



**KENOSHA UNIFIED SCHOOL DISTRICT NO. 1
CURRICULUM AND INSTRUCTIONAL SERVICES**

HIGH SCHOOL COURSE SYLLABUS

MATHEMATICS DEPARTMENT

Discrete Mathematics (331011 & 331012)

Number of Credits: 1

Prerequisites

Successful completion of Geometry (321011 & 321012) or Geometry Honors (322021 & 322022) and Algebra 2 (331011 & 331012) or Algebra 2/Trig (332021 & 332022)

Course Description

This course stresses the connections between contemporary mathematics and modern society, accommodating new ideas in mathematics and their applications to our daily lives. Topics applicable to real world situations include: management sciences, statistics, voting and social choice, fairness and game theory, size and growth, and money and resources.

Relevance

Discrete Mathematics is a course that is designed to bring contemporary mathematical thinking to the non-specialist. Environmental and economic decisions dominate modern life, and behind these decisions are fundamental principles of science, technology, and mathematics. In this course, you will gain an awareness of these fundamental yet accessible principles as you spend time learning how the uses of mathematics can help you understand different parts of everyday life and the world itself.

Course Standards

- | | | |
|---------------------------|----------------|-------------------------------|
| A. Mathematical Processes | C. Geometry | E. Statistics and Probability |
| B. Number relationships | D. Measurement | F. Algebraic relationships |

Most essential benchmarks may be viewed at: www.kusd.edu.

Lifelong Learning Standards

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|------------------------|--------------------------|------------------------|
| • Knowledgeable person | • Effective communicator | • Quality producer |
| • Complex thinker | • Self-directed learner | • Contributing citizen |

Lifelong learning benchmarks may be viewed at: www.kusd.edu.

Course Outline

SEMESTER 1

- Urban services: Euler circuits and management problems; urban graph traversal problems
- Business Efficiency: Hamiltonian circuits; traveling salesman problem
- Planning and Scheduling: scheduling tasks; critical-path schedules

- Exploring Data: displaying distributions (histograms, stemplots); mean, median, quartiles; five-number summary; standard deviation
- Probability: models and rules; outcomes
- Voting and Social Choice: voting and social choice; ordinal and cardinal ballots; run-off elections, etc.

SEMESTER 2

- Fair Division: taking turns; divide and choose
- Apportionment: The Apportionment Problem; divisor methods
- Growth and Form: similarity; conversions; scaling; dimensions
- Symmetry and Patterns: Fibonacci Numbers & Golden Ratio; symmetries; rosette, strip, and wallpaper patterns; fractals
- Tiling: tiling with regular and irregular polygons; translations
- Saving Models: arithmetic growth and simple interest; geometric growth and compound interest; investment; savings models
- Borrowing models: simple interest; compound interest; conventional loans; annuities; various loans
- Economics of Resources: growth models; non-renewable resources; sustaining renewable , resources

Board-Approved Instructional Materials

COMAP.Inc., For All Practical Purposes, W.H. Freeman and Company, 7th edition, 2006 (ISBN 0-7167-6939-5)

Online resources: www.whfreeman.com/fapp7e

Parents as Partners

Family involvement is an essential element for a student's success in mathematics. Be positive and support homework, don't do it for them. Think of yourself as a guide rather than your child's teacher. You can help by asking questions and listening. You may also help by visiting the online resources and encouraging your child to take advantage of the tutorials, interactive activities, and other online resources listed above.

Methods of Assessment

Final exams should be cumulative in nature, emphasizing the most essential benchmarks for the course. Results of the final exam represent 20 percent of the final grade, but this single measure *may not* drop a student's grade by more than one letter grade. In courses that rely heavily on a major project, performance exhibition, etc., the project should be divided into stages or components and each of those should be graded separately, providing students with frequent and specific feedback.

Board-Approved Grading Scale

Excerpts taken from School Board Rule 6452

GRADING SCALE

A+=98-100 percent	B+=86-89 percent	C+=76-79 percent	D+=66-69 percent
A=93-97 percent	B=83-85 percent	C=73-75 percent	D=63-65 percent
A-=90-92 percent	B-=80-82 percent	C-=70-72 percent	D-=60-62 percent
			F=0-59 percent

MAKE-UP WORK

Students submitting work up to ten school days late without prior approval may receive up to two grades lower on the work than they would have received if the work had been submitted on time (i.e., B+ lowered to a D+). Student work submitted after ten school days without prior approval shall not be accepted for credit and shall be recorded with a score of zero.

Upon returning to school after an absence, a student has the responsibility within the number of days equal to the length of the absence or suspension to meet with the teacher to develop a plan for making up missed work, quizzes, and examinations. A truant student has the responsibility on the first day he or she returns to the course/class to meet with the teacher to develop a plan for making up missed work, quizzes, and examinations. Lower grades may not be given for late work due to excused absences, suspension, or truancy unless the work is submitted later than agreed upon deadlines.

See Rule 6452 in its entirety at: www.kusd.edu.