



**Remove all general education requirements above the State Minimum Core: The number of science hours required is being reduced from 12 to 8, and Mathematics, BA majors must complete 8 hours of science selected from ANTH 1013/1011L, ASTR 2003/2001L, BIOL 1543/1541L, BIOL 1603/1601L, BIOL 1613/1611L, BIOL 2013/2011L, CHEM 1103/1101L, CHEM 1123/1121L, GEOL 1113/1111L, GEOL 1133/1131L, PHYS 2054, or PHYS 2074); a 3-hr PHIL requirement is being removed, the 1013 world language requirement is being removed (3 hrs), and the additional humanities requirement (3 hrs) is also being removed.**

**This reduction in 13 hours will offset the newly added major requirement to complete a minor, or an additional major or complete the UTeach curriculum for secondary certification, or the Fulbright College Four-Year Honors Core for a BA degree. The overall total number of hours required to complete major requirements, aside from the added minor (or additional major, UTeach curriculum or 4-Year Honors Core) will be 54-55 hours (8 of which will satisfy the University science core requirement).**

**Remove language in catalog that math and science electives must be approved by an advisor.**

**In Option 3 (Statistics), removing STAT 4043 Sampling Techniques as a required course which will be substituted by a 3000+ MATH or STAT elective.**

**Total hours required for a degree have been changed to 120 from 124, and the 8-semester plan has been adjusted to reflect this.**

Check if either of these boxes apply and provide the necessary signature:

- Program change proposal adds courses offered by another academic college, and that college dean's office has been notified. The signature of the dean of that academic college is required here: \_\_\_\_\_
- Program change proposal deletes courses offered by another academic college, and that college dean's office has been notified. The signature of the dean of that academic college is required here: \_\_\_\_\_

Check all the boxes that apply and complete the required sections of the form:

- Change of Name and Code (Complete only sections I, II, V and VII.)
- Change Course Requirements: (Complete all sections of the form except "Proposed Name" in II, section III, and section IV.)
- Change Delivery Site/Method (Complete all sections of the form except "Proposed Name" in II, section III, and section IV.)
- Change Total Hours (Complete all sections of the form except "Proposed Name" in II, section III, and section IV.)
- Change in Program Policies

## **SECTION VI: Justification**

*Justify this change and state its likely effect on any other degree program (including those outside the school or college). Identify any program or program components (other than courses) to be eliminated if this program is implemented. (Program and course change forms must also be submitted for such related changes.)*

**The Department of Mathematical Sciences is committed to the values of a broad, interdisciplinary education, highlighting the utility and value of the mathematics degree in a wide variety of careers and disciplines. We propose that both the Bachelor of Arts and Bachelor of Science degrees in Mathematics require the completion of a minor or a second major, the completion of the UTeach curriculum, or the completion of the Fulbright Four-Year Honors Core.**

**The current requirements pose constraints on students wishing to pursue second degrees (and anecdotally have been turning students away from the major). The faculty feel that these requirements \* increase career options for our students \* place our subject in a broader context \* promote the goals of liberal education \* will promote interdisciplinarity \* will make obtaining the math degree as a second major more accessible for students who already take a lot of our courses, particularly for students in ENGR and the sciences.**

**We've investigated the range of minors available-- this does not seem to be a constraint. (WCOB in particular offers many minors that would be suitable for our students) There is plenty of room within the hours even for obtaining two minors. Additionally the requirement encourages students to participate in the UTeach curriculum or the Fulbright Four Year Honors Core, supporting those programs. The list of programs satisfying the proposed requirement is not meant to be restrictive—MASC is open to additional possibilities.**

**It is most probable that this degree requirement cannot be automated within ISIS, but will not add much to the (already significant) burden of checking degree audits by hand in the Fulbright Deans Office.**

Anecdotally, students seem eager for and interested in this change.

Reduction of 124 to 120 hrs is due to compliance w/ Act 747.

