

MATHEMATICS

Chair: Randall Crist

Department Office: Old Gym, Room 230

Professors: S. Cheng, D. Malik, J. Mordeson, L. Nielsen; Professor Emeritus: D. Fuller;

Associate Professors: J. Carlson, R. Crist, N. Fong;

Assistant Professors: C. Farthing.

Department Description: Mathematics is the study of quantity and space and the symbolism associated with them.

Web Contact/Information: Additional information about this department may be found at <http://mth.creighton.edu>. However, for definitive details, students are strongly encouraged to check the University's website for Bulletin changes at <http://www.creighton.edu/Registrar>.

PROGRAMS IN MATHEMATICS

Specific Requirements for Admission to the Mathematics Major: Students desiring to major in mathematics should apply to the department and be assigned a major advisor after completing MTH 245 or MTH 246 or its equivalent.

B.S., Major in Mathematics: 21 Credits

Course Requirements

(All of the following:)

MTH 310	Fundamentals of Mathematics	3 credits
MTH 347	Calculus III	3 credits
MTH 529	Linear Algebra	3 credits
MTH 545	Differential Equations	3 credits
MTH 581	Modern Algebra I	3 credits
MTH 591	Analysis I	3 credits

Three additional 500-level credits arranged with department approval. 3 credits

Requisite Courses: Twelve 300-500-level credits (approved by the major advisor) in one or more departments (which could include mathematics).

B.S. Mth., Major in Mathematics: 21-33 Credits

The B.S.Mth. degree is recommended to students wishing to pursue graduate study in mathematics.

Pure Mathematics Track

(All of the following:)

MTH 310	Fundamentals of Mathematics	3 credits
MTH 347	Calculus III	3 credits
MTH 529	Linear Algebra	3 credits
MTH 545	Differential Equations	3 credits
MTH 581	Modern Algebra I	3 credits
MTH 591	Analysis I	3 credits

Fifteen additional 400-500-level credits in mathematics. 15 credits

Up to six 300-500-level computer science or statistics credits may be substituted for 500-level mathematics courses.

Medical Mathematics Track

(All of the following:)

MTH 310	Fundamentals of Mathematics	3 credits
MTH 347	Calculus III	3 credits
MTH 513	Probability and Statistics in the Health Sciences	3 credits
MTH 529	Linear Algebra	3 credits
MTH 545	Differential Equations	3 credits
MTH 547	Mathematics in Medicine and the Life Sciences	3 credits
MTH 571	Operations Research	3 credits

Requisite Courses: MTH 581 or MTH 591 and Nine 300-500-level credits (approved by the major advisor) in one or more departments (which could include mathematics). The following courses are highly recommended: BIO 317, CHM 341, CHM 443, MTH 583.

MATHEMATICS MINOR

Program Description: Mathematicians study concepts and theories used to solve problems involving quantitative relationships. Opportunities for mathematically-oriented graduates exist in such areas as physics, engineering, space technology, economics, business management, statistics, actuarial sciences, operations research, medical research, environmental sciences, and teaching. The Mathematics minor prepares graduates for positions in industry and teaching or to continue their education in graduate programs.

Contact: Chair, Department of Mathematics

(All of the following:)

MTH 245	Calculus I	4 credits
MTH 246	Calculus II	4 credits
MTH 529	Linear Algebra	3 credits
MTH 545	Differential Equations	3 credits
Two additional MTH courses numbered 300 or above.		4 credits

MATHEMATICAL LOGIC MINOR

Program Description: Mathematical logic is the study of the processes used in mathematical deduction. It has origins in philosophy. This is because the usual rules for inference and deduction can only be shown by nonmathematical argument. The program of study will examine the nature of formal systems including first-order and second-order logic. Methods of proof will be studied. Much of mathematical logic is based on the assumption that the notion of a set is unambiguous. This assumption was noticed not to be true over a century ago. Fuzzy set theory replaces the yes/no statement of set membership with a qualitative predicate. Related fields will be open to study, e.g., Algebraic Logic. Applications to Law will be featured.

Contact: Chair, Department of Mathematics

(All of the following:)

MTH 245	Calculus I	4 credits
MTH 310	Fundamentals of Mathematics	3 credits
PHL 312	Symbolic Logic	3 credits
MTH 572	Fuzzy Logic	3 credits

(Two of the following:)

PHL 201	Introduction to Logic	3 credits
PHL 469	Contemporary Analytic Philosophy	3 credits
MTH 581	Modern Algebra I	3 credits
MTH 583	Fuzzy Mathematics	3 credits
MTH 591	Analysis I	3 credits

Teacher Certification

Students who think they may teach Mathematics must consult with the Education Department, with the Mathematics Department, and with the appropriate agency in the state in which they intend to teach.

Certificate Program in University College

This department offers one certificate program to students in University College. See the description for this certificate on page 295 in the University College section of the Bulletin.

For all MTH courses, please refer to page 427.