

Matching

New Course Request

Indiana University

East

Campus

Check Appropriate Boxes:

Undergraduate credit

Graduate credit

Professional credit

1. School Division Education 2. Academic Subject Code EDUC-N
 3. Course Number 102 (must be cleared with University Enrollment Services) 4. Instructor Knuths
 5. Course Title Teaching and Learning Elementary Mathematics
 Recommended Abbreviation (Optional) _____
(Limited to 32 Characters including spaces)

6. First time this course is to be offered (Semester/Year): Spring 2010

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

8. Is this course to be graded S-F (only)? Yes _____ No X

9. Is variable title approval being requested? Yes _____ No X

10. Course description (not to exceed 50 words) for Bulletin publication: This course includes coverage of the fundamental ideas associated with problem-solving and algebra (specific to rational numbers) as well as with probability, combinatorics, and statistics - which includes elements of graphing. Focus will be on understanding processes and methodologies. Performance assessments are included.

11. Lecture Contact Hours: Fixed at 3 or Variable from _____ to _____

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

13. Estimated enrollment: 20 of which 5-10 percent are expected to be graduate students.

14. Frequency of scheduling: Spring/Summer Will this course be required for majors? yes

15. Justification for new course: bringing course over to assist elem. educ. students in preparation

16. Are the necessary reading materials currently available in the appropriate library? no

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. This course overlaps with MATH-T102. N102 will focus on practical teacher applications

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:

Approved by:

Date _____

Marilyn Whitens
Date 7-2-09

Department Chairman/Division Director

Dean

Marilyn Whitens
Date 7-2-09

Date _____

Dean of Graduate School (when required)

Chancellor/Vice-President

Date _____

University Enrollment Services

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.

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Office Hours: Monday 11-12 & 3:30-4:30; Wednesday 1:30-3; Thursday 11-12:30

Course Purpose:

N102 (Teaching & Learning Elementary Mathematics) is designed as the second in a three-course series required for elementary education majors. The purpose of the course is to provide students with a diverse foundation in the following topics:

- Rational Number Operations- fraction use, decimals, percent
- Real Numbers
- Problem Solving - centered about algebra & specific to rational numbers
- Elementary Number Theory
- Fundamental Elementary Combinatorics - combinations & permutations
- Fundamental Elementary Probability
- Fundamental Elementary Statistics - specific to Central Tendencies
- Fundamental Statistical Graphing

The focus of the course, beyond fundamental mathematics, is on understanding the processes and methodologies necessary for teaching the mathematics concepts effectively.

Course Objectives:

The IUE faculty identified eight learning objectives for the students at IUE. These eight learning objectives are incorporated into the IUE Campus Strategic Plan, are listed in the IUE Bulletin, and attached to this syllabus. In addition to incorporating the eight campus learning objectives, the following objectives specific to T101 are cross-reference with the learning objectives (LO) as shown:

- ✓ To equip the student with an understanding beyond the mechanical manipulation of numbers (LO 1, 2, 4)
- ✓ To identify and use the various problem-solving strategies (LO 1, 2, 4, 5)
- ✓ To present appropriate mathematics in an intellectually honest and mathematically correct manner (LO 1, 4)
- ✓ To use the heuristics of problem solving as an integral part of mathematics (LO 5)

- ✓ To provide mathematical problems that allow future teachers to develop mathematical/technical/reflexive writing skills (LO 3)
- ✓ To demonstrate an understanding of elementary concepts of number theory (LO 1, 2, 4)
- ✓ To provide skills for analyzing problems and translating them into mathematical models (LO 2, 3, 4, 5)

Prerequisites:

Skill Review placement above Basic Algebra or successful completion of M123 and Mathematics for Elementary Teachers (T101).

Materials:

- Problem Solving Approach to Mathematics for Elementary School Teachers by Billstein, Libeskind, and Lott, 9th or 10th edition
- Calculator with scientific and compound interest capability
- Pencils, colored pencils and a straightedge (ruler)
- 4 X 6 index cards (only need 12-15)
- 8½ X 11 paper (w/o edges) for homework assignments
- Graph paper (small amount needed, 10-15 pages)

Attendance:

Class attendance is required. Learning is an active process, and if you are not in class it is impossible to participate. Realizing emergencies arise I would appreciate your notification of these situations (via phone or email message). It would also seem prudent for you to make arrangements with a classmate to get the missed work.

To pass this class, you **MUST** attend 85% of the classes (doing the math, this means you may only miss 5 classes before you are ineligible to pass!!).

Homework:

Homework is used to assist you with practicing and understanding the fundamental concepts assessed on the formal assessments - daily "action" cards, chapter quizzes, and final exam/performance assessment.

Homework is an essential part of the course (attached, see the list of homework assignments). There will be daily homework assignments. To perform well in the course, you should expect to spend several hours before each class reviewing material from the previous lesson, working the problems, reading the new section/s before they are discussed in class, and reviewing the "overhead" notes available via email or on Oncourse. As you know, reading a mathematics text is not like reading a history text—you should read with a pencil in hand, fill in any algebraic calculations that the author leaves

out, and make a note of any questions (including page number associated with the question) you have about the material so you can ask for clarification in class.