The removal of STAT 4043 as a required course in the Math, BS Option 3 is a correction needed in the catalog, because STAT 4043 is an inactive class. Students in Option 3 have been allowed the substitution of another 3000+ MATH or STAT course in place of the STAT 4043 when it wasn't offered. STAT 4043 should have been removed as a requirement a number of years ago.

## **SECTION VII: Catalog Text and Format**

*In the box below, insert the current catalog text which is to be changed, with changes highlighted with the color yellow. Include all proposed changes identified in Section V. Only changes explicitly stated in Section V will be considered for approval by the University Course and Programs Committee, the Graduate Council and the Faculty Senate. If you are proposing a new program, give proposed text with all of the elements listed below. If you are proposing modified text, include these elements as appropriate.*

**Include the following elements, in order, in the catalog text for proposed undergraduate program(s) or program changes:**

- State complete major/program name
- Briefly define or describe the major/program or discipline.
- Identify typical career goals or paths for graduates. (Optional)
- State admission requirements (if any) for entry or entry into upper/advanced level of major/program.
- Identify location in catalog of university, college/school, and department/program requirements which the student must meet in addition to hours in the major, but do not restate these requirements.
- State course requirements in the major and any allied areas, giving number of hours and specific courses; specify electives or elective areas and give numbers of hours and courses in elective pools or categories; identify any other course requirements.
- State any other requirements (required GPA, internship, exit exam, project, thesis, etc.).
- Identify name and requirements for each concentration (if any).
- Specify whether a minor or other program component is allowed or required and provide details.
- State eight-semester plan requirements

**For minors, state requirements in terms of hours, required courses, electives, etc.**

**For graduate program/units, include elements (as needed) parallel to those listed for undergraduate programs above.**

**For Law School program/units, prepare text consistent with current catalog style.**

**For centers, prepare text consistent with current catalog style.**

**Requirements for a Major in Mathematics, B.S. Degree:** Students must complete ~~124-120~~ degree credit hours to include the minimum University/state core requirements (see page 41), the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under Fulbright College Academic Regulations and Degree Completion Program Policy), and the ~~following liberal arts and major~~ course requirements. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

8 Eight total hours from the following science courses:

~~ANTH 1013/1011L, ASTR 2003/2001L, BIOL 1543/1541L, BIOL 1603/1601L, BIOL 1613/1611L, BIOL 2013/2011L, CHEM 1103/1101L, CHEM 1123/1121L, GEOL 1113/1111L, GEOL 1133/1131L, PHYS 2054, PHYS 2074~~

~~Completion of a minor other than in Mathematics or Statistics, completion of the UTeach curriculum, completion of an additional major, or completion of the Fulbright Four Year Honors Core for a Bachelor of Science degree.~~

~~15-20—Two of the following sequences of science courses and one advanced level course from BIOL, CHEM, CSCE, GEOL or PHYS:~~

~~BIOL 1543/1541L and one of BIOL 1603/1601L, BIOL 1613/1611L,~~

~~BIOL 2013/2011L, or BIOL 2533/2531L~~

~~CHEM 1103/1101L and CHEM 1123/1121L~~

~~CSES 2014~~

~~GEOL 1113/1111L and GEOL 1133/1131L~~

~~PHYS 2054 and PHYS 2074~~

~~3—Philosophy course to be selected from: PHIL 2003, PHIL 2103, or PHIL~~

~~3103~~

~~3—One additional non-PHIL University/state core humanities course~~

~~3—Any world language at the Elementary II 1013 level. NOTE: If 1003 is~~

~~taken as a prerequisite for 1013, 1003 usually will not count towards the 124120 hours required for college degree credit; see Fulbright College Admission Requirements on page 129 for further details.~~

As a part of the requirements for a B.S. degree with a major in mathematics, the student must also complete the following 28 hours: MATH 2574, MATH 2584, MATH 2701, MATH 2803, MATH 3093, MATH 3113, MATH 4513, MATH 4933, CSCE 2004, and the completion of a senior writing project under the direction of a faculty member; this is typically carried out in MATH 4933, ~~or satisfied with an~~ honors senior thesis ~~will satisfy this requirement~~. It is recommended that MATH 2701 and MATH 2803 be taken as early as possible in the program. In addition, for the B.S. degree in mathematics, the student is required to complete one of the following three options:

Option 1 (Applied): A program for the student who wishes to prepare for either applied work in mathematics or graduate work in some field other than mathematics or statistics. Requirements: 18-19 hours to include STAT 3013 or STAT 5103; MATH 3423, CSCE 3313, MATH 4353, MATH 4363, and one of MATH 4443, MATH 4523, or STAT 4003/4001L.

