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Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

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Check all appropriate lines and complete information as requested. Use a separate cover sheet for each course proposal and for each program proposal.

1. Course Proposals (check all that apply)

New Course Course Prefix Change Course Deletion

Course Revision Course Number and/or Title Change Catalog Description Change

LRNC 093 Developmental Mathematics, Elements of Algebra

Current Course prefix, number and full title *Proposed course prefix, number and full title, if changing*

2. Additional Course Designations: check if appropriate

This course is also proposed as a Liberal Studies Course. Other: (e.g., Women's Studies, Pan-African)

This course is also proposed as an Honors College Course.

3. Program Proposals

New Degree Program Program Title Change Program Revision

New Minor Program New Track Other

Current program name *Proposed program name, if changing*

4. Approvals	Date
Department Curriculum Committee Chair(s) <i>Stacey Winstead</i>	<i>2/7/03</i>
Department Chair(s) <i>Carmy Cwanya</i>	<i>2/12/03</i>
College Curriculum Committee Chair <i>Ronda H. Puley</i>	<i>2/24/03</i>
College Dean <i>Harold Goldsmith/ghl</i>	<i>2/24/03</i>
Director of Liberal Studies *	
Director of Honors College *	
Provost *	
Additional signatures as appropriate: (include title)	
UWUCC Co-Chairs <i>Gail Schust</i>	<i>3/18/03</i>

* where applicable



I. **Catalog Description**

LRNC 093 Developmental Mathematics, Elements of Algebra 1 class hour
0 lab hour
1 semester hour
(1c-0l-1sh)

Prerequisite: A student may not register for this course after successfully completing any course offered by the mathematics department without written approval of the Learning Enhancement Center Director.

Introduces algebraic concepts and algorithms with a comparison of Arithmetic algorithms to associated Algebraic algorithms. Topics include: properties and operations on real numbers; simplifying expressions; order of operations; solving equations and inequalities; formulas; exponential and scientific notation; operations on polynomials. Carries Institutional, non-degree credit and attendance is required.

II. **Course Objectives**

Students will be able to:

1. Describe and demonstrate knowledge of Arithmetic algorithms to add, subtract, multiply, and divide real numbers.
2. Manipulate algebraic expressions to solve equations and inequality statements.
3. Develop and use equations and inequality statements to solve problems.
4. Add, subtract, multiply, and divide polynomial expressions.

III. **Course Outline**

- A. Introduction to real numbers and algebraic expressions (3 hours).
1. An introduction to the real number system.
 2. Addition and multiplication of real numbers.
 3. Subtraction and division of real numbers.
 4. Interpreting algebraic expressions.
 5. Using the order of operations rules to simplify expressions.

Exam 1 (1 hour)

- B. Solving equations and inequalities (4 hours).
1. The addition principle for solving equations.
 2. The multiplication principle for solving equations.
 3. Using both the addition and multiplication principle together.
 4. Problem solving strategies.

5. Solving formulas.
6. Solving inequality statements.

Exam 2 (1 hour)

- C. Polynomial operations (5 hours).
1. Exponential and scientific notation.
 2. An introduction to polynomials.
 3. Addition and subtraction of polynomials.
 4. Multiplication of polynomials.
 5. Operations with polynomials in several variables.
 6. Division of polynomials.

Exam 3 (Final Exam)

IV. Evaluation Methods

Final letter grades will be determined by converting each student's accumulation of points to a rounded percentage of possible points. The grading scale will be: accumulated points $\geq 90\%$ = A, 89% - 80% = B, 79% - 70% = C, 69% - 60% = D, 59% - 0% = F. Approximate percentages of points follow for each category:

60% Exams – Three cumulative exams will be presented during the course. One hour will be allotted to complete each exam. Students will be required to demonstrate their ability to use algorithms presented through lectures and provide correct answers to receive full credit for each problem. Associated vocabulary will be included as a component of each exam. The third exam will be considered the culminating activity.

10% Homework – Students will be expected to synthesize problems beyond the classroom experience related to examples given during the lecture. Assistance developing such problems will be available through Supplemental Instruction on a daily basis. Additional example problems will be available through a collection of texts available during SI and Homework Helper sessions at the Learning Enhancement Center.

10% Quizzes – Quizzes will be administered throughout the course to provide feedback to the instructor and student as to the level of understanding attained from recent lectures. Writing assignments will be included to encourage ongoing development of an adequate vocabulary for the Mathematics studied.

10% Class attendance – Each absence will result in a deduction of points, typically 15 points, from the total points designated, typically 45 points, for this category. Students with perfect attendance will be rewarded with bonus points, typically 15 points.

10% Note Taking – A modified form of the Cornell method for taking notes will be presented to students at the beginning of the course. Notes will be collected and graded according to the direction given on a weekly basis.

