BIOC 4202 [0.5 credit] (formerly 63.422*)
Mutagenesis and DNA Repair
A mechanistic study of mutagenesis and DNA repair. Topics will include DNA structure perturbations, spontaneous and induced mutagenesis, the genetics and biochemistry of DNA repair and recombination, and the role of mutations in the development of genetic disease and cancer. (Also listed as BIOL 4202).
Prerequisites: BIOL 2200 or BIOC 2200 or BIOC 3100 (taken concurrently); BIOL 3104, or permission of the Institute.
Lectures two hours a week and workshop two hours a week.

BIOC 4400 [0.5 credit] (formerly 63.440*)
The Cell Cycle
A course on the molecular cell biology of the eukaryotic cell cycle. Topics will include regulation of cell proliferation and cell death, and the molecular basis for morphological remodeling during cell division and death. (Also listed as BIOL 4400.)
Prerequisites: BIOL 3201, or BIOC 2200 and BIOC 3100.

BIOC 4708 [0.5 credit] (formerly 63.478*)
Principles of Toxicology
This course identifies the basic theorems of toxicology with examples of current research problems. Toxic risk is defined as the product of intensive hazard and extensive exposure. Each factor is assessed in scientific and social contexts and illustrated with many types of experimental material. Also offered at the graduate level, with additional or different requirements, as BIOL 6402 and CHEM 5708, for which additional credit is precluded.
Prerequisite: BIOC 3100 or permission of the Institute.
Lectures three hours a week.

BIOC 4901 [0.5 credit] (formerly 63.491*)
Selected Topics in Biochemistry
Selected topics of current interest in biochemistry are offered upon approval by the Director in consultation with members of the Institute.

BIOC 4907 [1.0 credit] (formerly 63.497)
Honours Essay and Research Proposal
An independent research study using library resources. The candidate will prepare a critical review of a topic approved by a faculty adviser. Evaluation will be based on a report and an oral defence of the report.
Precludes additional credit for BIOC 4908.
Prerequisite: fourth-year standing in an Honours Biochemistry program and permission of the Institute.

BIOC 4908 [1.0 credit] (formerly 63.498)
Research Project
Students carry out a research project approved by the Director, under the supervision of a faculty member of the Institute, in either the Biology or Chemistry departments. A report must be submitted to the supervisor by the last day of classes, and will be examined by committee.
Precludes additional credit for BIOC 4907.
Prerequisites: BIOC 3005 and BIOC 3100 or equivalent, and eligibility to continue in Honours Biochemistry or in Biochemistry and Biotechnology.
Lectures and associated work average at least eight hours a week.

BIOC 4909 [0.5 credit] (formerly 63.499*)
Co-operative Work Term Report 3
This course provides practical experience for students enrolled in the co-operative option. To receive course credit, students must receive a satisfactory evaluation from their work term employer; and present a written report describing their work term project. Graded Sat/Uns.
Prerequisites: registration in the Biochemistry co-operative option and permission of the Institute.
Four-month work term.

Biology (BIOL)

Faculty of Science
Faculty of Arts and Social Sciences

Notes:
More detailed information regarding Biology courses taken in second and later years, and topics for Honours research projects (BIOL 4908), may be obtained from *Outlines of Advanced Biology and Biochemistry courses to be offered in the fall/winter session 2003-2004* and *Suggested Topics for BIOL 4908 Research Projects 2003-2004*. These information booklets may be obtained from the College of Natural Sciences Administrative Office. All students are strongly advised to consult these information booklets when planning their future course patterns.

Students should note that BIOL 1003 and BIOL 1004 are intended primarily for students wishing to major in Biology or take a Science degree. Other students who wish to take Biology courses should consider BIOL 1902, BIOL 1903 and/or BIOL 2106.

BIOL 1003 [0.5 credit] (formerly 61.103)
Introductory Biology I
A lecture and laboratory course focusing on the cell. The course emphasizes the organization of cells, cellular metabolism, classical and molecular genetics and the reproduction of cells and organisms.
Precludes additional credit for BIOL 1000, BIOL 1002, or the combination of BIOL 2009 and BIOL 2300.
Prerequisite: OAC Biology (or equivalent), or OAC Chemistry (or equivalent), or CHEM 0100.
Lectures three hours a week, laboratory or tutorial three hours a week.

