Module	Accredited Course
Mathematics Modules	
1. Calculus I	{Math 1000 (Calculus I) AND Math 1010 (Calculus II)} OR {Math 1215 (Calculus I for Life Sciences) AND Math 1010} OR Math 1500 (Calculus)
2. Calculus II	Math 2001 AND Math 2002 (Intermediate Calculus I/II)
3. Linear Algebra	Math 2030 (Matrix Theory and Linear Algebra I) AND {Math 2040 (Linear Algebra II) OR Math 2135 (Linear Algebra) }
Statistics and probability modules (7 courses)	
4. Mathematical Statistics	Stat 3360 (Probability) AND { Stat 3460 (Intermediate Statistical Theory) OR Stat 4066 (Advanced Statistical Theory I) }
5. Linear Regression	Stat 3340 (Regression and Analysis of Variance)
6. Design of Experiments	Stat 3350 (Design of Experiments)
7. Survey Sampling	Stat 3380 (Sample Survey Methods)
(If only one of Stat 3350/3380 are taken, the other must be replaced by a course from the list below.)	
8,9,10. Stat Electives	Select three from Stat 3345 (Environmental Risk Assessment) Stat 4100/5100 (Survival Analysis) Stat 4300/5300 (Topics in Statistics and Probability) Stat 4350/5350 (Applied Multivariate Analysis) Stat 4360/5360 (Robust Statistics) Stat 4370/5370 (Stochastic Processes) Stat 4390/5390 (Time Series Analysis I) Stat 4620/5620 (Data Analysis) Stat 5500 (Topics in Advanced Statistics) Stat 5630 (Statistical Methods in Molecular Evolution)
Computer Skills	
11,12. Computer Skills I and II	Stat 2050 (Exploratory Data Analysis) AND CSCI 1100 (Computer Science I) AND {CSCI 1101 (Computer Science II) OR Math 2400 (Intro to Numerical Computing)}
Communication Skills	
	one Dalhousie Writing Class (see Note 6)
Substantive Area	
	{Any 3 courses at the 3000+ level from one subject other than STAT or MATH} OR { 2 courses at the 3000+ level in each of two subjects other than STAT or MATH }

Notes:

1. The courses Stat 3340,3350, 3360, 3380, 3460 and 4066 are cross-listed as Math, with the same numbers.

2. All 4000 level Stat courses are cross listed at the 5000 level.

3. Stat 4390 is additionally cross-listed as Oceanography 4210/5210.

4. Stat 4300/5300 and Stat 5500 are topics courses. Topics change from year to year, and so credit may need to be approved on a case by case basis. Three recent examples are submitted: Stat 5500 (Statistical Data Mining), Stat 5300 (Analysis of Longitudinal Data), and Stat 4300/5300 (Space Space Models).

5. Calendar entries only are attached for Math and CSCI courses. This is also the case for Stat 5630, which is a new course, and has not yet been offered.

6. With respect to Communication Skills, all students graduating with a Dalhousie Bachelor's degree must satisfy a formal Writing Requirement

   Following is the list (taken from the Calendar) of writing courses which satisfy this requirement.

B. Writing Class

One of the first five classes chosen should be selected from a list of classes in which written work is considered frequently and in detail. These writing classes are approved by the Writing Across the Curriculum committee and are listed below:

CHEM 1000X/Y.06;
CLAS 1000X/Y.06; 1010X/Y.06, 1100X/Y.06;
Dalhousie Integrated Science Programme;
ENGL 1000X/Y.06;
ENGL 1010.03 and 1020.03 (both must be successfully completed in order to satisfy the Writing Requirement);
GERM 1020X/Y.06; GERM 1080.06;
HIST 1005X/Y.06; HIST 1867X/Y.06;
King's Foundation Year;
PHIL 1010X/Y.06;
POLI 1103X/Y.06;
RUSN 1020.03/1070.03 (both must be successfully completed in order to satisfy the Writing Requirement);
RUSN 2051.03/2052.03 (both must be successfully completed in order to satisfy the Writing Requirement);
SCIE 1111.03 (satisfies the requirement for BSc students the Faculty of Science only);
SOSA 1050X/Y.06;
THEA 1000X/Y.06, 1300X/Y.06

Calendar Entries

CSCI 1100.03: Computer Science I.

This class provides a general introduction to computer science and the hardware and software of computers. The main focus is on programming skills in Java and how to apply these skills in solving a variety of problems. Algorithmic concepts are stressed.
PREREQUISITES: Nova Scotia PreCalculus or Calculus Math or equivalent
EXCLUSIONS: CSCI 1202.03

CSCI 1101.03: Computer Science II.

This class is a continuation of CSCI 1100.03. It focuses on Java programming and linear data structures.
PREREQUISITES: CSCI 1100.03

MATH 2400.03: Introduction to Numerical Computing.

