MATH 1630

Division: Natural Science and Mathematics
Department: Mathematics
Course: MATH 1630
Title: Discrete Mathematics
Catalog Description:

This is a course in discrete mathematics. Topics will include sets and relations, functions, induction, recursion, counting, permutations, combinations, algorithms, and graph theory. This course is required of mathematics and computer science majors as well as some fields of engineering.

General Education Requirements: N/A
Semesters Offered: Spring
Credit/Time Requirement: Credit: 3; Lecture: 3; Lab: 0
Clock/Hour Requirements: 0
Offered for Non-Credit: No
Prerequisites: Math 1050

Corequisites: Math 1050

Justification:

Discrete mathematics is a required topic in a variety of major programs. Included are mathematics, computer science, and engineering.

Student Learning Outcomes:

Upon successful completion of this course, students will:

- know the topics considered in discrete mathematics and their applications in a variety of settings as relates to computer science and other areas of science
- be able to solve problems related to these topics
- sense the relationship between topics in discrete mathematics and "real world" situations.

Content:

This course will include:

- logic and proof
- sets and relations on sets, including cardinalities and partial order
- functions
- induction and recursion
- counting principles, permutations and combinations
- graph theory.

General Education Outcomes:

6) Apply computational skills to a variety of contexts.
Students will solve several homework problems per section, most of which require computation.

Key Performance Indicators:

- Written exam for each of the chapters, and a comprehensive final exam.
- Homework will be collected for each section.
- 60%-80% of grade is based on test scores and 20%-40% on homework.

Representative Text and/or Supplies:

- Goodaire and Parmenter, *Discrete Mathematics with Graph Theory*, current edition, Prentice Hall.

Optimum Class Size: 20
Maximum Class Size: 36

Signatures:

I hereby submit this course syllabus:

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Kari Arnoldsen, PhD, Professor

I hereby find this course consistent with the goals and resources of the Mathematics Department:

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Kari Arnoldsen, PhD, Professor, Chair

I hereby find this course consistent with the goals and resources of the Natural Science and Mathematics Division:

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Dan Black, EdD, Associate Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

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Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

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Michelle Olsen, MLS, Campus Librarian (Richfield Campus)