PROPOSED CHANGES TO THE BACHELOR OF ARTS, MATHEMATICS MAJOR IN THE COLLEGE OF NATURAL SCIENCES SECTION IN THE UNDERGRADUATE CATALOG 2016-2018

Type of Change  ☑ Academic Change
☐ Degree Program Change (THECB\textsuperscript{2} form required)

Proposed classification  ☑ Exclusive  ☐ General  ☐ Major

1. IF THE ANSWER TO ANY OF THE FOLLOWING QUESTIONS IS YES, THE COLLEGE MUST CONSULT LINDA DICKENS, DIRECTOR OF ACCREDITATION AND ASSESSMENT, TO DETERMINE IF SACS-COC APPROVAL IS REQUIRED.

• Is this a new degree program?  Yes ☐ No ☑
• Does the program offer courses that will be taught off campus?  Yes ☐ No ☑
• Will courses in this program be delivered electronically?  Yes ☐ No ☑

2. EXPLAIN CHANGE TO DEGREE PROGRAM AND GIVE A DETAILED RATIONALE FOR EACH INDIVIDUAL CHANGE:

Both major options
Calculus sequence expansion to require 2 semesters of calculus while providing more flexibility to meet the requirement.

Rationale: Upper-division mathematics courses requiring calculus now have a prerequisite of M 408D, 408L, or 408S. The content of M 408D or 408M is not essential to upper-division study in mathematics.

Standard Option
Addition of M 325K to list of approved mathematics choices.

Rationale: M 325K, Discrete Mathematics, provides similar depth of experience in proofs as preparation for more advanced mathematics courses such as M 361K or M 365C (courses in real analysis).
Add requirement of 9 additional hours of upper-division mathematics.

Rationale: This requirement is implicit due to the existing requirement of 24 hours of upper-division mathematics. Listing the 9 additional hours makes the requirement more explicit.

Options in Mathematics for Middle Grades and Secondary School Teaching
Addition of M 328K, Introduction to Number Theory, as an alternative to M 325K.

Rationale: M 328K provides a similar depth of experience in writing proofs as preparation for more advanced mathematics courses such as M 361K or 365C (courses in real analysis).
Deletion of M 360M, Mathematics as Problem Solving, in requirement #4. Deletion of the ability to count both M 325K and M 328K toward the major.

Rationale: Making M 325K or 328K a choice, and removing M 360M altogether, ensures that students complete either M 343K or 373K (courses in algebraic structures) without adding additional hours to the major. A strong foundation in algebraic structures is important for future teachers to master.
3. **THIS PROPOSAL INVOLVES (Please check all that apply)**

- [ ] Courses in other colleges
- [ ] Courses in proposer’s college that are frequently taken by students in other colleges
- [ ] Flags
- [ ] Course in the core curriculum
- [x] Change in course sequencing for an existing program
- [ ] Courses that have to be added to the inventory
- [ ] Requirements not explicit in the catalog language (e.g., lists of acceptable courses maintained by department office)
- [ ] X update field of study requirements for mathematics certification
- [ ] Change in admission requirements (external or internal)

4. **SCOPE OF PROPOSED CHANGE**

a. Does this proposal impact other colleges/schools? **Yes [x] No [ ]**
   If yes, then how?

b. Do you anticipate a net change in the number of students in your college? **Yes [ ] No [x]**
   If yes, how many more (or fewer) students do you expect?

c. Do you anticipate a net increase (or decrease) in the number of students from outside of your college taking classes in your college? **Yes [ ] No [x]**
   If yes, please indicate the number of students and/or class seats involved.

d. Do you anticipate a net increase (or decrease) in the number of students from your college taking courses in other colleges? **Yes [ ] No [x]**
   If yes, please indicate the number of students and/or class seats involved.

If 4 a, b, c, or d was answered with yes, please answer the following questions. If the proposal has potential budgetary impacts for another college/school, such as requiring new sections or a non-negligible increase in the number of seats offered, at least one contact must be at the college-level.

- How many students do you expect to be impacted?
- Impacted schools must be contacted and their response(s) included:
  - Person communicated with:
  - Date of communication:
  - Response:

- e. Does this proposal involve changes to the core curriculum or other basic education requirements (42-hour core, signature courses, flags)? **No.** If yes, explain:

  **If yes, undergraduate studies must be informed of the proposed changes and their response included:**
  - Person communicated with:
  - Date of communication:
  - Response:

- f. Will this proposal change the number of hours required for degree completion? **No.** If yes, explain:

5. **COLLEGE/SCHOOL APPROVAL PROCESS**

   Department approval date: April 10, 2015; October 1, 2015
   College approval date:
   Dean approval date:

**PROPOSED NEW CATALOG TEXT:**

Degree Program Impact Statement revised on 9/30/14 8:07 AM.
Mathematics

Undergraduates seeking a Bachelor of Arts degree with a major in mathematics must choose either the standard option or the middle grades or secondary school teaching option.

