

LSC Use Only No:	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date:	Senate Action Date:
		02-87a	App-3/18/03	App-4/1/03

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

Contact Person Gary Stoudt	Email Address gsstoudt@iup.edu
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

<u>Current</u> 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.                       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                       Other  
 New Minor Program                       New Track  
 Catalog Description                       Program Revision Change

Bachelor of Science in Education—Mathematics Education	
<u>Current</u> program name	<u>Proposed</u> program name, if changing

4. Approvals		Date
Department Curriculum Committee Chair(s)	<i>Janet Mueller</i>	2-7-03
Department Chair(s)	<i>Gary Stoudt</i>	2-7-03
College Curriculum Committee Chair	<i>[Signature]</i>	02/02/03
College Dean	<i>John St. Eda</i>	02/12/03
Director of Liberal Studies *		
Director of Honors College *		
Provost *		
Additional signatures as appropriate: (include title)	<i>Joseph Domaradei</i> TELL	2-25-03
	<i>[Signature]</i> Dem COERT	2-25-03
UWUCC Co-Chairs	<i>Gail Sechrest</i>	3/18/03

FEB 25 2003 \* where applicable

## 1. Revised Program

### Bachelor of Science in Education—Mathematics Education

<b>Liberal Studies:</b> As outlined in Liberal Studies section with the following specifications:	51
<b>Mathematics:</b> MATH 123	
<b>Social Science:</b> PSYC 101	
<b>Liberal Studies Electives:</b> 6sh, no courses with MATH prefix	
<b>College:</b>	26
<b>Professional Education Sequence:</b>	
EDEX 301 Education of Students with Disabilities in Inclusive Secondary Settings	2
EDSP 102 Educational Psychology	3
EDSP 477 Assessment of Student Learning: Design and Interpretation of Educational Measures	3
EDUC 242 Pre-student Teaching Clinical Experience I	1
EDUC 342 Pre-student Teaching Clinical Experience II	1
EDUC 441 Student Teaching	12
EDUC 442 School Law	1
EDUC 456 Teaching Math in the Secondary Schools	3
<b>Major:</b>	35
<b>Required Courses:</b>	
MATH 124 Calculus II for Physics, Chemistry, and Mathematics	4
MATH 171 Introduction to Linear Algebra	3
MATH 216 Probability and Statistics for Natural Sciences	4
MATH 271 Introduction to Mathematical Proofs I	3
MATH 272 Introduction to Mathematical Proofs II	3
MATH 340 Principles of Secondary School Mathematics	3
MATH 350 History of Mathematics	3
MATH 353 Theory of Numbers	3
MATH 355 Foundations of Geometry I	3
MATH 430 Seminar in Teaching Secondary School Mathematics	3
MATH 460 Technology in Mathematics Instruction	3
<b>Other Requirements</b>	3
COSC 110 Problem Solving and Structured Programming	3
<b>Free Electives:</b>	5
<b>Total Degree Requirements:</b>	120

## 2. Summary of Changes

### a. Comparison Table (next page)

## Bachelor of Science in Education— Mathematics Education (Current)

**Liberal Studies:** As outlined in 50-52  
Liberal Studies section with the following  
specifications:

**Mathematics:** (included in major)

**Social Science:** PSYC 101

**Liberal Studies Electives:** no courses with  
MATH prefix

**College:** 29

### Professional Education Sequence:

EDEX 301	2sh
EDSP 102	3sh
EDSP 477	3sh
EDUC 242	1sh
EDUC 342	1sh
EDUC 441	12sh
EDUC 442	1sh
EDUC 456	3sh
FDED 102	3sh

**Major:** 38

### Required Courses:

MATH 117	3sh
MATH 123	4sh
MATH 124	4sh
MATH 171	3sh
MATH 216	4sh
MATH 271	3sh
MATH 272	3sh
MATH 350	3sh
MATH 353	3sh
MATH 355	3sh
MATH 460	3sh

Two of the following:

MATH 452, 453, 454, 455	2sh
-------------------------	-----

**Other Requirements** 3

### Computer Science:

COSC 205	3sh
----------	-----

**Free Electives:** 2-4

**Total Degree Requirements:** 124

## Bachelor of Science in Education— Mathematics Education (Revised)

**Liberal Studies:** As outlined in 51  
Liberal Studies section with the following  
specifications:

**Mathematics:** MATH 123

**Social Science:** PSYC 101

**Liberal Studies Electives:** 6sh, no courses  
with MATH prefix

**College:** 26

### Professional Education Sequence:

EDEX 301	2
EDSP 102	3
EDSP 477	3
EDUC 242	1
EDUC 342	1
EDUC 441	12
EDUC 442	1
EDUC 456	3

**Major:** 35

### Required Courses:

MATH 124	4
MATH 171	3
MATH 216	4
MATH 271	3
MATH 272	3
MATH 340	3
MATH 350	3
MATH 353	3
MATH 355	3
MATH 430	3
MATH 460	3

**Other Requirements** 3

COSC 110	3sh
----------	-----

**Free Electives:** 5

**Total Degree Requirements:** 120

## **2. Summary of Changes**

### ***b. Associated course changes***

MATH 123 Calculus I for Physics, Chemistry, and Mathematics is moved from the list of required major courses to a specified liberal studies requirement.

