

DOCUMENTS OF THE GENERAL FACULTY

**PROPOSED CHANGES TO THE BACHELOR OF SCIENCE IN MATHEMATICS DEGREE
PROGRAM IN THE COLLEGE OF NATURAL SCIENCES CHAPTER IN THE *UNDERGRADUATE
CATALOG 2016-2018***

Dean Linda Hicke in the College of Natural Sciences has filed with the secretary of the Faculty Council the following changes to the *Undergraduate Catalog, 2016-2018*. The secretary has classified this proposal as legislation of *general* interest to more than one college or school.

The Committee on Undergraduate Degree Program Review recommended approval of the changes on February 4, 2016, and forwarded the proposal to the Office of the General Faculty. The Faculty Council has the authority to approve this legislation on behalf of the General Faculty. The authority to grant final approval on this legislation resides with UT System.

If no objection is filed with the Office of the General Faculty by the date specified below, the legislation will be held to have been approved by the Faculty Council. If an objection is filed within the prescribed period, the legislation will be presented to the Faculty Council at its next meeting. The objection, with reasons, must be signed by a member of the Faculty Council.

To be counted, a protest must be received in the Office of the General Faculty by February 24, 2016.



Hillary Hart, Secretary
General Faculty and Faculty Council

3. THIS PROPOSAL INVOLVES (Please check all that apply)

- | | | |
|--|--|---|
| <input checked="" type="checkbox"/> Courses in other colleges | <input type="checkbox"/> Courses in proposer's college that are frequently taken by students in other colleges | <input type="checkbox"/> Flags |
| <input type="checkbox"/> Course in the core curriculum | <input type="checkbox"/> Change in course sequencing for an existing program | <input checked="" type="checkbox"/> Courses that have to be added to the inventory |
| <input type="checkbox"/> Change in admission requirements (external or internal) | <input type="checkbox"/> Requirements not explicit in the catalog language (e.g., lists of acceptable courses maintained by department office) | M 339C, Actuarial Case Studies, is a new course. M 329F, Theory of Interest, replaces ACF 329, Theory of Interest. Both are specific to the Actuarial Science option. |

4. SCOPE OF PROPOSED CHANGE

- a. Does this proposal impact other colleges/schools? Yes No
 If yes, then how? The Mathematics in Context approved list is comprised of courses outside of the College of Natural Sciences, in addition to M 374M. We anticipate a slight decrease in the number of seats spread across a variety of geological sciences courses.
- b. Do you anticipate a net change in the number of students in your college? Yes No
 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
 If yes, please indicate the number of students and/or class seats involved.
- d. Do you anticipate a net increase in the number of students from your college taking courses in other colleges? Yes No
 If yes, please indicate the number of students and/or class seats involved. We anticipate the number of seats needed in the following courses:
 Over an academic year, we anticipate the following increases: M 374M (45), CH 353 (8), 354 (8); CS 341 (4), 342 (4), 345 (4), 346 (4), 353 (4), 367 (4); EE 411 (4), 325 (4), 360C (4), 362K (4); PHY 329 (8), 336K (8), 352K (8).
 We anticipate a slight decrease in the number of seats spread across a variety of geological sciences courses.

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: Department of Electrical and Computer Engineering

Person communicated with: Brian Evans

Date of communication: April 21, 2015

Response: approval to include EE courses

How many students do you expect to be impacted?

Impacted schools must be contacted and their response(s) included: Department of Chemistry

Person communicated with: Graeme Henkelman

Date of communication: April 20, 2015

Response: approval to include CH courses

How many students do you expect to be impacted?

Impacted schools must be contacted and their response(s) included: Department of Computer Science

Person communicated with: Bruce Porter via Mohamed Gouda

Date of communication: April 24, 2015
 Response: approval to include CS courses

How many students do you expect to be impacted?

Impacted schools must be contacted and their response(s) included: Department of Physics

Person communicated with: Greg Sitz

Date of communication: April 20, 2015

Response: approval to include PHY courses

Impacted schools must be contacted and their response(s) included: College of Liberal Arts

Person communicated with: Richard Flores, Associate Dean

Date of communication: February 4, 2016

Response: no objection to removal of foreign language/foreign culture during CUDPR meeting

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

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? If yes, explain: **Yes.**
 With the option deletions, addition, and changes, all of the BS in Mathematics degree options will be 120 semester hours.