Option 2 (Pure). A program for the student who is seeking a broad background in mathematics or who wishes to study mathematics at the graduate level. Requirements: 18 hours to include MATH 4113, MATH 4443, MATH 4523, and 9 hours of electives from CSCE 3313 or mathematics and statistics courses numbered above 3000.

Option 3 (Statistics). A program for the student who wishes to emphasize statistics or who intends to study statistics at the graduate level. Requirements: 19 hours of MATH or STAT courses at the 3000-level or higher to include MATH 4353, STAT 3013 or STAT 5103, STAT 4003, STAT 4001L, ~~and~~ STAT 4033, ~~and STAT 4043~~. Strongly recommended electives in this program are STAT 5103 and STAT 5113.

~~All of the mathematics and statistics electives used in fulfilling the requirements for the bachelor of science in mathematics must be approved by the student's adviser.~~

A 2.00 cumulative grade-point average on all work completed in the department of mathematical sciences will be required for graduation with a B.A. or B.S. degree.

#### **Mathematics, B.S., Option 1 (Applied)**

##### **Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

##### **Fall Semester Year 1**

3 ENGL 1013 Composition I  
4 †MATH 2554 Calculus I  
3 US History requirement  
3 Social science university/state core requirement  
[3 General elective or coursework to be applied towards minor \(as needed\)](#)  
~~3-1013 Elementary II world language course~~

##### **16 Total Hours**

##### **Spring Semester Year 1**

3 ENGL 1023 Composition II  
4 †MATH 2564 Calculus II  
1 MATH 2701 Survey of Higher Mathematics  
[3 †MATH 2803 Introduction to Mathematical Proof](#)  
~~3 CSCE 2004 Programming Foundations~~  
[4 Science university/state core lecture with corequisite lab requirement](#) ~~Science Sequence 1 (continued)~~

##### **15 Total Hours**

##### **Fall Semester Year 2**

4 †MATH 2574 Calculus III  
4 † CSCE 2004 Programming Foundations  
3 Social Science university/state core requirement  
[4 Science university/state core lecture with corequisite lab requirement](#) ~~Science Sequence 1 (continued)~~

##### **15 Total Hours**

##### **Spring Semester Year 2**

4 †MATH 2584 Differential Equations  
3 †MATH 3093 Abstract Linear Algebra  
3 Social science university/state core requirement  
3 Fine arts, ~~PHIL requirement~~, or ~~non-PHIL~~ humanities [university/state core](#) requirement (as needed)  
[3 General elective or coursework to be applied towards minor \(as needed\)](#)  
~~3-1 General Elective~~

##### **16-164 Total Hours**

##### **Fall Semester Year 3**

3 †MATH 3113 Abstract Algebra  
3 †STAT 3013 Probability and Statistics  
4 CSCE 2014 Programming Foundations II  
[3 General electives or coursework to be applied towards the minor \(as needed\)](#) ~~PHIL requirement, non-PHIL humanities, or fine arts requirement (as needed)~~  
~~3 General Elective~~

### **163 Total Hours**

#### **Spring Semester Year 3**

3 † MATH 3423 Advanced Applied Mathematics

3 † MATH 4353 Numerical Linear Algebra

[3 Fine arts or humanities university/state core requirement \(as needed\)](#)

[6 General electives or coursework to be applied towards minor \(as needed\)](#) ~~3 Non-PHIL humanities, fine arts or PHIL requirement (as needed)~~

