LSC Use Only No:	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date:	Senate Action Date:
		06-316	App. 3-6-07	App. 3-27-07

Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

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Proposing Department/Unit Mathematics	Phone 7-2608

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

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,

_____ This course is also proposed as an Honors College Course.   Pan-African)

3. **Program Proposals**

_____ Catalog Description Change   __X__ Program Revision

_____ New Degree Program   _____ Program Title Change   _____ Other

_____ New Minor Program   _____ New Track

Bachelor of Science- Applied Mathematics *Current* program name	 *Proposed* program name, if changing

4. **Approvals**

		Date
Department Curriculum Committee Chair(s)	*(signature)*	11-21-06
Department Chair(s)	Gary Stoudt *(signature)*	11-21-06
College Curriculum Committee Chair	*(signature)*	01-06-07
College Dean	Gerald Buriok *(signature)*	2/2/07
Director of Liberal Studies *		
Director of Honors College *		
Provost *		
Additional signatures as appropriate: (include title)		
UWUCC Co-Chairs		

* where applicable

Received

FEB - 2 2007

Liberal Studies

1. Revised Program

Bachelor of Science—Applied Mathematics

Liberal Studies: As outlined in Liberal Studies section   53
with the following specifications:
Mathematics: MATH 125
Liberal Studies Electives: 9cr, no courses with MATH prefix

Major: 37-38
Required Courses:
MATH 126   Calculus II/Physics, Chemistry, Mathematics   3cr
MATH 171   Introduction to Linear Algebra   3cr
MATH 216   Probability and Statistics for Natural Sciences   3cr
MATH 225   Calculus III/Physics, Chemistry, Mathematics   3cr
MATH 241   Differential Equations   3cr
MATH 271   Introduction to Mathematical Proofs I   3cr
MATH 272   Introduction to Mathematical Proofs II   3cr
MATH 480   Senior Seminar   1cr

Controlled Electives: (1)
Two courses from the following: 6cr
    MATH 371, 421, 422, 423, 427, 476, 477
One of the following two-course sequences: 6-7cr
    MATH 342/447 or COSC 451/MATH 451;
    MATH 363/364; MATH 445/446
A minimum of 3 additional cr from the courses above or the following:
    MATH 353, 465, 481   3cr

Other Requirements: 6-12
Computer Science:
COSC 110   Problem Solving and Structured Programming   3cr
COSC 250   Introduction to Numerical Methods   3cr
Foreign Language Intermediate Level (2)   0-6cr

Free Electives: 17-24

Total Degree Requirements: 120

(1) A student may select courses to fulfill requirements for specialized track.
   Actuarial/Statistics: MATH 363, 364, 366, 371, 421, 446, 465
   Math Analyst/Engineering: MATH 342, 447, COSC 451, MATH 371, 423, 451
   Operations Research: MATH 371, 421, 445, 446, 447
(2) Intermediate-level foreign language may be included in Liberal Studies elective.

