2015

MATH 125 Mathematical Perspectives: Women in Mathematics

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MATH 125 – Mathematical Perspectives

Women in Mathematics

Monday, Wednesday, Friday   2:00 - 2:50
G30 Smith
Syllabus - Spring 2015

Instructor: Mrs. Sheila Doran
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Office Hours: Monday, Wednesday, & Friday 10:00 a.m. – 12:00 p.m.
Others by appointment

Texts:
Women in Mathematics
By Lynn M. Osen
Women, Art, and Geometry in Southern Africa
By Paulus Gerdes

Course Description

Women and Mathematics is a course designed for any student seeking core curriculum mathematics credit. It is a mathematical perspectives course partially focusing on the mathematical fields where some of the famous women mathematicians studied. Those topics include number theory, abstract algebra (groups), sequences, calculus, and geometry. The course will also include the mathematics of traditional activities of women such as quilting and the art of South African women.

Course Student Learning Outcomes

By the end of the course the student will be able to:

1. Compare and contrast the engagement of selected women in mathematics over the 4th to 20th centuries.
2. Describe relationships of conic sections in terms of the double cone, focus points, and applications.
3. Combine polygons to form tessellations by comparing vertex angle measurements.
4. Distinguish the type of symmetry in quilt blocks and artwork of women of southern Africa.
5. Classify patterns by border and wallpaper pattern classifications.
6. Convert numerals from base 2 to base 10 and from base 10 to base 2.
7. Perform a given operation on a given set and justify whether the set under the operation is a group.
Core Curriculum Student Learning Outcomes

This course fulfills the Mathematical Perspectives of Xavier’s core curriculum and aims to introduce students to the following Core Curriculum Student Learning Outcomes and characteristics of a Mathematical Perspectives course.

Core Curriculum Student Learning Outcomes
1a: Students recognize and cogently discuss significant questions in the humanities, arts, and the natural and social sciences.
   [Mathematics is also one of the humanistic disciplines, and it rests at the heart of both the natural and social sciences.]
2a: Students find, evaluate, and logically convey information and ideas in written and oral presentations.
2b: Students evaluate real-world problems using quantitative methods and arguments.

Characteristics of the Mathematical Perspectives course:
• Students engage mathematical ideas motivated by stimulating problems arising from the natural sciences, social sciences, or from within mathematics itself;
• Students explore these ideas through classroom activities and homework assignments that investigate how mathematical methods are used to solve these problems;
• Students consider questions designed to encourage reasoning about mathematical concepts and their relationships;
• Students formulate conjectures based on the results of their explorations and the intuitions they derive from their reasoning;
• Students explain their thought processes, justify the validity of their conclusions, and reflect on their thinking by means of oral classroom presentations and clearly written reports.

Grading

Your final grade will consist of the following:
Midterm Exam 22%
Final Exam 22%
Project average 24%
Homework/quiz average 24%
Class Participation 8%

Grading Scale:
92-100 = A 90-91 = A-
88-89 = B+ 82-87 = B 80-81 = B-
78-79 = C+ 72-77 = C 70-71 = C-
68-69 = D+ 60-67 = D 0-59 = F
Cell Phones
Cell phones must be turned off and stored away during class. Cell phones may not be used as a calculator during exams.

Attendance
Attendance will be taken each class. Be there and bring your ideas and questions!

Academic Honesty
Class policy for academic integrity listed below comes from the Xavier University Catalog entry on Academic Honesty. You may access the online Xavier Catalog at this web address: http://www.xavier.edu/catalog

• All work submitted for academic evaluation must be the student's own.
• The direct and unattributed use of another’s efforts is prohibited as is the use of any work untruthfully submitted as one’s own.
• Penalties for violations of this policy may include one or more of the following: a zero for that assignment or test, an “F” in the course, and expulsion from the University.