LSC Use Only No:	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date:	Senate Action Date:
		10-52b.	AP 1/18/11	App-3/22/11

Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

Contact Person	Email Address
Kimberly Burch	kjburch@iup.edu
Proposing Department/Unit	Phone
Mathematics	724-357-2608

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.
_____ This course is also proposed as an Honors College Course.
_______ Other: (e.g., Women's Studies, Pan-African)

3. **Program Proposals**

__X__Catalog Description Change __X__Program Revision

_____New Degree Program _____Program Title Change _____Other

_____New Minor Program _____New Track

Bachelor of Science - Mathematics

Current *program name* | *Proposed* *program name, if changing*

4. **Approvals**

		Date
Department Curriculum Committee Chair(s)	Kimberly Burch	11/18/10
Department Chair(s)	[signature]	12/7/10
College Curriculum Committee Chair	Anne Kondo	12/9/10
College Dean	Mary Ann Rafoth [signature]	12/9/10
Director of Liberal Studies *		
Director of Honors College *		
Provost *	Gerald Intemann (for)	1/11/11
Additional signatures as appropriate: (include title)		
UWUCC Co-Chairs	Gail Sechrist	1-18-11

* where applicable

Received
DEC 15 2010
Liberal Studies

II. Description of Curriculum Change

1. Revised Catalog Description
Revised Preamble:

Department of Mathematics
Website: *www.iup.edu/math*
Francisco E. Alarcón, Chairperson; Adkins, Baker, Balenovich, Burch, Burkett, Colen, Dahma, Donley, Dubovsky, Feldman, Kuo, Lattanzio, Maier, Metz, Navaratna, Pararai, Radelet, Reilly, Sharp, Steelman, Stempien, Stoudt, Walker, Wisloski, Zhang; and professors emeriti Angelo, Arms, Broughton, Buriok, Davis, Gibson, Hartman, Massey, D. McBride, R. McBride, Mitchell, Mueller, Oakes, J. Reber, Rettig, Shawer, E. Smith, W. Smith, Stilwell, Willison, Woodard

The Department of Mathematics prepares students for work in industry, graduate school mathematics, and teaching. Degrees offered by the department are the Bachelor of Science degree with a major in Mathematics and the Bachelor of Science in Education degree with a major in Mathematics Education. The first degree program is offered within the College of Natural Sciences and Mathematics and the second is in conjunction with the College of Education and Educational Technology. The department also offers a minor in Mathematics, a minor in Applied Statistics, and a concentration in Mathematics for Elementary Education majors.

The program for a mathematics major in the College of Natural Sciences and Mathematics is two phased. A student may pursue a degree in Mathematics or a degree in Mathematics with a concentration in Applied Mathematics. Those completing a degree in Mathematics will be prepared to continue their studies in mathematics in graduate school, though some may enter business, industry, or government service. Students receiving a Mathematics degree with a concentration in Applied Mathematics will be primarily prepared to enter business, industry, or government service in an area where mathematics or computer science is used or to continue their studies in applied mathematics or computer science in graduate school. This student would not be expected to continue graduate studies in pure mathematics.

The program leading to the B.S.Ed. with a major in Mathematics Education prepares the student for teaching mathematics in Grades 7-12. Many graduates, however, continue their formal education in mathematics at the graduate level or work in government or industry.

Elementary Education majors may elect to take a concentration of at least 15 credits in mathematics. The program of courses for this concentration is as follows: in addition to MATH 151 and 152, select 9 credits from the following courses: MATH 317, 420, 456, 457, 458, 459, 471, or 481.

Minor in Mathematics
The minor consists of a minimum of 17 credits in mathematics. The minor

in Mathematics may offer preparation for advanced study in areas such as Economics, Computer Science, Physics, and other natural sciences. Any student who is required to take a year of calculus should consider this minor.

Minor in Applied Statistics

The minor in Applied Statistics, consisting of 16 credits, may be of interest to students who are required to take a calculus course and a course in probability and statistics. This includes, but is not limited to, students with majors in business, Safety Sciences, or Computer Science.
A cumulative GPA of at least 2.0 in MATH courses is required for a minor in Mathematics or Applied Statistics. The department will not certify a minor for a transfer student unless at least two of the courses counting for the minor have been completed in the Mathematics Department.