5. COLLEGE/SCHOOL APPROVAL PROCESS

Department approval date: April 10, 2015

College approval date: May 27, 2015

Dean approval date: September 28, 2015, David Vanden Bout, Associate Dean

PROPOSED NEW CATALOG TEXT:

BACHELOR OF SCIENCE IN MATHEMATICS

As an alternative to the Bachelor of Science and Arts and the Bachelor of Arts degrees, the Bachelor of Science in Mathematics is designed with a twofold purpose: to offer students a more extensive scientific program that may better prepare them for graduate study or employment, and to recognize students who choose to pursue a more demanding program. Students are given the opportunity to develop greater breadth and depth in their mathematical programs as well as to combine mathematics with a concentration in another scientific discipline. ~~To accomplish these goals, the minimum number of semester hours is increased and the maximum limit is removed. Specialization in one additional scientific area is encouraged, and the foreign language requirement is shortened by one semester.~~

Students seeking the Bachelor of Science in Mathematics ~~must~~ select one ~~of six~~ options: actuarial science, ~~applied mathematics, mathematical sciences, pure mathematics,~~ mathematics for secondary teaching, ~~and~~ mathematics honors, ~~or mathematics.~~ Students who choose the option in mathematical sciences ~~must also select a specialization in either scientific computation or statistics, probability, and data analysis.~~ Students who plan to follow option VI, mathematics honors, must be admitted to the Dean's Scholars Honors Program.

Prescribed Work Common to All Options

In addition, students seeking the Bachelor of Science in Mathematics must complete the following degree-level requirements. In some cases, courses that fulfill degree-level requirements also meet the requirements of the core.

1. Two courses with a writing flag. One of these courses must be upper-division.
2. One course with a quantitative reasoning flag.

Courses with flags are identified in the *Course Schedule*. They may be used simultaneously to fulfill other requirements, unless otherwise specified.

- ~~3. Options I–IV: One of the following foreign language/culture choices:

 - a. Second semester level proficiency in a foreign language course.
 - b. First semester level proficiency in a foreign language and a three semester hour course in the culture of the same language area.
 - c. Two three semester hour culture courses chosen from one foreign culture category from an approved list in the dean's office and college advising centers. Students in options V and VI are exempt from this requirement.~~
- ~~3.~~ 4. Forty-two semester hours of upper-division coursework. At least twenty-one semester hours of upper-division coursework must be completed in residence at the University.
- ~~4.~~ 5. Eighteen semester hours in mathematics must be completed in residence at the University.

Additional Prescribed Work for Each Option

Option I: Actuarial Science

- ~~5.~~ 5. Eight semester hours of majors-level coursework in one of the following areas: astronomy, biology, chemistry, geological sciences, and physics.
- ~~6.~~ 7. Mathematics 408C and 408D, or 408N, 408S, and 408M. Complete one of the following:
 - a. Mathematics 408C, 408D, and 427L.
 - b. Mathematics 408N, 408S, and 408M.
 - c. Mathematics 408K, 408L, and 408M.
Mathematics 408N and 408S, or 408K and 408L, may substitute for 408C.
- ~~7.~~ 8. Actuarial Foundations 329, Economics 304K and 304L.
- ~~8.~~ 9. Economics 304K and 304L, Accounting 310F or both 311 and 312.
- ~~9.~~ 10. Accounting 310F or both 311 and 312, Finance 357.
- ~~10.~~ 11. Finance 357, Computer Science 303E.
- ~~11.~~ 12. At least thirty two semester hours of upper-division coursework in mathematics and supporting areas, consisting of

One of the following courses: Mathematics 328K, 343K, 361, 361K, 365C, 367K, 373K, Mathematics 340L or 341, Mathematics 362K and either 358K or 378K.

Four courses chosen from the following: Mathematics 339J, 339U, 339V, 339D, 339W, 349P, and 349R.

