

Request for Courses in the Core Curriculum

**Originating Department or College:** Engineering, Mathematics, and Physics/ College of Arts and Sciences

**Person Making Request:** Dr. Weam M. Al-Tameemi

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**Course Number and Title:** MATH 2413, Calculus I

Please attach in separate documents:

Completed Catalog Add/Change Form

Syllabus

List the student learning outcomes for the course (Statements of what students will know and/or be able to do as a result of taking this course. See appended hints for constructing these statements.)

Upon successful completion of this course, the students will be able to:

1. recognize the basic concepts of certain mathematical models and functions and their representation;
2. find limits of functions and use limits theorems. Transform indeterminate form limits and apply L'Hopital's rule to evaluate indeterminate limits. Determine continuity of functions;
3. differentiate and sketch graphs of various functions such as: polynomial and rational functions, trigonometric functions, exponential functions and logarithmic functions;
4. apply derivation rules and theorems such as the chain rule to find derivatives of sums, products, quotients, and compositions of functions, and use the derivative to solving extrema problems;
5. interpret integration geometrically and apply techniques of integration; and
6. Prepare and submit a final paper using phrases commonly found in mathematical literature.

Component Area for which the course is being proposed (check one):

Communication

Mathematics

Language, Philosophy, & Culture

Creative Arts

Life & Physical Sciences

American History

Government/Political Science

Social & Behavioral Science

Component Area Option

Competency areas addressed by the course (refer to the appended chart for competencies that are required and optional in each component area):

Critical Thinking

Communication Skills

Written Communication

Oral Communication

Visual Communication

Empirical & Quantitative Skills

Teamwork

Personal Responsibility

Social Responsibility

Because we will be assessing student learning outcomes across multiple core courses, assessment assigned in your course must include assessment of the core competencies. For each competency checked above, indicate the specific course assignment(s) which, when completed by students, will provide evidence of the competency. Provide detailed information, such as copies of the paper or project assignment, copies of individual test items, etc. A single assignment may be used to provide data for multiple competencies.

**Critical Thinking:** This course is designated to enhance student's critical thinking in mathematics through their creative thinking, innovation, analysis, evaluation, and synthesis of information (SLO's 1, 2, 4 & 5).