BIOL 1004 [0.5 credit] (formerly 61.104)
Introductory Biology II
A lecture and laboratory course focusing on organisms and populations. The course emphasizes diversity of life forms, evolution and ecology.
Precludes additional credit for BIOL 1000, BIOL 1002, or the combination of BIOL 2009 and BIOL 2300.
Prerequisite: BIOL 1003 or equivalent.
Lectures three hours a week, laboratory or tutorial three hours a week.

BIOL 1902 [0.5 credit] (formerly 61.192)
Natural History
A course designed primarily for students in non-Biology programs to investigate the natural history of plants and animals, and the communities in which they occur. Particular attention is paid to the Ottawa region, but appropriate examples from other locales are also included. This course is acceptable only as a Free Elective in all Science programs and B.A. Biology programs.
Lectures three hours a week.

BIOL 1903 [0.5 credit] (formerly 61.193)
The Natural History of Ontario
A study of Ontario's biodiversity. In addition to examining the makeup of the different communities of plants and animals found in Ontario, the course explores their adaptations to the forces that in uence their distribution. This course is acceptable only as a Free Elective in all Science programs and B.A. Biology programs.
Prerequisite: BIOL 1902.
Lectures three hours a week.

BIOL 2001 [0.5 credit] (formerly 61.201)
Animals: Form and Function
An investigation of invertebrates and vertebrates to relate their structure, function, behaviour and interactions with plants.
Precludes additional credit for BIOL 2000.
Prerequisites: BIOL 1003 and BIOL 1004 or permission of the Department.
Lectures three hours a week, laboratory or tutorial four hours a week.

BIOL 2002 [0.5 credit] (formerly 61.202)
Plants: Form and Function
An introduction to the structure and development of higher plants (at molecular, cellular and organism levels) discussed in relation to their function.
Precludes additional credit for BIOL 2000.
Prerequisites: BIOL 1003 and BIOL 1004 or permission of the Department.
Lectures three hours a week, laboratory or tutorial three hours a week.

BIOL 2104 [0.5 credit] (formerly 61.214)
Introductory Genetics
A lecture and laboratory course on the mechanisms of inheritance and the nature of gene structure, composition and function. It introduces both classical Mendelian genetics and modern molecular genetics.
Precludes additional credit for BIOL 2105. Credit for BIOL 2106 will only be given if taken before BIOL 2104.
Prerequisites: BIOL 1003 and BIOL 1004 or permission of the Department.
Lectures three hours a week, laboratory or tutorial three hours a week.
It is strongly recommended that this course be taken by Biology majors in their second year of study.

BIOL 2106 [0.5 credit] (formerly 61.216)
Human Genetics and Evolution
Designed for students interested in learning about the genetic mechanisms involved in human development (embryogenesis, reproduction and aging), diseases, cancer, behaviour. Environmental adaptation and evolution.
Not a Science continuation course. Available to students in a Biology or other Science program only as free elective, but credit will be given for BIOL 2106 only if taken before BIOL 2104 or BIOL 2105.
Prerequisite: a general biology course at the OAC level or equivalent.
Lectures three hours a week.

BIOL 2200 [0.5 credit] (formerly 61.220)
Cell Physiology and Biochemistry
A lecture and laboratory course on cellular functions and their inter-relationships. It introduces topics including thermodynamics, membrane structure and function, transport mechanisms, basic metabolic pathways, energy production and utilization, communications between cells. (Listed as BIOC 2200 for students enrolled in the Biochemistry and Biochemistry/Biotechnology programs.)
Prerequisites: BIOL 1003 and BIOL 1004, CHEM 1000 or permission of the Department.
Lectures three hours a week, laboratory or tutorial four hours a week.
It is strongly recommended that Biology Majors and Honours students take this course in their second year of study.

BIOL 2303 [0.5 credit] (formerly 61.233)
Microbiology
The biology of the bacteria, Archaea, Viruses and Protozoans, from the fundamentals of cell chemistry, molecular biology, structure and function, to their involvement in ecological and industrial processes and human disease.
Precludes additional credit for BIOL 3301.
Prerequisite: BIOL 1003 or CHEM 1000 or CHEM 1101.
Lectures three hours a week.