Enough additional coursework to provide a total of at least thirty two hours. In addition to upper-division mathematics courses, the following courses in supporting areas may be counted toward this requirement: Economics 420K, Finance 354, 367, 377 (Topic 2: *Financial Risk Management*), Legal Environment of Business 320F, 323, Management Information Systems 325, Risk Management 357E, 369K, 377. Courses used to satisfy this requirement may not be counted toward requirement 13.

Upper-division mathematics courses, including:

 - a. Mathematics 325K or 328K. Mathematics 328K is recommended for students with substantial experience in writing proofs.
 - b. Mathematics 341. Mathematics 340L may be substituted for 341 if the course was completed prior to entry into the mathematics entry-level major.
 - c. Mathematics 362K and either 358K or 378K.
 - d. Mathematics 329F, 339D, 339J, and 339U.

- e. Two courses chosen from the following: 339V, 339W, and 349P.
 - f. One additional course chosen from: Mathematics 339C, 339V, 339W, 349P, 349R, 378K. One of the courses fulfilling requirement 11a through requirement 11f must be taught in the inquiry based learning (IBL) format. IBL courses are identified each semester through a notation under the unique number in the course schedule and through a list maintained in the mathematics advising office in Robert Lee Moore Hall, room 4.101.
12. At least six semester hours of upper-division coursework must be outside both mathematics and the fields of study listed in requirement 5 6. Philosophy courses in logic, computer science courses in discrete mathematics, engineering courses, and actuarial foundation courses ~~counted toward requirement 12e~~ may not be used to fulfill this requirement.
13. ~~14.~~ Enough additional coursework to make a total of ~~126~~ 120 semester hours.

Option II: Applied Mathematics

- ~~6.~~ Eight semester hours in one of the following areas: astronomy, biology, chemistry, geological sciences, and physics.
- ~~7.~~ Mathematics 408C and 408D, or 408N, 408S, and 408M.
- ~~8.~~ Computer Science 303E or the equivalent.
- ~~9.~~ Thirty two semester hours of upper division coursework in mathematics, consisting of the following courses; the student should consult the applied mathematics adviser for information on other courses that may be counted toward this requirement.
 - a. ~~Mathematics 340L or 341.~~
 - b. ~~Mathematics 427K, 348, 362K, and 374M.~~
 - c. ~~Mathematics 361 and 365C.~~
 - d. ~~Mathematics 343K or 373K.~~
 - e. ~~Enough of the following coursework to provide a total of at least thirty two hours: Mathematics 346, 365D, 368K, 372K, 376C.~~
- ~~10.~~ At least six semester hours of upper division coursework must be outside both mathematics and the fields of study listed in requirement 6. Philosophy courses in logic, computer science courses in discrete mathematics, and engineering courses may not be used to fulfill this requirement.
- ~~11.~~ Enough additional coursework to make a total of 126 semester hours.

Option III: Mathematical Sciences

Specialization in Statistics, Probability, and Data Analysis

- ~~6.~~ Eight semester hours in one of the following areas: astronomy, biology, chemistry, geological sciences, and physics.
- ~~7.~~ Mathematics 408C and 408D, or 408N, 408S, and 408M.
- ~~8.~~ Computer Science 303E or the equivalent.
- ~~9.~~ At least thirty two semester hours of upper division coursework in mathematics and related areas, consisting of
 - a. ~~Mathematics 325K.~~
 - b. ~~Mathematics 427K and 362K.~~
 - c. ~~Mathematics 340L or 341.~~
 - d. ~~Mathematics 361K or 365C.~~
 - e. ~~Mathematics 358K and 378K.~~
 - f. ~~Mathematics 328K, 343K, 346, or 373K.~~
 - g. ~~Additional coursework chosen from the following: Computer Science 327E or 347, Economics 341K, 350K (Topic 4: *Advanced Econometrics*), 350K (Topic 6: *Advanced Microeconomic Theory*), 350K (Topic 7: *Applied Economic Analysis*), 354K, Electrical Engineering 366L, 379K (Topic 15: *Information Theory*), Geography 360G, 360L, Mathematics 339J, 339U, 339V, 343L, 343M, 346, 348, 349P, 349R, 365D, 368K, 373L, 374G, 374M, Mechanical Engineering 366L, 366Q, 366R, 367S, Psychology 325K, Risk~~

Management 357E. Courses used to satisfy this requirement may not be counted toward requirement 10.