Homework will usually be collected weekly (see * in Tentative Schedule for your text edition) with section numbers and problem numbers selected at random (when announced, you are responsible for the demarcation of these problems, using you colored pencils -- points will be deducted otherwise). Each assignment is worth 5 points. **NO homework will be accepted late.** However, your lowest score will be dropped.

You are strongly advised to study your math 10-15 minutes each day. You will find you recall the material/concepts/definitions quicker and understanding them will occur easier.

Participation:

Remembering that your intent is to be a teacher in the elementary classroom being a fully-functioning/participating member of this class is imperative. Within most class periods there will be some time of group/partner work. Participation in each of these events constitutes part (to all) of your class participation points for each day.

Action Cards:

Some classes will commence with you completing a couple of problems or commenting on a specific concept (or activity) on a 4 X 6 card/*Action Card* to hand in. Not arriving on time to participate or selecting to not participate in this activity/in-class spot evaluation will lead to loss of those points for that class period. Action Cards can not be made up.

Quizzes:

There will be three or four quizzes throughout the duration of this course (see syllabus, at least one will be associated with an exam). There will be **NO make-up quizzes.** However, your lowest quiz will be dropped. If you are absent the day of the quiz, that quiz will be counted as a zero.

Exams:

There will be one in-class exam, one take-home exam, and a final exam or project. All exams will be comprehensive.

If you are unable to attend during the in-class exam, you **MUST** inform me in advance so that we can schedule the time for your make-up exam. Failure to notify me in advance will result in an exam score of zero.

Grading:

Final grades will be assigned according to the number of points you have earned within the following factor distribution.

FACTOR	POINTS	≈ PERCENT
Participation & Attendance	~ 75	~ 20
Assignments	~ 50	~ 14
Chapter 6 quiz	50	~ 13
Chapter 7 quiz	50	~ 13
Chapter 8 quiz	50	~ 13
Final exam	100	~ 27
TOTAL		100
GRADES		
90-100%	A ⁻ - A ⁺	
80-89%	B ⁻ - B ⁺	
70-79%	C ⁻ - C ⁺	
60-69%	D ⁻ - D ⁺	
0-59%	F	

The course policy and syllabus will be adhered to as closely as possible. However, the instructor reserves the right to make changes as needed (time & circumstance driven).

Incomplete Policy

An incomplete for the course will be given only after a written request has been made *before* the last week of class stating the reasons for taking an incomplete and the date assignments will be completed. Campus policy (including the fact that 75% of the work must have been completed prior to asking for an incomplete) must be followed for the submission and removal of incompletes.

Communication Policy

The School of Education recognizes the critical need for teachers to model exemplary English in all written and spoken communications. Therefore, pre-service teachers are expected to speak and write in grammatically correct English. Writing must demonstrate correct grammar, mechanics, and spelling.

Technology Expectations

All pre-service teachers must have an IUE email account to facilitate communication with faculty. An account can be obtained through Computing Services.

Additionally, if there are any documents to send, make sure all documents you send have been saved as Word 1997-2003 before sending via email, your professor does not yet have access to Word 2007.

Assistance for Special Needs Learners Policy

If you need course adaptations or accommodations because of a disability, have emergency information to share, or if you need special arrangements in case the building must be evacuated, please make an appointment with your professor as soon as possible. If you need an adaptation or accommodation based on the impact of a disability, you must contact Student Support Services (<http://www.iue.edu/support/>, 973-8310) for documentation.

Tutorial Services: Reading, Writing and Math Labs in 202 Springwood are available free of charge. For more information check website http://www.iue.indiana.edu/tutorial_services/. You can drop in or call for an appointment to get assistance with reading, writing, or math needs: 973-8313.

Dispositional expectations

It is expected that students will adhere to professional expectations as described in the ASSESSMENT OF PROFESSIONAL POTENTIAL (APP): (1.) Personal and professional responsibility that includes such items as meeting deadlines and keeping commitments; (2.) Social/emotional and physical well being, which includes solving problems constructively and setting reasonable goals and expectations; (3.) Interpersonal relationships, which includes authenticity in relationships, effective interpersonal skills, and communication skills; and (4.) An overall judgment regarding the candidate's professional qualities.

A FROPP is a likely consequence when dispositions are out-of-line/unbecoming of a professional educator.

The IUE faculty identified eight learning objectives for the students at IUE. The learning objectives are as follows:

1. An educated person should be exposed to a broad variety of academic fields traditionally known as the Liberals Arts (humanities, social sciences, natural sciences).
2. An educated person should have achieved depth in some field of knowledge.
3. An educated person should be able to express him or herself clearly, completely, and accurately.
4. An educated person should be able to relate computational skills to all fields so that he or she is able to think with numbers.
5. An educated person should be able to identify problems and to find efficient solutions to those problems in all areas of life.
6. An educated person should develop skills to understand, accept, and relate to people of different backgrounds and beliefs.
7. An educated person should be expected to have some understanding of an experience in thinking about moral and ethical issues.
8. An educated person should have conceptual ability: i.e. the ability to think rationally, to develop informed opinions, and to comprehend new ideas.