Bachelor of Science – 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			
(Foreign Language is included)			
Major:			39-40
Required Courses:			
MATH 126	Calculus II for Physics, Chemistry, and Mathematics	3cr	
MATH 171	Introduction to Linear Algebra	3cr	
MATH 216	Probability and Statistics for Natural Sciences	3cr	
MATH 225	Calculus III for Physics, Chemistry, and 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	3cr	
Controlled Electives: (1)			
Four courses from the following: MATH 371, 421, 422, 423, 427, 476, 477		12cr	
A minimum of 3 additional cr from the list above or the following: MATH 342, 350, 353, 355, 363, 364, 445, 446, 447, 465, 481		3-4cr	
Other Requirements:			3cr
Computer Science:			
COSC 110	Problem Solving and Structured Programming	3cr	
Foreign Language Intermediate Level (1)			
Free Electives:			24-25
Total Degree Requirements:			120

(1) Intermediate-level Foreign Language is included in Liberal studies electives.

2a. Summary of Changes: Underlined items will be changed; **bold** items will be added.

OLD preamble:

Department of Mathematics
Website: *www.iup.edu/math*
Francisco E. Alarcón, Chairperson; Adkins, Baker, Balenovich, Burch, Burkett, Colen, Dahma, Donley, Dubovsky, Feldman, Kuo, Lattanzio, Maier, Metz, Navaratna, Pararai, Radelet, Reilly, Sharp, Steelman, Stempien, Stoudt, Walker, Wisloski, Zhang; and professors emeriti Angelo, Arms, Broughton, Buriok, Davis, Gibson, Hartman, Massey, D. McBride, R. McBride, Mitchell, Mueller, Oakes, J. Reber, Rettig, Shawer, E. Smith, W. Smith, Stilwell, Willison, Woodard
The Department of Mathematics prepares students for work in industry, graduate school mathematics, and teaching. Degrees offered by the department are the Bachelor of Science degree with a major in Mathematics, the Bachelor of Science degree with a major in Applied Mathematics, the Bachelor of Arts degree with a major in Economics/Mathematics, and the Bachelor of Science in Education degree with a major in Mathematics Education. The first two degree programs are offered within the College of Natural Sciences and Mathematics, the third is shared with the Economics Department, and the fourth is in conjunction with the College of Education and Educational Technology. The department also offers a minor in Mathematics, a minor in Applied Statistics, and a concentration in Mathematics for Elementary Education majors.
The program for a mathematics major in the College of Natural Sciences and Mathematics is two phased. A student may pursue a degree in Applied Mathematics or Mathematics. Those completing a degree in Mathematics will be prepared to continue their studies in mathematics in graduate school, though some may enter business, industry, or government service. Students receiving a degree in Applied Mathematics will be primarily prepared to enter business, industry, or government service in an area where mathematics or computer science is used or to continue their studies in applied mathematics or computer science in graduate school. This student would not be expected to continue graduate studies in pure mathematics.
The department shares in a joint degree with the Economics Department. Students with ability and interest in economics discover that a solid background in mathematics is an essential prerequisite for advanced theoretical and applied work in the discipline. Similarly, students with talent and interest in mathematics find economics an excellent field in which to employ their skills and knowledge. The B.A. degree with a major in Economics/ Mathematics allows students to combine these complementary subjects in a joint degree program administered cooperatively by the departments of Mathematics and Economics. Enrolled students will be assigned an advisor in each department.
Those completing the program will have an exceptional background for

graduate study in economics and such related fields as business, public policy, or operations research. They also will be ideally prepared to fill a wide variety of technical and quantitative positions in both government and private industry.

The program leading to the B.S.Ed. with a major in Mathematics Education prepares the student for teaching mathematics in Grades 7-12. Many graduates, however, continue their formal education in mathematics at the graduate level or work in government or industry.

Elementary Education majors may elect to take a concentration of at least 15 credits in mathematics. The program of courses for this concentration is as follows: in addition to MATH 151 and 152, select 9 credits from the following courses: MATH 317, 420, 456, 457, 458, 459, 471, or 481.

Minor in Mathematics

The minor consists of a minimum of 17 credits in mathematics. The minor in Mathematics may offer preparation for advanced study in areas such as Economics, Computer Science, Physics, and other natural sciences. Any student who is required to take a year of calculus should consider this minor.

Minor in Applied Statistics

The minor in Applied Statistics, consisting of 16 credits, may be of interest to students who are required to take a calculus course and a course in probability and statistics. This includes, but is not limited to, students with majors in business, Safety Sciences, or Computer Science.

