

FIRST YEAR MATH & STATS FOR SCIENCE STUDENTS

In order to qualify for a BSc degree candidates are required to complete successfully at least one full university credit in Mathematics or Statistics. The following courses can be used to fulfill the requirement. Each of the classes below is *one half* credit (Course descriptions one the back). Note that Math 1001, Math 1002, and Math 1115 cannot be used to fulfill this requirement.

MATH 1215: Calculus applied to the Life Sciences

STAT/MATH 1060: Intro. Statistics for Science and Health Sciences

MATH 1000: Differential and Integral Calculus I

MATH 1010: Differential and Integral Calculus II

MATH 1500 X/Y: The Calculus

If you are fairly certain you want to do a Major in a Life Science such as BIOLOGY, ENVIRONMENTAL SCIENCE, MARINE BIOLOGY, or PSYCHOLOGY, Math 1215 is an appropriate choice for you. To finish your first year Math requirements, this class can be complemented with Math 1060.

The combination Math 1000/1010 provides a solid basis for most of the second year courses in Mathematics and Statistics, as well as many other Science courses. This option is highly recommend if you plan to major in CHEMISTRY, EARTH SCIENCES, ECONOMICS, MATHEMATICS, NEUROSCIENCE, PHYSICS or STATISTICS. All of these disciplines require Math 1010. Note that Math 1000 is a prerequisite for Math 1010. It is possible to enter Math 1010 after Math 1215, but your mark in Math 1215 must be at least B-.

If you have not done Precalculus in High school, you may consider taking Math 1000 X/Y. The slower pace and project-based approach may make it easier to learn the material.

The new class Math 1500, a full year course, treats the same material as Math 1000/1010, but with a more fundamental approach. This class is a good choice for students contemplating an Honours program in Mathematics or a related field such as Physics or Chemistry, or for students whose high school program already included a fair bit of Calculus. As a credit, the class is equivalent to Math 1000/1010, so it will not limit your choices in any way.

MATH 1215: Calculus applied to the Life Sciences

This course emphasizes the application of calculus to the life sciences. The concepts and content include derivatives, techniques of differentiation, logarithmic and exponential functions, optimization, basic ordinary differential equations, integration, and techniques and applications of integration.

While Math 1000 is the preferred prequel for Math 1010, students with a grade of B- or higher in Math 1215 will be able to take Math 1010. Students cannot receive credit for Math 1215 after receiving credit for Math 1000.

MATH 1000 Differential and Integral Calculus I

This class offers a self-contained introduction to differential and integral calculus. The topics include functions, limits, differentiation of polynomial, trigonometric, exponential and logarithmic functions, product, quotient and chain rules, applications of differentiation, antiderivatives and definite integrals, integration by substitution. A sequel to this class is Math 1010. Students who have been awarded credit for Math 1000 cannot subsequently receive credit for Math 1215 or Math 1115.

MATH 1000 X/Y Differential and Integral Calculus I

This class offers the same material as the regular Math 1000, but this material is covered over two terms (Fall and Winter) instead of one. A large part of the course is dedicated to team- and project work.

MATH 1010: Differential and Integral Calculus II

A continuation of the study of calculus with topics including: Riemann sums, techniques of integration, elementary differential equations and applications, parametric equations and polar coordinates, sequences and series, Taylor series.

MATH 1500X/Y: The Calculus.

This class is intended primarily for students who anticipate taking an honours programme in the physical or mathematical sciences. The topics of MATH 1000/MATH 1010 are covered, but in greater depth.

STAT/MATH 1060: Introductory Statistics for Science and Health Sciences

This class gives an introduction to the basic concepts of statistics through extensive use of real-life examples drawn from a variety of disciplines. The first part of the class is about designing experiments properly and then describing and summarizing the results of the studies by using descriptive statistics. From there we move to analyzing relationships between variables. In the final part of the class, we develop the basics of statistical inference explaining how to make valid generalizations from samples to populations. Both estimation and hypothesis testing are carried out for one and two sample problems for both means and proportions as well as for simple linear regression. Students will learn to use the statistical package MINITAB.