The Liberal Studies electives are reduced from 9sh to 6sh.

FDED 102 is removed from this program.

In the major requirements, MATH 117 Principles of Mathematics is eliminated, to be replaced by the new course MATH 340. The requirement of two 1 credit seminars in teaching mathematics (MATH 452, 453, 454, 455) is changed to one 3 credit seminar in teaching mathematics, MATH 430.

In the other requirements, COSC 205 Programming Languages for Secondary Education is replaced with COSC 110 Problem Solving and Structured Programming.

MATH 117, 452, 453, 454, 455 will not be deleted until the transition to the new program is complete.

## **3. Rationale**

At the 11/05/02 Senate Meeting a recommendation from the Liberal Studies Committee concerning conversion from 124 to 120 credits was passed. As part of this recommendation, Liberal Studies Electives could be changed from 9sh to 0-9sh. We have chosen to reduce the Liberal Studies electives in this program from 9sh to 6sh to help bring the program into compliance.

At the 12/03/02 Senate meeting FDED 102 American Education Theory and Practice was removed from the list of teacher education core courses. Consequently, we are removing FDED 102 from this program.

MATH 117 Principles of Mathematics was originally designed to give secondary mathematics education majors an overview of the nature of mathematics and to help prepare them for calculus and MATH 271, by including precalculus topics not included elsewhere in the curriculum. Since that time MATH 271 has been expanded to a two course sequence MATH 271/272 and the need for secondary mathematics education majors to have additional preparation before taking the course has declined. We also feel that much of the precalculus material that these students will eventually teach would be better presented from a more advanced standpoint at a time later in the curriculum and closer to the actual student teaching experience. This will allow students to see how secondary school mathematics relates to the mathematics they are learning in our program. From a resource perspective, we were offering two sections of MATH 117 to first semester freshman secondary mathematics education majors. Analysis from the past four years has shown that approximately 30% of the students enrolled in MATH 117 actually remain as secondary mathematics education majors, and MATH 117 was not transferring well for students who changed majors. By offering a new course later in our curriculum, we will be able to offer one section per year instead of two, and we can look at the material from a more advanced, integrative perspective.

Our current program requires students to select two 1 credit seminars from the following: MATH 452, 453, 454, 455. Students often miss out on extra training in the content areas that are represented by the seminars they do not take. Also, it is difficult to accomplish all of what we want from these seminars

in one credit courses. By combining all of the topics into a three credit seminar, we feel that all students will be introduced to methods of teaching in all four of the areas, and each student will have more opportunity for microteaching.

Currently each semester the department offers EDUC 456 Teaching Math in the Secondary Schools and one 1 credit seminar in teaching. This new three credit course MATH 430 will be offered every Spring, EDUC 456 will be offered every Fall, and the one credit seminars will no longer be offered. This still allows Secondary Mathematics Education majors to have a course discussing teaching secondary mathematics in the semester before student teaching whether they student teach in the Fall or Spring semester. It will also save the Mathematics Department two credits of faculty load each year.

The course COSC 205 Programming Languages for Secondary Education was designed to train students in the Pascal, LOGO, and BASIC programming languages that were used in secondary school. These languages are fast becoming out of date. In addition, COSC 205 is only taken by secondary mathematics education majors, and is offered only once per year. Schools often turn to their mathematics teachers to teach computer science courses, and we would like our students to have the most up to date programming skills available. The course COSC 110 meets this need. In addition, COSC 110 is offered every semester, giving our students added flexibility in scheduling. Finally, COSC 110 is required of all other mathematics majors, allowing more flexibility for students who switch from mathematics to mathematics education and vice versa.

### **III. Implementation**

1. Current students will still be required to complete 9sh of Liberal Studies electives, and will be required to take FDED 102 provided that the course is still offered. MATH 117 and the current one credit seminars will be offered during the 2003-04 academic year. MATH 117 will only be offered to students currently in the program who did not take the course previously. New freshman will wait to take MATH 340 in coming years. Current students will be encouraged to take the current one credit seminars during 2003-04. New freshman will not take the seminar courses. If a current student is not able to complete the one credit seminars, we will substitute the new 3 credit seminar into his or her program. The Computer Science Department will no longer offer COSC 205, so current students will have to substitute COSC 110 if they have not already taken COSC 205.