~~6 General Electives~~

### **15 Total Hours**

#### **Fall Semester Year 4**

3 † MATH 4513 Advanced Calculus

3 † MATH 4363 Numerical Methods

3-4 † MATH 4443 Complex Variable for Application or † STAT 4003/4001 Statistical Methods and Lab

3 † CSCE 3313 Algorithms

[3 General elective or coursework to be applied towards minor \(as needed\)](#)

~~3 General Electives~~

### **15-16 Total Hours**

#### **Spring Semester Year 4**

3 † MATH 4933 Math Major Seminar

~~12-13~~ [11-12 General electives or coursework to be applied towards minor](#) ~~10-11 General Electives~~ (as needed to complete [124-120](#) degree credit hours)

~~15-16~~ [14-15](#) Semester Hours

### **124-120 Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic

Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

#### **Mathematics, B.S., Option 2 (Pure)**

#### **Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

#### **Fall Semester Year 1**

3 ENGL 1013 Composition I

4 † MATH 2554 Calculus I

[4 Science university/state core lecture with corequisite lab requirement](#)

~~4 Science Sequence 1~~

3 Social science university/state core requirement

~~3-1013 Elementary II world language course~~

### **174 Semester Hours**

#### **Spring Semester Year 1**

3 ENGL 1023 Composition II

4 † MATH 2564 Calculus II

1 MATH 2701 Survey of Higher Mathematics

3 † MATH 2803 Introduction to Mathematical Proof

[4 Science university/state core lecture with corequisite lab requirement](#)

~~4 Science Sequence 1 (continued)~~

### **15 Semester Hours**

#### **Fall Semester Year 2**

4 † MATH 2574 Calculus III

3 † MATH 3093 Abstract Linear Algebra

[3 General elective or coursework to be applied towards minor \(as needed\)](#)

~~4 Science Sequence 2~~

3 U.S. history university/state core requirement

3 Fine arts, ~~PHIL requirement~~ or ~~non-PHIL~~ humanities [university/state core requirement](#) ~~course~~ (as needed)

### **17-16 Semester Hours**

#### **Spring Semester Year 2**

4 † MATH 2584 Differential Equations

3 † MATH/STAT 3000-4000 Level Elective

4 CSCE 2004 Programming Foundations

[3 General elective or coursework to be applied towards minor \(as needed\)](#)

~~4 Science Sequence 2 (continued)~~

### **154 Semester Hours**

#### **Fall Semester Year 3**

3 † MATH 3113 Introduction to Abstract Algebra I

3 † MATH /STAT 3000-4000 Level Elective

~~4 Science Sequence 3 (3000+ course from Science Sequence 1 or 2)~~

3 ~~PHIL requirement, non-PHIL humanities course, or fine arts~~ [course or humanities](#) requirement (as needed)

[6 General electives or coursework to be applied towards minor \(as needed\)](#)

~~3 General Elective~~

### **165 Semester Hours**

#### **Spring Semester Year 3**

3 † MATH 4513 Advanced Calculus I

3 † MATH 4113 Introduction to Abstract Algebra II  
3 Social science university/state core requirement  
[6 General electives or coursework to be applied towards minor \(as needed\)](#)  
[3 non-PHIL humanities course, fine arts course or PHIL course requirement \(as needed\)](#)

[3 General Electives](#)

#### 15 Semester Hours

##### Fall Semester Year 4

3 † MATH 4443 Complex Variable for Application  
3 † MATH/STAT 3000-4000 Level Elective  
3 Social Science university/state core requirement  
[6 General electives or coursework to be applied towards minor \(as needed\)](#)

[6-4 General Elective](#)

#### 15-135 Semester Hours

##### Spring Semester Year 4

3 † MATH 4933 Math Major Seminar  
3 † MATH 4523 Advanced Calculus II  
[10 General elective or coursework to be applied towards minor \(as needed to meet 120 hour requirement\)](#)

[9-7 General Electives](#)

#### 15-136 Semester Hours

#### 124-120 Total Hours

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter  
‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