Most of these courses have substantial prerequisites, sometimes including courses in other departments. Some have restricted enrollment. The student is responsible for meeting prerequisites and other requirements for enrollment in the courses selected to fulfill this requirement. Courses should be chosen in consultation with the specialization adviser to form a coherent program consistent with the student's background and goals.

Educational Psychology 371 may not be counted toward this degree if it is taken after Mathematics 358K or 378K.

10. At least six semester hours of upper division coursework must be outside both mathematics and the fields of study listed in requirement 6. Philosophy courses in logic, computer science courses in discrete mathematics, engineering courses, and courses counted toward requirement 9g may not be used to fulfill this requirement.
11. Enough additional coursework to make a total of 126 semester hours.

Specialization in Scientific Computation

Students who complete this specialization may simultaneously fulfill some of the requirements of the Elements of Computing Certificate or the Certificate in Scientific Computation. These certificate programs are described in Transcript Recognized Certificate Programs.

6. Eight semester hours in one of the following areas: astronomy, biology, chemistry, geological sciences, and physics.
7. Mathematics 408C and 408D, or 408N, 408S, and 408M.
8. One of the following sequences: Statistics and Data Sciences 318 and 222; Computer Science 312 and 314; or Computer Science 303E and 313E.
9. At least thirty two semester hours of upper division coursework in mathematics and related areas, consisting of
 - a. Mathematics 340L or 341.
 - b. Mathematics 427K, 348, 362K, and 368K.
 - c. Mathematics 361K or 365C.
 - d. Students who fulfill the requirements of the Elements of Computing Certificate or the Certificate in Scientific Computation may count up to six hours of upper division certificate coursework toward this requirement. Computer Science 323E may not be counted toward this requirement. Courses used to satisfy this requirement may not be counted toward requirement 10.
 - e. Additional coursework chosen from the following: Mathematics 325K or 328K (but not both), 427L, 343K or 373K (but not both), 343L, 346, 358K, 361, 365D, 372K, 374M, 376C, 378K.
10. At least six semester hours of upper division coursework must be outside both mathematics and the fields of study listed in requirement 6. Philosophy courses in logic, computer science courses in discrete mathematics, engineering courses, and courses counted toward requirement 9e may not be used to fulfill this requirement.
11. Enough additional coursework to make a total of 126 semester hours.

Option IV: Pure Mathematics

6. Eight semester hours in one of the following areas: astronomy, biology, chemistry, geological sciences, and physics.
7. Mathematics 408C and 408D, or 408N, 408S, and 408M.
8. At least thirty two semester hours of upper division coursework in mathematics, consisting of
 - a. Mathematics 340L or 341.
 - b. Mathematics 427K, 361, 362K, 365C, and 373K.
 - c. One of the following two course sequences: Mathematics 427K and 372K, 358K and 378K, 362K and 339J, 348 and 368K, 365C and 365D, 367K and 365G, 367K and 367L, 373K and 373L.

- ~~d. Additional hours of upper division coursework in mathematics chosen with the approval of the mathematics adviser. Either Mathematics 343K or 361K may be counted toward this requirement, but not both.~~
- ~~9. At least six semester hours of upper division coursework must be outside both mathematics and the fields of study listed in requirement 6. Philosophy courses in logic, computer science courses in discrete mathematics, and engineering courses may not be used to fulfill this requirement.~~
- ~~10. Enough additional coursework to make a total of 126 semester hours.~~

Option V: Teaching

This option is designed to fulfill the course requirements for certification as a middle grades or secondary school mathematics teacher in Texas; the student chooses mathematics certification or mathematics, physical science, and engineering certification. However, completion of the course requirements does not guarantee the student's certification. For information about additional certification requirements, students should consult the UTeach-Natural Sciences academic adviser.

