therefore, students may be required to purchase and utilize LiveText at any time during this course. The instructor will notify you if you are required to post assignments on LiveText.

Grade Determination

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>Attendance and Participation</td>
<td>100</td>
</tr>
<tr>
<td>Journal Abstracts [2@25 points each]</td>
<td>50</td>
</tr>
<tr>
<td>Self Introduction Children’s Book</td>
<td></td>
</tr>
<tr>
<td>Book (60 points)</td>
<td></td>
</tr>
<tr>
<td>Peer/Self Evaluation (15 points)</td>
<td>75</td>
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<tr>
<td>Chapter Praxis Reflections [4@25]</td>
<td>100</td>
</tr>
<tr>
<td>Lesson Plan Unit</td>
<td></td>
</tr>
<tr>
<td>Lessons [2@50]</td>
<td></td>
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<tr>
<td>Presentation [25]</td>
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<tr>
<td>Self Evaluation [25]</td>
<td></td>
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<tr>
<td>Overall Unit Aesthetics [25]</td>
<td>175</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>500</strong></td>
</tr>
</tbody>
</table>
Course Grades
A  100-93%
B  92-85%
C  84-77%
D  76-70%

f. Cover page
g. Title page
h. Table of Contents
i. Two Numeracy Lesson Plans
j. All Black line Masters for lessons and file folder construction

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Course Grades
A  100-93%
B  92-85%
C  84-77%
D  76-70%

Draft of Possible Class Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Homework</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>(W) Introductions, Overview, Standards and the Meaning of Mathematics, Diversity, Problem Solving Activities, ERC Visit</td>
<td>Read Chapters 1 and 2</td>
</tr>
<tr>
<td>Week 2</td>
<td>(W) Lesson Plan Development/Assessment, Unit Samples, Problem Solving Activities</td>
<td>Read Chapter 3</td>
</tr>
<tr>
<td>Week 3</td>
<td>(W) Children’s Literature and Math, Lesson &amp; Book Samples, Problem Solving Activities</td>
<td>#1 In-Class Praxis Reflections (1,2,3)</td>
</tr>
<tr>
<td>Week 4</td>
<td>(W) Problem Solving, Numeration and Number Sense, In-class activities; Abstract Presentations in Small Groups</td>
<td>Read Chaps 5 &amp; 8 DUE: Journal Abstracts (2)</td>
</tr>
<tr>
<td>Week 5</td>
<td>(W) Early Childhood Mathematics and Number Readiness, Problem Solving Activities</td>
<td>Read Chapter 6</td>
</tr>
<tr>
<td>Week 6</td>
<td>(W) Whole Number Operations, Fractions, Decimals, Problem Solving Activities</td>
<td>Read Chaps 9 &amp; 10 #2 In-Class Praxis Reflections (5,8,6)</td>
</tr>
<tr>
<td>Week 7</td>
<td>(W) Geometry, Spatial Reasoning, Measurement, Problem Solving Activities</td>
<td>Read Chaps 12 &amp; 13 #3 In-Class Praxis Reflections (9,10)</td>
</tr>
<tr>
<td>Week 8</td>
<td>(W) Algebra, Algebraic Thinking, Data Analysis, Statistics, Probability, Pr Solving Activities</td>
<td>Read Chaps 14 &amp; 15</td>
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<tr>
<td>Week</td>
<td>Activity</td>
<td>Due Date</td>
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<tr>
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</tr>
<tr>
<td>9</td>
<td>(W) Self Introductory Book Presentations</td>
<td>#4 In-Class Praxis Reflections</td>
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<tr>
<td>10</td>
<td>Lesson Plan Work Session: ERC</td>
<td>Work Session</td>
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<tr>
<td>11</td>
<td>(W) Self Introductory Book Presentations</td>
<td>DUE: Self Book Evals</td>
</tr>
<tr>
<td>12</td>
<td>(W) Lesson Plan Presentations</td>
<td>DUE: Self Book Evals</td>
</tr>
<tr>
<td>13</td>
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<tr>
<td>14</td>
<td>(W) Lesson Plan Presentations</td>
<td>Due: Self Evaluations</td>
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<tr>
<td>15</td>
<td>(W) Professionalism in Mathematics, Problem Solving Activities, Course Evaluations</td>
<td>Due: Self Evaluations</td>
</tr>
<tr>
<td>16</td>
<td>Final Class meeting to review units and discuss self evaluations.</td>
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</tbody>
</table>

**BIBLIOGRAPHY**