### Mathematics, B.S., Option 3 (Statistics)

#### Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

##### Fall Semester Year 1

3 ENGL 1013 Composition I  
4 † MATH 2554 Calculus I  
[4 Science university/state core lecture with corequisite lab requirement](#)  
[4 Science Sequence 1](#)

[3-1013 Elementary II world language course](#)

3 Social science university/state core requirement

#### 17-14 Semester Hours

##### Spring Semester Year 1

3 ENGL 1023 Composition II  
4 † MATH 2564 Calculus II  
[1 MATH 2701 Survey of Higher Mathematics](#)  
3 † MATH 2803 Introduction to Mathematical Proof  
[1 MATH 2701 Survey of Higher Mathematics](#)  
[4 Science university/state core lecture with corequisite lab requirement](#)  
[4 Science Sequence 1 \(continued\)](#)

#### 15 Semester Hours

##### Fall Semester Year 2

4 † MATH 2574 Calculus III  
3 † MATH 3093 Abstract Linear Algebra  
[3 General elective or coursework to be applied towards minor \(as needed\)](#)  
[4 Science Sequence 2](#)

4 CSCE 2004 Programming Foundations I

#### 15-14 Semester Hours

##### Spring Semester Year 2

4 † MATH 2584 Differential Equations  
3 † STAT 3013 Probability and Statistics  
3 U.S. History university/state core requirement  
3 Fine arts, [philosophy or non-PHIL](#) or humanities [university/state core course](#) requirement  
[3 General elective or coursework to be applied towards minor \(as needed\)](#)  
[4 Science Sequence 2 \(continued\)](#)

#### 16-7 Semester Hours

##### Fall Semester Year 3

3 † MATH 3113 Abstract Algebra  
4 † STAT 4003/4001L Statistical Methods and Lab  
[3 Science Sequence 3 \(3000+ course from Science Sequence 1 or 2\)](#)  
[3 Fine arts, philosophy or non-PHIL humanities requirement \(as needed\)](#)  
3 Social science university/state core requirement  
[6 General electives or coursework to be applied towards minor \(as needed\)](#)

#### 16 Semester Hours

##### Spring Semester Year 3

3 † MATH 4353 Numerical Linear Algebra

3 †‡MATH/STAT 3000-4000 Level Elective

3 Social science university/state core requirement

[6 General electives or coursework to be applied towards minor \(as needed\)](#)

[6 General Electives](#)

**15 Semester Hours**

**Fall Semester Year 4**

4 †‡MATH 4513 Advanced Calculus I

3 †‡STAT 4033 Nonparametric Stat Methods

3 Fine arts, ~~philosophy or non-Phil~~ or humanities [university/state core](#) requirement (as needed)

[6 General electives or coursework to be applied towards minor \(as needed\)](#)

[6-4 General Electives](#)

**15-16 Semester Hours**

**Spring Semester Year 4**

3 †‡MATH 4933 Math Major Seminar

3 †‡[STAT 4043 Sampling Techniques](#) [MATH/STAT 3000-4000 Level Elective](#)

8 [General electives or coursework to be applied towards minor](#) ~~General Electives~~ (as needed to meet [124-120](#) hour requirement)

**14 Semester Hours**

**[124-120](#) Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

## SECTION VIII: Action Recorded by Registrar's Office

### PROGRAM INVENTORY/DARS

PGRM \_\_\_\_\_

SUBJ \_\_\_\_\_

CIP \_\_\_\_\_

CRTS \_\_\_\_\_

DGRE \_\_\_\_\_

PGCT \_\_\_\_\_

OFFC&CRTY VALID \_\_\_\_\_

### REPORTING CODES

PROG. DEF. \_\_\_\_\_

REQ. DEF. \_\_\_\_\_

Initials \_\_\_\_\_

Date \_\_\_\_\_

### Distribution

Notification to:

(1) College

(2) Department

(3) Admissions

(4) Institutional Research

(5) Continuing Education

(6) Graduate School

(7) Treasurer

(8) Undergraduate Program Committee

5/12/08