Major: Standard Option

At least twenty-four semester hours of upper-division coursework in mathematics. Students must earn a grade of at least $C-$ in each mathematics and science course required for the degree, and a University grade point average in these courses of at least 2.00.

The student must complete the following:

1. **One of the following sequences:**
   - a. Mathematics 408C and 408D
   - b. Mathematics 408N and 408S
   - c. Mathematics 408K and 408L

   Mathematics 408N and 408S, or 408K and 408L, may substitute for 408C.

2. Mathematics 340L or 341
3. **One course chosen from:** Mathematics 325K, 328K, 343K, or 373K
4. Mathematics 361K or 365C
5. Mathematics 362K
7. **Nine hours of additional upper-division hours in mathematics.**

Major: Options in Mathematics for Middle Grades and Secondary School Teaching:

At least twenty-four semester hours of upper-division coursework in mathematics. Students must earn a grade of at least $C-$ in each mathematics and science course required for the degree, and a grade point average in these courses of at least 2.00.

The teaching options are designed to give students the mathematical background appropriate for teaching middle grades and secondary school mathematics, but students must meet additional requirements, including grade point average requirements, to obtain certification. Lists of the combined requirements of the UTeach-Natural Sciences certification programs and these options are available from the UTeach-Natural Sciences academic adviser and in the Undergraduate Catalog.

All students must complete the following:

1. **One of the following sequences:**
   - a. Mathematics 408C and 408D
   - b. Mathematics 408N and 408S
   - c. Mathematics 408K and 408L

   Mathematics 408N and 408S, or 408K and 408L, may substitute for 408C.

2. Mathematics 340L or 341
4. Mathematics 360M or 375D
5. Mathematics 361K or 365C
6. Mathematics 328K, 343K, or 373K
Students pursuing teacher certification through the UTeach-Natural Sciences program must also complete the following:

7. Biology 337 (Topic 2: Research Methods: UTeach), Chemistry 368 (Topic 2: Research Methods—UTeach), or Physics 341 (Topic 7: Research Methods—UTeach)
8. History 329U or Philosophy 329U
9. Eighteen semester hours of professional development coursework consisting of:
   a. Curriculum and Instruction 650S
   b. Curriculum and Instruction 365C or UTeach-Natural Sciences 350
   c. Curriculum and Instruction 365D or UTeach-Natural Sciences 355
   d. Curriculum and Instruction 365E or UTeach-Natural Sciences 360
   e. UTeach-Natural Sciences 101, 110, and 170
10. For students seeking middle grades certification, the following courses: Educational Psychology 363M (Topic 3: Adolescent Development), or Psychology 301 and 304; and Curriculum and Instruction 339E

To graduate and be recommended for certification, students who follow the teaching option must have a University grade point average of at least 2.50. They must earn a grade of at least C- in the supporting course in requirement 8 and in each of the professional development courses listed in requirement 9 and must pass the final teaching portfolio review; those seeking middle grades certification must also earn a grade of at least C- in each of the courses listed in requirement 10. For information about the portfolio review and additional teacher certification requirements, students should consult the UTeach-Natural Sciences academic adviser.

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1 See http://www.utexas.edu/provost/planning/cat_change/UnderGrad.html for detailed explanations.
2 Texas Higher Education Coordinating Board.
3 Exclusive: of exclusive application and of primary interest only to a single college or school ("no protest" period is 5 working days); general: of general interest to more than one college or school (but not for submission to the General Faculty) ("no protest" period is 10 working days); major legislation must be submitted to the General Faculty for adoption ("no protest" period is 10 working days).
4 The proposed text should be based on the text of the current catalog available at http://www.utexas.edu/faculty/council/pages/catalog_chgs/catalogcopy.html.

Strike through and replace (with underlines) only the specific language to be changed. Do NOT use “track changes!” For questions on completing this section, please contact Victoria Cervantes, fc@austin.utexas.edu, 471-5936 or Brenda Schumann, brenda.schumann@austin.utexas.edu, 475-7654.