Supplemental Instruction (SI) – SI sessions will be offered during the course but will not carry direct course credit.

V. Example Grading Scale

A total of 400 points will be offered. Points may be accumulated to determine grades as follows:

Exam 1	50 points maximum	A:	400-360
Exam 2	75 points maximum	B:	359-320
Exam 3 (Final)	100 points maximum	C:	319-280
Attendance	45 points maximum (-15 points / absence)	D:	279-240
Quizzes	50 points maximum	F:	239-0
Notes	40 points maximum		
Homework	40 points maximum		

VI. Undergraduate Course Attendance Policy

Attendance is required and will contribute to points accumulated for grades (See above).

VII. Required Textbook(s), Supplemental Books and Readings

None (See A1.).

VIII. Special Resource Requirements

None.

IX. Bibliography

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Course Analysis Questionnaire

A. Details of the course

- A1. The Learning Enhancement Center program is designed to take students from “where they are” and lead them through courses, advisement, and activities to “where they need to be” in order to become successful college students. This Developmental course, one of a series of three, is designed to prepare students for entry level Mathematics courses offered at IUP. As a Developmental course, mastery of content is not the only goal. Behavioral changes linked to course requirements will enable the student to better adapt to college expectations. Examples of such requirements include mandatory attendance, content delivered through lecture rather than a text, expectations concerning note taking, and unique homework assignments. The Learning Enhancement Center Program has a math component, and this course is one part of that component. In addition to courses, Supplemental Instruction and Tutorial services complete the LEC Math component. Low scores on the Basic Algebra Placement exam administered prior to registration for the freshman year would identify students to be placed in this course. From experience, observation, and research we have found that scores less than 10 indicate a need for such a course of study. We feel that providing this course as a separate one-credit course targets students needing the instruction and permits those already competent with its content to avoid unnecessary credits. This streamlined approach better utilizes both student and University resources.
- A2. No, there should be no need to change content of other courses nor the requirements for a program.
- A3. The course has been offered during the fall semester of 2001, the spring semester of 2002, and the fall semester of 2002. Four sections of LRNC 093 (listed as LRNC 081 Level 3) were offered each semester. Approximately 190 students were enrolled in the course.
- A4. LRNC 093 is not a dual-level course.
- A5. This course is not to be taken for variable credit.
- A6. Similar courses are offered at the following institutions, among others: Clarion University of PA, West Chester University of PA, Georgia Southern University, Southeastern Louisiana University, Mississippi State University, Appalachian State University, Bowling Green State University, Sam Houston University, Stephen F. Austin State University, and Washington State University.
- A7. No professional society, accrediting authority, law, or other external agency recommends or requires the content or skills of this proposed course.

B. Interdisciplinary Implications

- B1. This course will be taught by one instructor.
- B2. The design of this series of three courses is to bring students to a level of knowledge and ability to attempt MATH 100, Intermediate Algebra. The LRNC 093 course reviews Algebraic algorithms and concepts with an appropriate Developmental approach that concurrently develops behavioral changes appropriate to college study. The content of this course is expected to be mastered prior to entry into higher-level math courses.
- B3. This course will not be cross-listed with other departments.
- B4. Seats have always been made available to students in the School of Continuing Education and will continue to be provided on referral, as seats are available.

C. Implementation

- C1. The faculty member currently teaching LRNC 095 is expected to continue with the same load, twenty-four credits of teaching load per academic year. The LRNC 095 course will not be offered during the regular semesters at the Indiana campus. Approximately 4 sections of LRNC 091, 4 sections of LRNC 092, and 4 sections of LRNC 093 will be offered each fall and spring semester. Adjustments to the number of sections for each level will be determined by student need for each course after placement testing in the summer and implemented in the spring semester. For example, if more students need the LRNC 092 course in the spring and less need LRNC 091 or LRNC 093 instruction, the number of sections of LRNC 092 could be increased commensurate with a decrease in LRNC 091 or LRNC 093 sections.
- C2. Other resources:
 - a. Adjustments have been made that make current space allocations adequate.
 - b. No additional special equipment is needed for this course.
 - c. No additional laboratory supplies are necessary for this course.
 - d. Library holdings are adequate.
 - e. No travel funds are needed for this course.
- C3. Part of the salary for the faculty member teaching this course is funded through an Act 101 grant which is expected to be continued.
- C4. We expect to offer this course in the fall semester and in the spring semester. This course is not designed for or restricted to seasonal semesters.
- C5. An average of not more than four sections will be offered during any semester.

- C6. We expect to accommodate up to 20 students per section for this course.
- C7. To the best of my knowledge, no professional society recommends enrollment limits or parameters for a course of this nature.
- C8. This is not intended to be a distance education course.

D. Miscellaneous

No additional information is necessary.