Mathematics

First-Year Program
Students who seek the intellectual formation or stimulation which mathematics can provide, or who wish to become better acquainted with classical mathematics, or who intend to pursue certain types of theoretical studies in the social sciences or the humanities, should choose MATH 1013. Students who wish to have sufficient mathematical background to pursue studies in the sciences (such as chemistry, computer science, engineering, forestry, mathematics, physics, or statistics) should choose MATH 1013. Since the usual prerequisites to this course are high school algebra, analytic geometry and some trigonometry, students should have grade 12 mathematics.

MATH 1033 is directed principally to students intending to Major in any of the social sciences, elementary education, or business administration. Students should have grade 12 mathematics.

MATH 1103 is designed to introduce students to many different branches and topics of mathematics and to make students more mathematically literate. Students wishing to add breadth to their knowledge of mathematics, particularly those whose areas of interest employ a wide range of mathematical methods, should choose MATH 1103.

MATH-1013. Introduction to Calculus I
A review of analytic geometry and functions; derivatives of algebraic functions; mean value theorem; fundamental theorem of calculus; applications of differentiation, including extreme values and related rates; integration; differentials. Three hours of lecture and one tutorial per week. Prerequisite: grade 12 mathematics or equivalent.

MATH-1023. Introduction to Calculus II
Conic sections; transcendental functions and their derivatives; techniques of integration; areas and volumes; Taylor's theorem. Prerequisite: a grade of C or higher in MATH 1013.

MATH-1033. Finite Mathematics for the Social Sciences
Functions, matrices, linear programming, permutations and combinations, probability and statistics, interest and annuities. Prerequisite: Grade 12 mathematics or its equivalent. Three lecture hours and one tutorial hour per week.

MATH-1103. Introduction to Mathematical Reasoning

MATH-2513. Introduction to Logic (PHIL)

A lecture course in which students learn how to identify and evaluate arguments drawn from a wide variety of sources. It will develop informal methods such as the identi cation of argument structure and informal fallacies. It will also develop formal methods that involve taking arguments in English, symbolizing them in a formal language, and evaluating the strengths and weaknesses of the argument's forms. Also covered are basic probability theory, inductive logic, and statistical reasoning.

MATH-2613. Elementary Differential Equations

This is a study of basic solution techniques and applications of di erential equations with attention to concepts and computational e ciency. Topics include equations of the rst order and rst degree, Bernoulli's equations, orthogonal trajectories, linear di erential equations, linear equations with constant coe cients, and nonhomogeneous equations. Prerequisite: a grade of C or higher in MATH 1023. Three hours per week.

MATH-3613. Partial Differential Equations

This is a study of basic solution techniques and applications of partial di erential equations with attention to concepts and computational e ciency. Topics include rst order equations, geometric theory, second order equations, classi cation, Laplace, wave and heat equations, Sturm-Liouville theory, Fourier series and boundary and initial value problems. Prerequisite: A grade of C or higher in MATH 2613.

MATH-3813. Introduction to Logic (PHIL 3813)

This is a course in rst-order symbolic logic in its second main branch (predicate logic). The aim is to acquaint students with the formal language of modern deductive logic and to develop the basic techniques of good deductive reasoning. The course will be of interest to philosophy Majors in particular (especially those who are planning to do graduate work in philosophy), but will bene t anyone who wants to acquire skills in abstract thinking. A good grounding in sentential logic is presupposed. Prerequisite: PHIL 2513 or permission of the instructor.

MATH-3913. Statistics with Applications

Descriptive statistics and representation of single-variable data, descriptive analysis and presentation of bivariate data, probability, probability distributions, sample variability, statistical inferences, linear correlation, and regression analysis. Prerequisite: MATH 1023.

Independent Study

MATH-4013. Independent Study

Special courses in topics not normally covered in regular course o erings in Mathematics. Students work closely with a faculty member on a project involving independent research. Approval must be given by the by Director.

NOTE: Not all courses listed are o ered each year. Please consult with the Program Director for more information about current and planned course o erings.