

Davenport University
Department of Computer Information Science

1. MATH140, Finite Mathematics
2. 3 credits
3. Course coordinator: Tim Pennings/Gabriela Ziegler
4. Textbook No book purchase is necessary as a book fee was paid with registration and the materials will be available in the online Blackboard course.
5. Specific course information
 - a. Catalog description: This course introduces students to the fundamentals of non-calculus-based mathematics. Applications to Managerial Science and Computer Science serve as motivation for course material. Topics include the mathematics of finance (compound interest and annuities), optimization, and decision-making. The use of spreadsheets (Microsoft Excel) to handle more complex calculations will be introduced where appropriate.
 - b. Prerequisites: MATH125
 - c. Required course
6. a. Course Learning Outcomes:
 1. Solve a linear programming problem for the optimal solution.
 2. Model and solve problems involving compound interest, present value, future value, and the amortization of a loan
 3. Determine optimal strategies using game theory techniques.
 4. Analyze trends and predict future successes using Markov chains.
 5. Perform simulations using probability models.
 6. Apply computerized spreadsheet techniques and technology as appropriate to the course content.
 7. Solve systems of equations using matrices.
- b. Student Outcomes assessed by MATH140
 1. To analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
 2. To design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

c. Mapping of Course Learning Outcomes to Student Outcomes

Course Learning Outcomes 1 and 3 → ABET SO 1

Course Learning Outcomes 1, 3, 4 → ABET SO 2

7 Course Content:

Topic or Subtopic (Number of hours devoted to a topic are shown in parenthesis)

1. Mathematics of Finance and interest (7.5)
2. Annuities (4.5)
3. Matrix notations & Operators (6)
4. Linear Programming (6)
5. Probability (4.5)
6. Bayes (4.5)
7. Markov Chains (3)
8. Game Theory (6)