BIOL 2600 [0.5 credit] (formerly 61.260)
Introduction to Ecology
How the physical and biotic environments affect the distribution, abundance and evolution of life, and the importance of ecological ideas in improving understanding of our impact on the environment. The laboratory includes field and computer exercises.
Precludes additional credit for BIOL 3600 and BIOL 2601.
Prerequisites: BIOL 1003 and BIOL 1004 or BIOL 1000, or permission of the Department.
Lectures three hours a week, laboratory or tutorial four hours a week.

BIOL 2909 [0.5 credit] (formerly 61.299)
Co-operative Work Term Report
Practical experience for students enrolled in the Co-operative Option. To receive course credit students must receive satisfactory evaluations from their work term employer. Written reports describing the work term project will be required. Graded Sat or Uns.
Prerequisites: registration in the Biology Co-operative Option and permission of the Department.
Four-month work term.

BIOL 3004 [0.5 credit] (formerly 61.304)
Insect Diversity
An introductory field, laboratory, seminar and lecture course on sampling, identification, diversity and biology of insects. Designed for anyone who will use insects in any teaching, research or natural history capacity.
Precludes additional credit for BIOL 4601.
Prerequisites: BIOL 2001.
Lectures two hours a week, laboratory four hours a week.

BIOL 3101 [0.5 credit] (formerly 61.311)
Mycology
The morphology, evolution and biological importance of the fungi.
Prerequisites: BIOL 1003 and BIOL 1004.
Lectures two hours a week, laboratory four hours a week.

BIOL 3104 [0.5 credit] (formerly 61.314)
Molecular Genetics
A lecture course dealing with modern advances in molecular genetics.
Precludes additional credit for BIOL 2105.
Prerequisite: BIOL 2104 or permission of the Department.
Lectures three hours a week.

BIOL 3201 [0.5 credit] (formerly 61.321)
Cell Biology
A lecture and laboratory course on the structure, composition, function and development of eukaryotic cells and their organelles.
Precludes additional credit for BIOL 2201.
Prerequisites: BIOL 2104, BIOL 2200, BIOL 3104, or permission of the Department.
Lectures three hours a week, laboratory four hours a week.

BIOL 3205 [0.5 credit] (formerly 61.325)
Plant Biochemistry and Physiology
A lecture and laboratory course consisting of selected topics in metabolism and physiology of plants, including photosynthesis, nutrient uptake and transport, intermediary and secondary metabolism, germination, growth and development.
Prerequisites: BIOL 2002 and either BIOL 2200 or CHEM 2200, or permission of the Department.
Lectures three hours a week, laboratory four hours a week.

BIOL 3303 [0.5 credit] (formerly 61.333)
Experimental Microbiology
Intensive training in laboratory techniques in microbiology, using bacteria and other microorganisms to demonstrate processes of cell growth, metabolism, gene expression, rapid evolution, gene transfer, microbial community dynamics and interactions with other organisms.
Precludes additional credit for BIOL 3301.
Prerequisites: BIOL 2200 and BIOL 2303, or permission of the Department.
Laboratory five hours a week.

BIOL 3305 [0.5 credit] (formerly 61.335)
Animal Physiology
The properties of physiological systems and components of animals with emphasis on their physico-chemical bases.
Prerequisites: BIOL 2200 and BIOL 2001.
Lectures three hours a week, laboratory four hours a week.

BIOL 3501 [0.5 credit] (formerly 61.351)
The Biophysics of Animal Movement
Topics include the properties of muscles, tendons, bones, joints and the co-ordinated use of these structures. Human

locomotion and fitness, bird ight, especially the soaring of the vulture and the albatross, and animal migration are covered in detail.
Prerequisites: BIOL 2200 or CHEM 2101 and PHYS 1001 and PHYS 1002 or PHYS 1003 and PHYS 1004 or PHYS 1007 and PHYS 1008 or permission of the Department.
Lectures three hours a week, tutorial or seminar one hour a week.

