Course number ____MA 1117____ Title: Mathematics and World Cultures

Catalog description:
This course, intended for non-majors, explores the development of mathematics in many diverse societies. Working within the historical framework, the student is introduced to significant mathematical concepts and to the way that different peoples have thought about and explored these concepts. The motivation for, development of, and basic procedures of various branches of mathematics (including trigonometry, analytic geometry, calculus, probability and statistics, and Euclidean and non-Euclidean geometry) are investigated within their cultural contexts. No mathematical background is required beyond basic arithmetic.

Instructor name(s): (if more than one instructor teaches)
1. Catherine D’Ortona
2.

For which area are you requesting your course approval?

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Please include course syllabi and relevant related course documents to support your request for inclusion.

(1) Describe how your course will advance the overall mission of the GE Program.

This course will expect students to
- Acquire knowledge of western culture and its relationship to non-western culture by examining the different approaches to mathematics used by members of various cultures.
- Acquire knowledge of the foundations and characteristics of educated discourse by studying the ways in which some of the greatest minds in history studied, taught, learned, and discussed mathematical concepts.
- Acquire knowledge of the approaches of the liberal arts disciplines by looking at a variety of approaches to one such discipline (mathematics) through the lens of another (history).
- Exhibit skills in effective written communication by writing a number of papers of various types. (As an online course, there will be no real opportunity to exhibit skills in effective oral communication.)
(2) Describe (when appropriate) how the course will include any or all of the following: a) substantial opportunities for oral and/or written communication, b) encourage active and participatory learning, or c) promote application of general education knowledge, skills, and dispositions to students’ lives outside of and beyond the university experience.

(a) Students will have substantial opportunities for written communication. They will write several short (1 page) essays and three longer papers. They will also be expected to participate in a number of discussion board activities on D2L.

(b) Students will research and write about a comparison of the ways two different cultures explored related mathematical ideas. The topics selected will not be explicitly discussed in class, so the students will have an opportunity to obtain information on their own. They will also write a substantial response to one of the other student’s comparison papers, creating a dialog within the class.

(c) Within the university setting, students will see a close interaction between two disciplines (mathematics and history) that they are likely to have compartmentalized before. Beyond the university, I’m not sure that the course will directly promote application of general education knowledge to the students’ lives, but I do believe that it will promote a greater appreciation of the important role of a particular type of general education knowledge (mathematics) in our society and so in their own lives.

(3) There are a number of goals of the GE Program (see instructions). Which will your course will promote?

Students will

- Acquire knowledge of
  - Western culture and its relationship to non-western cultures
  - The foundations and characteristics of educated discourse
  - The unity and diversity of humanity

- Exhibit skills in
  - Critical and analytical thinking
  - Effective written communication
  - Inquiry and research, including
    - Gathering relevant information
    - Evaluating multiple viewpoints
    - Constructing cogent arguments

- Develop dispositions to
  - Value knowledge and continuing growth
  - Form opinions and modify positions based on evidence
(4) Describe how your course meets the relevant course objectives for the chosen area (these can be found in the middle column of the General Education Plan on pages 6 – 21).

(a) The course will look at the ways in which various components of culture (such as religion, class structure, etc.) caused mathematics to develop differently in different times and places.

(b) Since the course will examine this dynamic in American mathematics along with a number of other cultures, they will have the opportunity to examine American culture in relationship to other civilizations’ systems.

(c) Students will have extensive reading assignments and will write a number of papers will in excess of 1500 words.

(5) Describe the types of activities and assignments students will complete to demonstrate the relevant desired student learning outcomes (e.g. in-class discussion, reflection paper, homework assignments, exam, etc). In other words, how will you be assessing students’ competencies in the relevant learning outcomes?

Students will demonstrate the desired learning outcomes through a variety of assignments:

(a) They will describe the kinds of issues, opportunities, and challenges brought about by increasing globalization through an essay and/or discussion board assignment (near the end of the semester) about the international nature of twentieth and twenty-first century mathematics.

(b) They will explain interactions of cultures and how those interactions may have shaped modern society in the paper asking them to compare the ways two different cultures examined the same mathematical concepts.

(c) They will describe and begin to evaluate their own cultural perspectives and biases in an essay question on the final exam.

_____ Approved by GES  _____ Approved by GES, pending minor change  _____ Not Approved by GES

Recommendation Dates and Signatures:

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<th>Department:</th>
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<td>Gen’l Education Subcomm.</td>
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<td>Academic Affairs Committee:</td>
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