LSC Use Only	No:	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date:	Senate Action Date:
			02-900	App-3/18/03	App-4/1/03

Email Address

# Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

Paul Hrabovsky

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Proposing Department/Unit	Phone (72.4) 257, 4081								
Learning Enhancement Center	(724) 357-4081								
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)  X New Course Course Prefix ChangeCourse Deletion									
Course Revision Change	rse Number and/or TitleCatalog Description Change								
	LRNC 091 Developmental Mathematics,								
	Arithmetic Operations								
Current Course prefix, number and full title	<u>Proposed</u> 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.  This course is also proposed as an Honors College Course.  This course is also proposed as an Honors College Course.									
3. Program Proposals	Program Revision								
New Degree Program	_Program Title ChangeOther								
New Minor Program	New Track								
<u>Current</u> program name	<u>Proposed</u> program name, if changing								
4. Approvals	Date ,								
Department Curriculum Committee	acel. Winster 2/7/03								
Chair(s)	,								
Department Chair(s)	ung Cananga 2/12/03								
College Curriculum Committee Chair	de 4 Leuly 2/24/03								
College Dean War	old Goldsmith) she 2/24/03								
Director of Liberal Studies *									
Director of Honors College *									
Provost *									
Additional signatures as appropriate:									
(include title)	10								
UWUCC Co-Chairs Gas	(S. Schrist 3/18/03								
* where applicable									

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Contact Person

### I. Catalog Description

LRNC 091 Developmental Mathematics, Arithmetic Operations

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.

Explores the basics of counting principles, place value, arithmetic operations, exponential notation, and fractional notation through a base 8 perspective. Vocabulary, concept development, and algorithms related to the above topics will be presented in a lecture format. Supplemental Instruction will be provided with this course. Carries Institutional, non-degree credit and attendance is required.

## II. Course Objectives

Students will be able to:

- 1. Develop counting principles and place values of multi-digit numbers in a base 8 format and relate those concepts to their counterparts in traditional base 10 systems.
- 2. Add, subtract, multiply and divide real numbers in a base 8 format and relate the algorithms to their base 10 counterparts.
- 3. Develop and use algorithms for operations involving base 8 fractions and relate the algorithms to their base 10 counterparts.
- 4. Develop and use algorithms for exponential notation involving base 8 numeration and relate the algorithms to their base 10 counterparts.
- 5. Demonstrate competency with vocabulary introduced and defined during lectures through quizzes and exams.

#### III. Course Outline

- A. Exploration and comparison of counting, addition, subtraction and conversion algorithms of base 8 and base 10 whole numbers (5 hours).
  - 1. Definitions for the vocabulary of the mathematics encountered.
  - 2. Counting and place value.
  - 3. Converting values between base systems.
  - 4. Addition algorithms, base 8 and base 10.
  - 5. Subtraction algorithms, base 8 and base 10.

### Exam 1 (1 hour)

- B. Multiplication (3 hours).
  - 1. Definitions for the vocabulary of the mathematics encountered.
  - 2. Exponential notation and simplification algorithms.
  - 3. Multiplication.

#### Exam 2 (1 hour)

- C. Division (4 hours).
  - 1. Definitions for the vocabulary of the mathematics encountered.
  - 2. Fractional notation and simplification algorithms.
  - 3. Division.

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

- 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 course, one of three to be proposed in lieu of LRNC 095 placement on the main campus, is designed to prepare students for entry level Math courses. The three courses being proposed, in conjunction with Supplemental Instruction (SI) will replace LRNC 095 on the main campus. Since Supplemental Instruction is not available on the branch campuses, LRNC 095 will remain in effect for instruction on branch campuses. This set of proposals will focus the mathematics content from LRNC 095 into three one-credit courses and include a Supplemental Instruction component. 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, unique homework assignments, and the development of associated math vocabulary. 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. Extremely low scores on the Basic Algebra Placement exam administered prior to registration for the freshman year would identify students to be placed into this course. From experience, observation, and research we have found that scores ranging from 0 through 4 indicate a need for such a course of study, a review of basic arithmetic concepts and algorithms. Using base 8 numerations as the core of the learning process circumvents numerous problems associated with a more typical remedial arithmetic course. A typical remedial approach to the needs of these students provides a review of algorithms in a demeaning manner. 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 091 (listed as LRNC 081 Level 1) were offered each semester. Approximately 170 students were enrolled in the course.
- A4. LRNC 091 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. This course is designed to prepare students for entry level Math courses. The LRNC 091 course reviews arithmetic 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 at the Indiana campus 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 but will be continued at other locations. 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 four sections each semester is expected to be offered.
- 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.

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---- Original Message -----
From: "Carmy Carranza" <carmycgc@iup.edu>
To: "Gail Sechrist" <gailsech@iup.edu>; "Marcia McCarty" <mmccarty@iup.edu>
Cc: "Rhonda H. Luckey" <rluckey@iup.edu>; "carmy carranza" <carmycgc@iup.edu>;
"Susan Allshouse" <starfish@iup.edu>; "Sally Lipsky" <SAL@iup.edu>; "RoseMarie
Rearick" <rearick@iup.edu>; "Mel Jenkins" <mjenkins@iup.edu>; "Crawford Johnson"
< CJOHNSON@iup.edu>; "Cassie Green" < cassie@iup.edu>; "Carol Tannous"
<CATANN@iup.edu>; "Paul Hrabovsky" <paulhrab@iup.edu>
Sent: Wednesday, February 26, 2003 2:41 PM
Subject: Fw: LRNC courses
> Below is a letter of support from the math department to add to the LRNC
> course proposals.
>
>
> Dr. Carmy Carranza, Professor
> Director/Chairperson
> Learning Enhancement Center
---- Original Message -----
From: "Paul Hrabovsky" <paulhrab@iup.edu>
To: "Carmy Carranza" < carmycgc@iup.edu>
Sent: Wednesday, February 26, 2003 1:51 PM
Subject: Fw: LRNC courses
>
> ---- Original Message -----
> From: "Gary Stoudt" <gsstoudt@iup.edu>
> To: <Paulhrab@iup.edu>
> Sent: Wednesday, February 26, 2003 1:35 PM
> Subject: LRNC courses
>
>
>> Paul,
>>
>> The Mathematics Department supports the Learning Enhancement Center
>> course proposals for LRNC 091, 092, and 093. These courses will help
>> under prepared students with their mathematics and study skills and give
>> them a better chance of success in entry level mathematics courses.
>>
>> Gary
>> Gary Stoudt, Chairperson
>> Mathematics
>>
>
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