Students are encouraged to become familiar with a variety of mathematical software relevant to middle grades or secondary teaching, such as computer geometry systems, spreadsheets, and statistical software. Whenever possible, the student should take courses and sections of courses that use these types of software.

- ~~5. 6. History 329U or Philosophy 329U.~~
- ~~6. 7. Mathematics 408C and 408D, or 408N, 408S, and 408M. One of the following sequences:~~
- ~~Mathematics 408C and 408D.~~
 - ~~Mathematics 408N and 408S.~~
 - ~~Mathematics 408K and 408L.~~
- ~~Mathematics 408N and 408S, or 408K and 408L, may substitute for 408C.~~
- ~~8. At least six semester hours of upper division coursework must be outside mathematics. Philosophy courses in logic, computer science courses in discrete mathematics, and engineering courses may not be used to fulfill this requirement.~~
- ~~7. 9. Mathematics 315C.~~
- ~~8. 10. Biology 337 (Topic 2: *Research Methods: UTeach*), Chemistry 368 (Topic 1: *Research Methods: UTeach*) or Physics 341 (Topic 7: *Research Methods: UTeach*).~~
- ~~9. 11. The requirements of one of the following certification areas:~~
- ~~For mathematics certification: At least thirty two semester hours of upper division coursework in mathematics consisting of:~~
 - ~~Mathematics 340L or 341.~~
 - ~~Mathematics 325K or 328K, 333L, 358K, and 362K. Mathematics 328K is recommended for students with substantial experience in writing proofs.~~
 - ~~Mathematics 360M or 375D (Topic: *Discovery: Introduction to Advanced Study in Mathematics*).~~
 - ~~Mathematics 361K or 365C.~~
 - ~~Mathematics 343K or 373K.~~
 - ~~Mathematics 427J 427K or 378K.~~
 - ~~Enough of the following coursework to provide a total of at least thirty two semester hours: Two courses chosen from: Mathematics 427K, 328K, 339J, 339U, 343K, 343L, 348, 360M, 361, 365C, 365D, 368K, 373K, 373L, 475T (Topic: *Seminar for Prospective Teachers*), 375D (Topic: *Discovery: Introduction to Advanced Study in Mathematics*), 378K. A course used to fulfill requirements 11i 9ai through 11vi 9avi may not also be counted toward requirement 11vii 9avii.~~
 - ~~A three-semester-hour supporting course that uses mathematics but is in a field other than mathematics. The following courses may be used to fulfill this requirement: Accounting 310F or 311, Architectural Engineering 323K, Astronomy 307, 352K, 352L, 358, 367M, Chemistry 301 or 301H, 303, Civil Engineering 321, 341, Computer Science 303E, and 313E, Economics 420K, Electrical Engineering 302, 366, 366L, Geological Sciences 346C, 354, 476K, Geography 360L, Government 341M, Human Development and Family Sciences 322, Mechanical Engineering 320, 326, 366L, 366Q, 366R, Petroleum~~

and Geosystems Engineering 310, Physics 301, 303K, 303L, Psychology 325K, 332, Sociology 369L. ~~The supporting course may not also be counted toward other requirements in the prescribed work.~~

- b. For mathematics, physical science, and engineering certification:
 - i. Mathematics 325K or 328K, ~~427K~~, ~~427J~~, 333L, 341, 358K, and 362K.
 - ii. Mathematics 361K or 365C.
 - iii. Mathematics ~~360M~~ or 375D (Topic: *Discovery: Introduction to Advanced Study in Mathematics*).
 - iv. Physics 301, 101L, 316, 116L, 315, and 115L.
 - v. Chemistry 301 or 301H, 302 or 302H, and 204.
 - vi. Chemical Engineering 379 (Topic: *Fundamentals of Engineering and Design*), 379 (Topic: *Engineering Energy Systems*), and Mechanical Engineering 379M (Topic: *Design of Machines and Systems*).
10. 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.
11. ~~13.~~ Students seeking middle grades certification must complete the following courses: Educational Psychology 363M (Topic 3: *Adolescent Development*), or Psychology 301 and 304; and Curriculum and Instruction 339E. Students seeking mathematics, physical science, and engineering certification may not seek middle grade certification.
12. ~~14.~~ Enough additional coursework to make a total of at least ~~126~~ 120 semester hours.