BIOL 3601 [0.5 credit] (formerly 61.361)
Ecosystem Ecology
A course utilizing the concepts presented in BIOL 2600 and selected ecological experiments to analyze ecosystem types and the major factors that characterize them.
Prerequisite: BIOL 2600.
Lectures three hours a week, laboratory four hours a week.

BIOL 3602 [0.5 credit] (formerly 61.362)
Conservation Biology
The science of biology as applied to the problem of maintaining species diversity. Topics include: history of conservation biology, valuation of species, indices of biodiversity, extinction, conservation genetics, conservation planning in parks and reserves, landscape ecology and case studies of conservation problems.
Prerequisite: BIOL 2600 or permission of the Department.
Lectures three hours a week and laboratory/workshop three hours a week.

BIOL 3604 [0.5 credit] (formerly 61.364)
Analysis of Ecological Relationships
Introduction to the analysis of ecological data. Students analyze real ecological data sets in weekly laboratory sessions. Methods introduced include simple linear, polynomial, and multiple regression analysis, analysis of variance, nonparametric tests, tests of independence and logistic regression analysis.
Prerequisites: BIOL 2600 and STAT 2507. For students in the Environmental Engineering program, ENVE 2002, ENVE 3002, and STAT 3502, which may be taken concurrently.
Lectures one and one-half hours and laboratory two and one-half hours a week.

BIOL 3605 [0.5 credit] (formerly 61.365)
Field Course I
An intensive study of living organisms under natural conditions. Credit is based on two weeks of full-time fieldwork with attendant assignments. A wide range of modules is available. Transportation and room and board costs are borne by the student. (Also listed as PSYC 3203, for animal behaviour modules only.)
Students make take both BIOL 3605 and BIOL 3606 for credit, but neither may be used to repeat a particular module.
Prerequisites: at least one course in Biology beyond the 1000-level and written permission of the Department.
All day, approximately six days a week.

BIOL 3606 [0.5 credit] (formerly 61.366)
Field Course II
An intensive study of living organisms under natural conditions. Credit is based on two weeks of full-time fieldwork with attendant assignments. A wide range of modules is available. Transportation and room and board costs are borne by the student. Students may take both BIOL 3605 and BIOL 3606 for credit, but neither can be used to repeat a particular module.
Prerequisites: at least one course in Biology beyond the 1000-level and written permission of the Department.
All day, approximately six days a week.

BIOL 3608 [0.5 credit]
Principles of Biogeography
Contemporary and past controls on distribution of plants and animals at global, regional and local scales; significance of these distributions. (Also listed as GEOG 3104.)
Prerequisite: GEOG 2100, BIOL 2600, or permission of the Department.

BIOL 3609 [0.5 credit]
Evolutionary Concepts
Evolution as related to gene pools, isolation, speciation, natural selection, competition, dominance, and distributional patterns; examples from North American biota are emphasized. Formerly listed as BIOL 4609 (61.469). Precludes additional credit for BIOL 4609.
Prerequisites: BIOL 2600 or permission of the Department.
Lectures two hours a week, laboratory four hours a week.

BIOL 3801 [0.5 credit]
Plants and Herbivores
This course explores the chemical, physiological, ecological and evolutionary interactions that underlie the relationship between plants and their insect herbivores.
Prerequisites: BIOL 2001 and BIOL 2002.
Lectures/seminars three hours a week.

BIOL 3802 [0.5 credit] (formerly 61.382)
Animal Behaviour
Advanced study of animal behaviour including the environmental, genetick, and neural influences on behaviour. Topics such as predator-prey interactions, mating behaviour, migration, parental care and social interactions are interpreted in an evolutionary context.
Precludes additional credit for BIOL 4801.
Prerequisites: BIOL 2001, and BIOL 2600 (may be taken concurrently), or permission of the Department.
Lectures three hours a week.

BIOL 3909 [0.5 credit] (formerly 61.399)
Co-operative Work Term Report
Practical experience for students enrolled in the Co-operative Option. To receive course credit students must receive satisfactory evaluations from their work term employer. Written reports describing the work term project will be required. Graded Sat or Uns.
Prerequisites: registration in the Biology Co-operative Option and permission of the Department.
Four-month work term.

