



CATALOG YEAR 2014-2015

COLLEGE/SCHOOL/SECTION: _____

Course: Add: Delete:
(check all that apply) Change: Number Title SCH Description Prerequisite

Response Required: New course will be part of major minor as a required or elective course

Response Required: New course will introduce , reinforce , or apply concepts

If new, provide Course Prefix, Number, Title, **Measurable** Student Learning Outcomes, SCH Value, Description, prerequisite, and lecture/lab hours if applicable. If in current online catalog, provide change and attach text with changes in red and provide a brief justification.

Program: Delete: Add: Change: Attach new/changed Program of Study description and 4-year plan. If in current online catalog, provide change and attach text with changes in red.

Minor: Add: Delete: Change: Attach new/changed minor. If in current online catalog, provide change and attach text with changes in red.

College Introductory Pages: Add information: Change information:
Attach new/changed information. If in current online catalog, provide change and attach text with changes in red.

Other: Add information: Change information: Attach new/changed information. If in current online catalog, provide change and attach text with changes in red.

Justification:

UT's New Mathways Project indicated that there is a movement among community colleges to have students not needing Calculus for their majors substitute a Statistics (MATH 1342 in ACGM) or Math for Liberal Arts (MATH 1332 in ACGM) for College Algebra. Apparently 15 Texas Universities have signed on (this as "Transfer Champions") to accept this in transfers and the two alternative courses have been accepted by THECB for satisfying the core. Therefore, previous MATH 1333 (Mathematics for Liberal Arts) has been spread into two semester courses of MATH 1332 (Mathematics for Liberal Arts I) and MATH 1333(Mathematics for Liberal Arts II). Math 1332 & Math 1333 will be developed to provide this option for students.

MATH 1333

Mathematics for Liberal Arts **II**. Three semester hours. (FL/SS)

Course Descriptions

This course is designed to enhance mathematical literacy and to stimulate interest in appreciation for mathematics and quantitative reasoning as valuable tools for addressing issues in a constantly changing society. Topics may include, at an introductory level, logical reasoning and problem solving through mathematical games and puzzles; sets, relations, and functions; counting and number concepts (number theory and infinity). Prerequisite: MATH 1314 or SAT Mathematics score of 500+ or ACT Mathematics score of 20+.

Course Descriptions (Old)

~~This course is designed to enhance mathematical literacy and to stimulate interest in and appreciation for mathematics and quantitative reasoning as valuable tools for addressing issues in a constantly changing society. Topics may include, at an introductory level: 1) logical reasoning and problem solving through mathematical games and puzzles; 2) counting and number concepts (number theory and infinity); 3) geometry (Euclidean/non-Euclidean/fractal geometries, and topology); and 4) probability and statistics. Prerequisite: MATH 1314.~~

Student Learning Outcomes. Upon successful completion of the course, the student will be able to:

- recognize the definitions of basic mathematical terms, such as Pigeonhole Principle and Fibonacci, Prime, Rational, and Irrational numbers and use them in problem solving;
- recognize several types of problems that can be solved by induction;
- recognize, describe, and use specific properties of numbers in problem solving, e.g., identity element properties of addition and multiplication;
- determine if a given relation has certain properties, e.g., whether it is reflexive, transitive, symmetric, or antisymmetric;
- determine if a given function has certain properties, e.g., whether it is injective, surjective, or bijective;
- analyze written arguments on mathematical content and problems, e.g., sample solutions/proofs to problems using the Pigeonhole Principle or Mathematical Induction;
- compose written arguments on mathematical content and problems, e.g., sample solutions/proofs to problems using the Pigeonhole Principle, Mathematical Induction, or Cantor's diagonalization argument.

Approvals:

Signature

Date

Chair

Department Curriculum Committee

Chair

Department

Chair

College Curriculum Committee

Dean

04/2011



An Overview of the NMP: Focus on the Role of Four-Year Institutions

The Dana Center

The Charles A. Dana Center is an organized research unit in the College of Natural Sciences at the University of Texas at Austin. Through a partnership with the Texas Association of Community Colleges, all 50 community college districts in Texas are supporting the Dana Center's development of the New Mathways Project (NMP).

The NMP Model

The NMP is a systemic approach to improving student success and completion through implementation of processes, strategies, and structures based on four fundamental principles:

1. Multiple mathematics pathways with relevant and challenging math content aligned to specific fields of study
2. Acceleration that allows students to complete a college-level math course more quickly than in the traditional developmental math sequence
3. Intentional use of strategies to help students develop skills as learners
4. Curriculum design and pedagogy based on proven practice.

To support the implementation of these principles, the Dana Center and TACC are developing course materials that will enable students placed in developmental mathematics to complete a credit-bearing, transferable mathematics course on an accelerated timeline while simultaneously building skills for long-term success in college and in life. We are developing three course pathways: the statistics pathway, the quantitative reasoning pathway, and the STEM-prep pathway.

In addition to working closely with college administrators, faculty, and staff to develop the NMP, we are working with state-level leaders to ensure that state policies and practices enable the principles of the NMP to spread. This work addresses issues such as transfer, applicability, placement, and funding and includes outreach to four-year institutions in Texas.

The Role of Four-Year Institutions in Supporting the NMP

Four-year institutions play an important role in informing community college advising and course requirements for programs of study. A key challenge in scaling the NMP model is the perception that students who follow one of the NMP's mathematics pathways, such as the statistics pathway (which requires MATH 1342, Elementary Statistical Methods) or the quantitative reasoning pathway, (which requires MATH 1332, known as Math for Liberal Arts or Contemporary Mathematics) instead of taking college algebra (MATH 1314) will not satisfy the course requirements of majors at transfer institutions. To address this concern, we seek partnership with a group of four-year "transfer champions" that

- Endorse the NMP and its principles for mathematics education
- Support the work of the 50 community colleges to implement multiple mathematics pathways that align general education mathematics courses to programs of study
- Certify that NMP college-level courses are transferable for college credit and can be *predictably* applied to specified majors
- Work to improve communication about mathematics requirements for major programs of study at four-year institutions
- Work regionally with two-year colleges to modernize mathematics course requirements so they align with the recommendations of professional associations, particularly in the fields of nursing, communications, social work, and criminal justice.