The new course MATH 430 will be offered for the first time during the 2004-05 academic year and MATH 340 will be offered for the first time during the 2005-06 academic year. By this time the new freshmen will have completed MATH 271.

2. Faculty resources are adequate.

We currently offer EDUC 456 Teaching Math in the Secondary Schools and one 1 credit seminar every semester. We also offer two sections of MATH 117 every Fall semester, for a total of 14 credit hours of faculty load. Once implemented our new schedule will call for offering EDUC 456 every Fall semester, MATH 430 every spring semester, and only one section of MATH 340 every Fall semester (since the number of secondary mathematics education majors decreases from the freshman to sophomore years), for a total of 9 credit hours of faculty load. This is part of the Mathematics Department plan to respond to a reduction in faculty complement. This still allows Secondary Mathematics Education majors to have a course discussing teaching secondary mathematics in the semester before student teaching whether they student teach in the Fall or Spring semester.

The Computer Science Department will no longer have to offer COSC 205; instead, it can use the same resources to offer a section of COSC 110 to accommodate the secondary mathematics majors. Alternately, the secondary mathematics majors may be distributed throughout sections of COSC 110 that are offered.

3. Other resources are adequate. We will use the same resources used to teach the old courses.

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

#### **IV. Periodic Assessment**

1. This course will be evaluated during the usual National Council for Accreditation of Teacher Education (NCATE) review that all education programs undergo. The NCATE standards used to evaluate are Candidate (Student) Knowledge, Skills, and Dispositions; Assessment System and Unit Evaluation; Field Experiences and Clinical Practice; Diversity; Faculty Qualifications, Performance, and Development; and Governance and Resources (see for example, <http://coents2.coe.iup.edu/ncate/stan/standard.htm>).

Also, before graduation and after the student teaching experience, each student participates in an exit interview with the Department's Coordinator of Student Teaching. During this interview the student evaluates the program in terms of what was useful in teaching, and what could be improved.

2. NCATE evaluations occur every five years. The exit interviews occur at the end of every semester.

3. National Council for Accreditation of Teacher Education, Pennsylvania Department of Education.

## **V. Course Proposals**

Two new courses, MATH 340 Principles of Secondary School Mathematics, and MATH 430 Seminar in Teaching Secondary School Mathematics, and one course revision, MATH 460 Technology in Mathematics Instruction. Proposals follow.

## **VI. Letters of Support**

**From:** Jim Wolfe [jlwolfe@iup.edu]  
**Sent:** Sunday, November 17, 2002 5:24 PM  
**To:** Gary Stoudt  
**Subject:** Re: Letter of support

Gary,

Computer Science is happy to support the replacement of COSC 205 with COSC 110 for Secondary Mathematics Education majors. We believe that this change will benefit these students by giving them an opportunity to gain more in-depth understanding of a programming language and the task of programming. A full semester of COSC 110 should also prove less confusing than the language change which takes place now in the middle of COSC 205. However, in moving from an overview of two languages to a complete course in one language, the students may need to put more effort into the course - the projects may be more than superficial.

We are offering COSC 205 for the Spring 2003 semester. As you know, we have been offering the course during the Spring semester for the past few years. Regarding Spring 2004, we will await your advice as to whether or not to offer it.

Because COSC 110 is offered every semester (and summer), the Secondary Mathematics Education majors should have a much easier time in fitting it into their schedule than they had with COSC 205. We are happy to cooperate in making this curriculum change.

Jim Wolfe  
Chair, Computer Science

---

**From:** Gail Sechrist [gailsech@iup.edu]  
**Sent:** Wednesday, January 22, 2003 2:50 PM  
**To:** Gary Stoudt  
**Subject:** Re: More on Curriculum Revisions

No you don't need a letter of support or much of a rationale other than it has been removed from the College Educ. Core.

Gail

----- Original Message -----

**From:** "Gary Stoudt" <gsstoudt@iup.edu>  
**To:** "Gail Sechrist" <gailsech@iup.edu>  
**Sent:** Wednesday, January 22, 2003 9:48 AM  
**Subject:** More on Curriculum Revisions

> I just thought of a procedural question that perhaps you can answer. I believe that at the last Senate  
> meeting FDED 102 was removed from the Education core. We are almost done with our Secondary  
> Mathematics Education revisions and we are removing FDED 102 from our program as  
> well. Do we need a letter of support from the FDED "department" given that the course is no longer  
> in the Education core?