BIOL 4008 [0.5 credit] (formerly 61.408)
Plant Development
A lecture course dealing with recent advances in our understanding of plant development.
Precludes additional credit for BIOL 4100.
Prerequisite: BIOL 2002 or permission of the Department.
Lectures and seminars, three hours a week.

BIOL 4102 [0.5 credit] (formerly 61.412)
Molecular Ecology
The interface of molecular biology, ecology and population biology. Topics include experimental design and a survey and critique of molecular genetic methods to study ecology.
Prerequisite: BIOL 2104 and BIOL 2600; BIOL 3104 or one of BIOL 3601, BIOL 3602 (may be taken concurrently), or permission of the Department.

BIOL 4103 [0.5 credit] (formerly 61.413)
Population Genetics
Basic ideas of population structure, equilibrium, selection mutation, genetic drift.
Precludes additional credit for BIOL 4108.
Prerequisite: BIOL 2104 and BIOL 3609 or permission of the Department. A course in statistics is highly recommended.
Lectures and seminars three hours a week.

BIOL 4104 [0.5 credit] (formerly 61.414)
Evolutionary Genetics
A continuation of BIOL 4103 dealing with molecular evidence of evolution, speciation as well as the analysis of biometrical traits.
Precludes additional credit for BIOL 4108.
Prerequisite: BIOL 4103 and BIOL 3609 or permission of the Department. A course in statistics is highly recommended.
Lectures and seminars three hours a week.

BIOL 4106 [0.5 credit] (formerly 61.416)
Methods in Molecular Genetics
This course reviews the use of current techniques in

molecular genetics and examines some innovative new approaches to problems in molecular and cellular biology and biochemistry.
Prerequisites: BIOL 2104 and BIOL 3104 or BIOL 2105 and BIOL 2303.
Lectures and seminars three hours a week.

BIOL 4109 [0.5 credit] (formerly 61.419)
Laboratory Techniques in Molecular Genetics
This laboratory course is complementary to BIOL 4106 and designed to provide practical familiarity with methodology in molecular genetic techniques. The laboratory is suitable for students with a developing interest in problems of molecular and cellular biology and biochemistry.
Precludes additional credit for BIOL 4107.
Prerequisites: BIOL 2303 or BIOL 3301 and BIOL 4106 or equivalent and a course in Biochemistry or permission of the Department. Enrolment limited.
Lecture/laboratory six hours a week in two sessions.

BIOL 4200 [0.5 credit]
Immunology
The organization and function of the immune system, including the anatomy of the immune system, the properties and behaviour of cells of the immune system, and the molecular and genetic bases of the immune response. Also listed as BIOC 4200.
Precludes additional credit for BIOL 4302 (BIOC 4302).
Prerequisites: BIOL 2201 or BIOL 3201; or permission of the Department.
Lectures three hours a week.

BIOL 4201 [0.5 credit]
Animal Cell Culture: Methods and Applications
This laboratory course is complementary to BIOL 4200. It deals with the theory and practice of animal cell culture; the use of cultured cells in studies of immune function; and the applications of products of the immune system, such as antibodies. Also listed as BIOC 4200.
Precludes additional credit for BIOL 4302 (BIOC 4302).
Pre-requisites: BIOL 4200, which may be taken concurrently, or permission of the Department.
Laboratory four hours per week.

BIOL 4202 [0.5 credit] (formerly 61.422)
Mutagenesis and DNA Repair
A molecular study of mutagenesis and DNA repair. Topics will include DNA structure perturbations, spontaneous and induced mutagenesis, the genetics and biochemistry of DNA repair and recombination, and the role of mutagens in the development of genetic disease and cancer. (Also listed as BIOC 4202.)
Prerequisites: BIOL 2200 (or BIOC 3100 taken concurrently) or BIOL 3104, or permission of the Department.
Lectures two hours a week and workshop two hours a week.

BIOL 4209 [0.5 credit] (formerly 61.429)
Advanced Plant Physiology
An advanced course dealing with recent developments in selected topics of plant physiology.
Precludes additional credit for BIOL 4205.
Prerequisites: BIOL 3205 and CHEM 2203, CHEM 2204 or permission of the Department.
Lectures/discussion three hours a week.