A cumulative GPA of at least 2.0 in MATH courses is required for a minor in Mathematics or Applied Statistics. The department will not certify a minor for a transfer student unless at least two of the courses counting for the minor have been completed in the Mathematics Department.

Current				**Proposed**			
Bachelor of Science – Mathematics				Bachelor of Science – Mathematics			
Liberal Studies: As outlined in Liberal Studies section with the following specifications:			53	Liberal Studies: As outlined in Liberal Studies section with the following specifications:			53
Mathematics: MATH 125				Mathematics: MATH 125			
Liberal Studies Electives: 9cr, no courses with MATH prefix				Liberal Studies Electives: 9cr, no courses with MATH prefix			
Major:			37-38	Major:			**39-40**
Required Courses:				Required Courses:			
MATH 126	Calculus II for Physics, Chemistry, and Mathematics	3cr		MATH 126	Calculus II for Physics, Chemistry, and Mathematics	3cr	
MATH 171	Introduction to Linear Algebra	3cr		MATH 171	Introduction to Linear Algebra	3cr	
MATH 216	Probability and Statistics for Natural Sciences	3cr		MATH 216	Probability and Statistics for Natural Sciences	3cr	
MATH 225	Calculus III for Physics, Chemistry, and Mathematics	3cr		MATH 225	Calculus III for Physics, Chemistry, and Mathematics	3cr	
MATH 241	Differential Equations	3cr		MATH 241	Differential Equations	3cr	

MATH 271	Introduction to Mathematical Proofs I	3cr		MATH 271	Introduction to Mathematical Proofs I	3cr	
MATH 272	Introduction to Mathematical Proofs II	3cr		MATH 272	Introduction to Mathematical Proofs II	3cr	
MATH 480	Senior Seminar	1cr		**MATH480**	**Senior Seminar**	**3cr**	
Controlled Electives: (1)				Controlled Electives: (1)			
Four courses from the following		12cr		Four courses from the following:		12cr	
MATH 371, 421, 422, 423, 427, 476, 477				MATH 371, 421, 422, 423, 427, 476, 477			
A minimum of 3 additional cr from the list above or the following:		3-4 cr		A minimum of 3 additional cr from the list above or the following:		3-4 cr	
MATH 342, 350, 353, 355, 363, 364, 445, 446, 447, 465, 481				MATH 342, 350, 353, 355, 363, 364, 445, 446, 447, 465, 481			
Other Requirements:			3-9	Other Requirements:			**3cr**
Computer Science:				Computer Science:			
COSC 110	Problem Solving and Structured Programming	3cr		COSC 110	Problem Solving and Structured Programming	3cr	
Foreign Language Intermediate Level (1)		0-6 cr		Foreign Language Intermediate Level (1)			
Free Electives:			20-27	Free Electives:			**24-25**
Total Degree Requirements			120	Total Degree Requirements			120
(1) Intermediate-level Foreign Language may be included in Liberal Studies electives.				(1) Intermediate-level Foreign Language is included in Liberal Studies electives.			

2b. List of all associated course changes

1. Program Preamble has been changed to reflect the new tracks.
2. MATH 480 has been changed from 1cr to 3cr.
3. Intermediate Foreign Language credit count has been clarified.

2c. Rationale for Change

MATH 480 Senior Seminar is being changed from a 1 credit course to a 3 credit course because it will serve as our capstone experience. This change will allow students to research, develop, and present an independent project.

MATH 480 has been approved by the Senate.

III. Implementation

1. How will the proposed revision affect students already in the existing program?

All courses remain in the same rotation. Students in the existing program will continue to take MATH 480 as 1 credit.

2. Are faculty resources adequate?

Faculty resources are adequate.

3. Are other resources adequate?

Resources are adequate.

4. Do you expect an increase or decrease in the number of students as a result of these revisions? If so, how will the department adjust?

We expect the number of students to remain the same. No adjustment will be necessary.

5. The intended implementation date is Fall 2011.

IV. Periodic Assessment

The Mathematics Department is its own evaluating entity. There is no accrediting body for mathematics programs.

Future plan:

1. The Department conducts a five-year review of all majors in Mathematics using two qualified evaluators from outside IUP. We will use this review as our primary measure of assessment for the proposed tracks.
2. There is still an assessment portion in MATH 480. It will be used partially to evaluate the success of the tracks. Student input will be gathered in this course via surveys and evaluations.

V. Course Proposals

None.

VI. Letters of Support or Acknowledgement

None.