Option VI: Mathematics Honors

5. Breadth requirement: An honors mathematics course; one of the following two-semester sequences: Biology 315H and 325H, Chemistry 301H and 302H, or Physics 301, 101L, 316, and 116L; and nine additional semester hours chosen from the preceding courses, Physics 315 and 115L. Credit earned by examination may not be counted toward this requirement
6. An honors section of Mathematics 427K, and six semester hours of coursework chosen from Mathematics 365C, 367K, and 373K
7. Twenty additional semester hours of upper-division coursework in mathematics approved by the departmental faculty adviser
8. A section of Undergraduate Studies 302 or 303 that is approved by the departmental honors adviser.
9. A section of Rhetoric and Writing 309S that is restricted to students in the Dean Scholars Honors Program.
10. Mathematics 379H.
11. Thirty additional semester hours of coursework approved by the departmental honors adviser.
12. Six semester hours of coursework in the College of Liberal Arts or the College of Fine Arts.
13. Enough additional coursework to make a total of 120 semester hours.

Option VII: Mathematics

5. Eight semester hours of majors-level coursework in one of the following areas: astronomy, biology, chemistry, geological sciences, and physics.
6. Computer Science 303E.
7. 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.
8. Additional mathematics, including:

- a. Three of the following: Mathematics 408M or 427L, 427J, 341, 362K. Mathematics 340L may be substituted for 341 if the course was taken prior to entry into the mathematics entry-level major.
- b. Mathematics 325K or 328K. Mathematics 328K is recommended for students with substantial experience in writing proofs.
- c. One of the following: Mathematics 343K, 361K, 365C, 367K, 373K.
- d. Twenty-one additional hours of mathematics, chosen from Mathematics 325K, 427J or 427K, 427L, 328K, 329F, 333L, 339C, 339D, 339J, 339U, 339V, 339W, 340L or 341, 343K, 343L, 344K, 346, 348, 349P, 349R, 358K, 361, 361K, 362K, 362M, 365C, 365D, 365G, 367K, 367L, 368K, 372K, 373K, 373L, 374G, 374M, 375D, 378K, and 379H. Mathematics 375, 375C, and 375T may be applied toward this requirement with prior approval of the faculty advisor.
- e. One course identified as taught in the inquiry based learning (IBL) format. IBL courses are identified each semester through a notation under the unique number in the course schedule and through a list maintained in the mathematics advising office in Robert Lee Moore Hall, room 4.101.

Mathematics courses listed in requirements 8a through 8d may only be applied toward one requirement.

9. Mathematics in context. One course chosen from:

- a. Mathematics 374M
- b. Chemistry 353, 354
- c. Computer Science 341, 342, 345, 346, 353, 367
- d. Electrical and Computer Engineering 411, 325, 360C, 362K
- e. Physics 329, 336K, 352K

Courses in requirements 9b through 9d may require additional prerequisites. Mathematics 374M may not count toward both requirement 8 and 9.

10. At least six semester hours of upper-division coursework must be outside both mathematics and the fields of study listed in requirement 5. Philosophy courses in logic, computer science courses in discrete mathematics, engineering, and actuarial foundation courses may not be used to fulfill this requirement.

11. Enough additional coursework to make a total of 120 semester hours.

Special Requirements

Students in all options must fulfill both the University's General Requirements for graduation and the college requirements. They must also 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. More information about grades and the grade point average is given in *General Information*.

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 requirements 5 and 8 and in each of the professional development courses listed in requirement ~~4~~ 10 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 ~~4~~ 11. For information about the portfolio review and additional teacher certification requirements, students should consult the UTeach-Natural Sciences academic adviser.

To graduate under option VI, students must remain in good standing in the Dean's Scholars Honors Program, must submit an honors thesis approved by the departmental honors adviser, and must present their research in an approved public forum, such as the college's annual Undergraduate Research Forum.