BIOL 4300 [0.5 credit] (formerly 61.430)
Applied and Environmental Microbiology
Studies of microbial ecology, physiology, biochemistry and genetics as they apply to microorganisms and microbial communities functioning in natural, agricultural and industrial environments.
Prerequisites: BIOL 2303 or BIOL 3301 or BIOC 3100, or permission of the Department.
Lectures and tutorial three hours a week.

BIOL 4301 [0.5 credit] (formerly 61.431)
Current Topics in Biotechnology
Explorations of developing biotechnologies in areas such as microbial products, protein engineering, plant genetic engineering, environmental remediation, pharmaceuticals production and medical diagnostics and therapy.
Prerequisites: BIOL 2303 or BIOL 3301 or BIOC 3100 or permission of the Department.
Lectures and tutorials three hours a week.

BIOL 4306 [0.5 credit] (formerly 61.436)
Animal Physiology
A course dealing with recent advances made in particular areas of animal physiology.
Precludes additional credit for BIOL 4305.
Prerequisites: BIOL 3305, CHEM 2203 and CHEM 2204, and PHYS 1007 and PHYS 1008, or PHYS 1001 and PHYS 1002, or permission of the Department.
Lectures two hours a week, workshops or laboratory four hours a week.

BIOL 4400 [0.5 credit] (formerly 61.440)
The Cell Cycle
A course on the molecular cell biology of the eukaryotic cell cycle. Topics will include regulation of cell proliferation and cell death, and the molecular basis for morphological remodeling during cell division and death. (Also listed as BIOC 4400.)
Prerequisites: BIOL 3201, or both BIOC 2200 and BIOC 3100.

BIOL 4500 [0.5 credit]
Ornithology I
This course is an introduction to ornithology, the study of birds, and will cover a diverse array of topics including the evolution of birds, migration, geographic variation, adaptations for ight, feeding, and reproduction, as well as extinction and preservation.
Prerequisites: BIOL 2001.
Lectures three hours per week.

BIOL 4501 [0.5 credit]
Ornithology II
This will be a combination laboratory/field excursion course in which students will learn bird topography and phylogenetic relationships, as well as basic identification skills. Study skins will be used in the laboratory to study phylogenetic and species characteristics. Several field excursions to local habitats will allow first-hand study of habitat use by wintering species. Participants must acquire a pair of binoculars.
Prerequisites: BIOL 4500.
Laboratory/Field Excursions: four hours per week.

BIOL 4603 [0.5 credit] (formerly 61.463)
Insect Evolution and Biology
Major questions on the origin, evolution and adaptation of structures and physiology of terrestrial arthropods, especially insects.
Precludes additional credit for BIOL 4600.
Prerequisite: BIOL 3004, or permission of the Department.
Lectures two hours a week, laboratory four hours a week.

BIOL 4604 [0.5 credit] (formerly 61.464)
Landscape Ecology
In this course, students learn how landscape structure affects ecological processes, and the abundance and distribution of organisms. Applications in forestry, agriculture, and species conservation are discussed. Computer laboratory exercises assess influences of land-use decisions on landscape structure, and the resulting effects on ecological processes.
Prerequisites: BIOL 2600 or equivalent, BIOL 3601 or BIOL 3602 or equivalent, and honours standing in Biology, Geography, or Environmental Sciences.
Lecture and/or computer laboratory three hours a week.

BIOL 4608 [0.5 credit]
Evolutionary Ecology
The term "adaptation" is meaningful only with respect to a particular ecological context. This course considers ecological conditions as well as their evolutionary consequences. Such consequences include diverse mating systems, senescence, sexual dimorphism, geographic variation, phenotypic plasticity, migration, and particular

combinations of life history traits.
Prerequisite: BIOL 2600 or permission of the Department.
Lectures three hours a week, laboratory two hours a week.

BIOL 4802 [0.5 credit] (formerly 61.482)
Advanced Animal Behavior
Contemporary issues in behavioral ecology. Issues could include the relevance of behavioral ecology to conservation biology, to new insights into human social behavior, and will be selected through consultation between professor and students.
Prerequisites: BIOL 3802 or permission of the Department.
Lectures two hours a week, laboratory four hours a week.