This class introduces students to numerical techniques for solving mathematical problems in the basic sciences (Mathematics, Physics, Chemistry, Oceanography, Biology, etc.). Students will be introduced to a programming language and computing environment and will learn to use such computational tools as MATLAB or MAPLE. Topics covered will include: introduction to the UNIX environment; introduction to C; numerical integration and differentation; solving non-linear equations; solving elementarydifferential equations; spline interpolation; datafitting and graphing software on UNIX stations and on PCs; scientific computing libraries and using the web to obtain solutions to scientific computing problems.
PREREQUISITES: MATH 1000, Recommended: MATH 1010, MATH 2030.

MATH 1000.03: Differential and Integral Calculus I.

No later than the first week of class, students in MATH 1000.03 are required to take a diagnostic test to indicate how they may proceed with the class. 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 1010.03.
FORMAT: Lecture 3 hours, MLC
PREREQUISITES: Nova Scotia Mathematics advanced 11 and 12 or pre-calculus. Pre-calculus is highly recommended.

MATH 1010.03: 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.
NOTES: Please note that section 7 of Math 1000 and Math 1010 is set aside for students who want a stronger foundation in calculus. Students contemplating a majors or honors program in mathematics or a related field such as physics or chemistry, etc. are encouraged to consider registering in this section. Sections 5 and 6 are for students enrolled in engineering.
FORMAT: Lecture 3 hours, tutorial 1 hour, MLC
PREREQUISITES: MATH 1000.03

MATH 1215.03: Life Sciences Calculus.

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

NOTES: Students who have already received credit for MATH 1215.03 cannot subsequently receive credit for MATH 1115.03

FORMAT: Lecture/tutorial
PREREQUISITES: Nova Scotia Mathematics 11 and 12 or pre-calculus is highly recommended.
EXCLUSIONS: MATH 1000

MATH 1500X/Y.06: Calculus

This class is intended primarily for students who anciticipate taking an honours programme in the physical or mathematical sciences. The topics of MATH 1000/MATH 1010 are covered, but in greater depth. MATH 1500 is equivalent as a credit to MATH 1000/MATH 1010.

FORMAT: Lecture 3 hours
PREREQUISITES: Nova Scotia Mathematics advanced 11 and 12 or pre-calculus. Pre-calculus is highly recommended.
EXCLUSIONS: Credit can be given for only one of MATH 1000/MATH 1010 and MATH 1500.

MATH 2001.03/2002.03: Intermediate Calculus I and II

The topics of these two classes include dot product, cross product, equations of lines and planes, functions of 2 or 3 variables, partial derivatives, Lagrange multipliers, double integrals, triple integrals, change of variables in multiple integrals, line integrals, Green's theorem, Stoke's theorem, Divergence theorem, topics in second-order differential equations.
FORMAT: Lecture 3 hours, MLC
PREREQUISITES: MATH 1010.03

MATH 2030.03: Matrix Theory and Linear Algebra I.

This class, together with MATH 2040.03, is a self-contained introduction to Matrix Theory and Linear Algebra. Topics include: vector spaces, linear transformations, determinants, systems of linear equations. Students should note that this is a second-year class and,

although it has no formal first-year prerequisites, mathematical maturity and an ability to handle formal proofs at the level of a student who has completed MATH 1000.03 is expected.
FORMAT: Lecture 3 hours, MLC
PREREQUISITES: Nova Scotia Mathematics 441 or equivalent

MATH 2040.03: Matrix Theory and Linear Algebra II.

This class is a continuation of MATH 2030.03. Topics include- Vector spaces and linear transformations, eigenvalues and eigenvectors, similarity and diagonalization, inner product spaces and orthogonal transformations, diagonalization of symmetric matrices and quadratic forms.

FORMAT: Lecture 3 hours, MLC
PREREQUISITES: MATH 2030.03 and 1000.03
EXCLUSIONS: MATH 2135.03

MATH 2135.03 is a second class in linear algebra oriented towards mathematics honours students (although Physics, Chemistry, Economics, and Mathematics majors may find it useful). As such, the class emphasizes the foundations of the theory of vector spaces, rather than applications. Topics include: the axioms of vector and inner product spaces, linear transformations, the dual of a vector space, tensor algebra, determinants, quadratic and bilinear forms, orthogonal, symmetric, and skew-symmetric transformations, the characteristic polynomial, eigenvalues, canonical forms, the Hamilton-Cayley theorem.

FORMAT: Lecture 3 hours
PREREQUISITES: MATH 2030.03 and 1000.03
EXCLUSIONS: MATH 2040.03

STAT 5630.03: Statistical Methods in Molecular Evolution.

This class will cover the common data types, models, and estimation and inferential methods in Molecular Evolution. The non-standard nature of the data and parameter space make this an usual statistical problem.

Topics include distance methods, maximum likelihood and confidence regions for trees.

PREREQUISITES: STAT 3460 or instructor's consent