

Board of Trustees Agenda Item

Board Meeting Date: August 6, 2012

Title of Item: Approval of Associate in Science Degree in Mathematics for Transfer (Mathematics AS-T)

Background and Analysis:

Foothill seeks board approval for application to the State Chancellor's Office for the associate degree for transfer. This degree meets the requirements established by the State Chancellor's Office in response to SB 1440 to establish a means of simplifying student movement within and between the segments of higher education in California.

The Associate in Science in Mathematics for Transfer Degree will prepare students to transfer to California State Universities (CSUs). Students who complete the Associate in Science in Mathematics for Transfer Degree will be ensured preferential transfer status to many CSUs as mathematics majors and/or majors in related disciplines. The Associate in Science in Mathematics for Transfer Degree requirements will fulfill the lower division major requirements at many CSUs. Students are advised, however, to meet with a counselor to assess the course requirements for a specific CSU.

Mathematics and related subjects play important dual roles in our culture. Although mathematics is a study in its own right, it is also an indispensable tool for expressing and understanding ideas in the sciences, engineering and an increasing number of other fields. Students completing this degree will be able to construct appropriate models of natural phenomena, develop those models with appropriate mathematical techniques and interpret results of those models.

The new degree has been approved by Foothill's curriculum committee and Academic Senate.

Recommendation: Foothill administration recommends approval of the Associate in Science in Mathematics for Transfer Degree (AS-T) Program

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|---------------------------|-------------------------------------|
| Submitted by: | Judy Miner |
| Additional contact names: | Kimberlee Messina, Carolyn Holcroft |
| Is backup provided? | Yes |

Foothill College
CCC-510: Substantial Changes to an Approved Program
Associate in Science Degree in Mathematics for Transfer (Mathematics AS-T)

Criteria A: Appropriate to Mission

1. Statement of Program Goals and Objectives

The mission of the Mathematics program is to enable students to clearly communicate mathematical ideas through graphs, tables of data, equations, and verbal descriptions. Students will construct appropriate models of natural phenomena, develop those models with appropriate mathematical techniques, and interpret results of those models. The Associate in Science in Mathematics for Transfer Degree is designed to provide students with the necessary course work required to prepare students to transfer to a CSU campus and complete a baccalaureate degree in mathematics.

2. Catalog Description

The Associate in Science in Mathematics for Transfer Degree will prepare students to transfer to California State Universities (CSUs). Students who complete the Associate in Science in Mathematics for Transfer Degree will be ensured preferential transfer status to many CSUs as mathematics majors and/or majors in related disciplines. The Associate in Science in Mathematics for Transfer Degree requirements will fulfill the lower division major requirements at many CSUs. Students are advised, however, to meet with a counselor to assess the course requirements for a specific CSU.

Mathematics and related subjects play important dual roles in our culture. Although mathematics is a study in its own right, it is also an indispensable tool for expressing and understanding ideas in the sciences, engineering and an increasing number of other fields. Students completing this degree will be able to construct appropriate models of natural phenomena, develop those models with appropriate mathematical techniques and interpret results of those models.

The student will be required to meet both of the following requirements:

- (1) Completion of 90 quarter units that are eligible for transfer to the California State University, including both of the following:
 - (a) The Intersegmental General Education Transfer Curriculum (IGETC) or the California State University General Education-Breadth Requirements.
 - (b) A minimum of 27 quarter units in a major or area of emphasis.
- (2) Obtainment of a minimum grade point average of 2.0.

3. Program Requirements: *(all units are quarter units).*

Required Core Courses: 20 units

| | | |
|---------|-----------|---------|
| MATH 1A | Calculus◆ | 5 Units |
| MATH 1B | Calculus◆ | 5 Units |
| MATH 1C | Calculus◆ | 5 Units |
| MATH 1D | Calculus | 5 Units |

And one course each from List A and List B. 10-11 units

List A:

| | | |
|---------|------------------------|---------|
| MATH 2A | Differential Equations | 5 Units |
| MATH 2B | Linear Algebra | 5 Units |

List B:

| | | |
|----------|------------------------|---------|
| *MATH 2A | Differential Equations | 5 Units |
| *MATH 2B | Linear Algebra | 5 Units |
| MATH 22 | Discrete Mathematics◆ | 5 Units |

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|---------|-----------------------------------------------------|---------|
| MATH 10 | Elementary Statistics ♦ | 5 Units |
| PHYS 4A | General Physics (Calculus) ♦ | 6 Units |
| C S 1A | Object Oriented Programming Methodologies in JAVA ♦ | 5 Units |
| C S 2A | Object Oriented Programming Methodologies in C++ ♦ | 5 Units |

| | |
|------------------------------------------------------------------|-----------------|
| Required major subtotal: | 30-31 Units |
| Completion of CSU GE or IGETC | 53-58 Units |
| Transferable electives (as needed) to complete 90 quarter units: | 1-7 Units |
| Total Units: | 90 Units |

** MATH 2A or 2B may be used to satisfy List B requirement if they were not used to meet the requirement for List A.*

Note: Courses identified with a ♦ may be double-counted for the major and general education.

4. Background and Rationale:

The Associate in Science in Mathematics for Transfer Degree will offer students a streamlined path for transferring to many CSUs. This degree will satisfy the undergraduate requirements at many CSUs for students who are mathematics majors or majors in related disciplines.

Criteria B: Need

6. Place of Program in Curriculum/Similar Programs

The mathematics department currently offers an Associate in Science Degree in Mathematics. After careful deliberation, the mathematics department decided to continue offering the Associate in Science Degree in addition to the Associate in Science in Mathematics for Transfer Degree, since Foothill offers a broad variety of lower-division mathematics courses, some of which are not included in the Transfer Model Curriculum. These other courses offer a wider variety of choices for students and there is consistent student interest and demand for them. The Associate in Science Degree provides students with a broad base of knowledge in mathematics and its application to related disciplines.

Criteria C: Curriculum Standards

See attachments:

- a. FH-Mathematics TMC Template.
- b. Course Outlines of Record
- c. Transfer Applicability Reports

Criteria D: Adequate Resources

No additional resources will be required beyond the college's current resources. This includes: library and learning resources, facilities and equipment and financial support. All the faculty that will teach in this program meet the State minimum qualifications.

Criteria E: Compliance

There are no enrollment restrictions specific to this program. There are no licensing or accrediting standards that apply to this program.