2. Summary of Changes a. Comparison Table

Current Program: Bachelor of Science—Applied Mathematics		Proposed Program: Bachelor of Science – Applied Mathematics	
Liberal Studies: As outlined in Liberal Studies section with the following specifications: **Mathematics:** MATH 123 **Liberal Studies Electives:** 9cr, no courses with MATH prefix	54	**Liberal Studies:** As outlined in Liberal Studies section with the following specifications: **Mathematics:** MATH 125 **Liberal Studies Electives:** 9cr, no courses with MATH prefix	53
Major: **Required Courses:** MATH 124 Calculus II/Physics, Chemistry, and Mathematics MATH 171 Introduction to Linear Algebra MATH 216 Probability and Statistics for Natural Sciences MATH 241 Differential Equations MATH 271 Introduction to Mathematical Proofs I MATH 272 Introduction to Mathematical Proofs II MATH 480 Senior Seminar	36-37 4cr 3cr 4cr 3cr 3cr 1cr	**Major:** **Required Courses:** MATH 126 Calculus II/Physics, Chemistry, Mathematics MATH 171 Introduction to Linear Algebra MATH 216 Probability and Statistics for Natural Sciences MATH 225 Calculus III/Physics, Chemistry, Mathematics MATH 241 Differential Equations MATH 271 Introduction to Mathematical Proofs I MATH 272 Introduction to Mathematical Proofs II MATH 480 Senior Seminar	37-38 3cr 3cr 3cr 3cr 3cr 3cr 3cr 1cr
Controlled Electives: (1) Two courses from the following: MATH 371, 421, 422, 423, 427, 476, 477 One of the following two-course sequences: MATH 342/447 or COSC 451/MATH 451; MATH 363/364; MATH 445/446 A minimum of 3 additional cr from the list of controlled electives above or the following: MATH 353, 465, 481	6cr 6-7cr 3cr	**Controlled Electives:** (1) Two courses from the following: MATH 371, 421, 422, 423, 427, 476, 477 One of the following two-course sequences: MATH 342/447 or COSC 451/MATH 451; MATH 363/364; MATH 445/446 A minimum of 3 additional cr from the courses above or the following: MATH 353, 465, 481	6cr 6-7cr 3cr
Other Requirements: **Computer Science:** COSC 110 Problem Solving and Structured Programming COSC 250 Introduction to Numerical Methods Foreign Language Intermediate Level (2) **Free Electives:** **Total Degree Requirements:**	6-12 3cr 3cr 0-6cr 17-24 120	**Other Requirements:** **Computer Science:** COSC 110 Problem Solving and Structured Programming COSC 250 Introduction to Numerical Methods Foreign language intermediate level (2) **Free Electives:** **Total Degree Requirements:**	6-12 3cr 3cr 0-6cr 17-24 120
(1) A student may select courses to fulfill requirements for specialized track. *Actuarial/Statistics:* MATH 363, 364, 366, 371, 421, 446, 465 *Math Analyst/Engineering:* MATH 342/447, COSC 451, MATH 371, 423, 451 *Operations Research:* MATH 371, 421, 445/446, 447 (2) Intermediate-level Foreign Language may be included in Liberal Studies elective.		(1) A student may select courses to fulfill requirements for specialized track. *Actuarial/Statistics:* MATH 363, 364, 366, 371, 421, 446, 465 *Math Analyst/Engineering:* MATH 342/447, COSC 451, MATH 371, 423, 451 *Operations Research:* MATH 371, 421, 445/446, 447 (2) Intermediate-level Foreign Language may be included in Liberal Studies elective.	

2. Summary of Changes
b. Associated course changes

The two-course, 8 credit calculus sequence MATH 123 and MATH 124 is being replaced with the three-course, 9 credit calculus sequence MATH 125, 126, 225. This changes the Liberal Studies Mathematics requirement to MATH 125, reducing the credits from 4cr to 3cr. MATH 126 and 225 are added as requirements and the course MATH 216 is reduced from 4 to 3 credits. There is a slight wording change "A minimum of 3 additional cr from the courses above or the following" for readability.

3. Rationale

The Mathematics Department has eliminated the two-course, 8 credit calculus sequence MATH 123 and MATH 124 and replaced it with a three-course, 9 credit calculus sequence MATH 125, 126, 225. The Mathematics Department also revised the MATH 216 course from 4 credits to 3. These changes are what is represented in the program revision.

III. Implementation

1. This change will take effect with the 2007 incoming freshman class. The Mathematics Department will continue to offer MATH 123 and MATH 124 as needed for students currently operating under the old program.

2. Faculty resources are adequate.

3. Other resources are adequate.

4. We do not expect these revisions to change the number of students in the program.

IV. Periodic Assessment

1. The Mathematics Department evaluates this program as part of the course MATH 480 Senior Seminar, whose course description reads (in part) "To assess the effectiveness of the mathematics curriculum...." Students participate in discussions of the program, complete surveys, and take the Educational Testing Service (ETS) Mathematics subject test.

2. MATH 480 is offered every spring semester

3. The Mathematics Department is its own evaluating entity, along with ETS. There is no accrediting body for mathematics programs.

4. The Mathematics Department also has a new assessment plan ready to begin in Spring, 2007. The goals of the program include retention of concepts and skills in calculus, linear algebra, and probability and statistics; the ability to write a mathematical proof; the ability to effectively communicate mathematics; the ability to apply mathematics to analyze/model/solve applications. We will also be monitoring student perceptions and attitudes about mathematics. All this will be accomplished with the usual course grades and current surveys. We will also be adding a comprehensive examination for all majors after completing the core mathematics courses. This exam will be for assessing the program, not the students.

We are developing a rubric to grade in-class presentations and we will be looking at how to incorporate class work and/or projects into existing venues for student presentations such as IUP's Research Day.

The student perception and attitude survey will be given to all students in the science calculus sequence and then again to beginning juniors, and finally to graduating seniors. Once we get a handle on the kind of data we will have gathered from all these sources, we will be able to see what questions this asks and answers about our program.

V. Course Proposals

MATH 125, 126, 225 and 216 proposals have been submitted separately.

VI. Letters of Support or Acknowledgement
None