BIOL 4900 [1.0 credit] (formerly 61.490)
Directed Special Studies and Seminar
Prerequisite: permission of the Department.

BIOL 4901 [0.5 credit] (formerly 61.491)
Directed Special Studies
Independent or group study, open to third- and fourth-year students to explore a particular topic, in consultation with a Faculty supervisor. May include directed reading, written assignments, tutorials, laboratory or field work.
Prerequisite: permission of the Department. Students normally may not offer more than 1.0 credit of Directed Special Studies in their program.

BIOL 4907 [1.0 credit] (formerly 61.497)
Honours Essay and Research Proposal
An independent research study using library resources. The candidate prepares a critical review and research proposal of a topic approved in consultation with a Faculty adviser. Evaluation will be based on these written submissions and an oral defence.
Precludes additional credit for BIOL 4908.
Prerequisite: fourth-year standing in an Honours Biology program and permission of the Department.

BIOL 4908 [1.0 credit] (formerly 61.498)
Honours Research Thesis
An independent research project undertaken in the field and/or the laboratory, under the direct supervision of a Faculty adviser. The candidate prepares a written thesis and is orally examined by a faculty committee after the thesis has been presented for examination.
Precludes additional credit for BIOL 4907.
Prerequisites: BIOL 4901 (may be taken concurrently), and permission of the Department. Open only to B.Sc. Honours students, and B.A. Biology Honours students (depending on their laboratory experience and with permission from the Chair of the Department, in their fourth year.

BIOL 4909 [1.0 credit] (formerly 61.499)
Co-operative Work Term Report
Practical experience for students enrolled in the Co-operative Option To receive course credit students must receive satisfactory evaluations from their work term employer. Written reports describing the work term project will be required. Graded Sat or Uns.
Prerequisites: registration in the Biology Co-operative Option and permission of the Department.
Four-month work term.

Business (BUSI)

Eric Sprott School of Business
Faculty of Public Affairs and Management

Note: B.Com. and B.I.B. students should use Business (BUSI) prefix for registering in courses that are cross-listed with other Carleton units.

BUSI 1001 [0.5 credit] (formerly 42.101*)
Principles of Financial Accounting
Discussion of the concepts of asset valuation and income measurement underlying the preparations and interpretation of financial statements.
Precludes additional credit for BUSI 1000, BUSI 1004 and BUSI 2700.
Lectures three hours and tutorials one hour a week.

BUSI 1002 [0.5 credit] (formerly 42.102*)
Management Accounting
An introduction to the use of accounting data for the purposes of planning and control of operations.
Precludes additional credit for BUSI 1005 and BUSI 2700.
Prerequisite: BUSI 1001.
Lectures three hours and tutorials one hour a week.

BUSI 1004 [0.5 credit] (formerly 42.104*)
Integrated Accounting I
An integrated approach to the basic concepts of both financial and managerial accounting. The users and uses of accounting information. Accounting issues involving income and cash ows. Precludes additional credit for BUSI 1000, BUSI 1001 and BUSI 2700.
Prerequisite: restricted to students registered in the B.Com. program.
Lectures three hours and tutorials one hour a week.

BUSI 1005 [0.5 credit] (formerly 42.105*)
Integrated Accounting II
Accounting issues related to the management and use of economic resources and capital. Additional financial and managerial accounting topics are introduced along with related concepts in auditing, taxation and information technology. Precludes additional credit for BUSI 1000, BUSI 1002 and BUSI 2700.
Prerequisite: BUSI 1004 (with a grade of C- or better). Restricted to students registered in the B.Com. program.
Lectures three hours and tutorials one hour a week.

BUSI 1402 [0.5 credit] (formerly 42.142*)
Programming for Business Students I
Basic control structures of sequence, selection, and iteration. Focus on problem solving in the context of programming for Business. Structured and visual languages may be taught.
Prerequisite: restricted to students registered in the B. Comm., B. I. B., and Minor in Business programs.

BUSI 1701 [0.5 credit] (formerly 42.171*)
Introduction to International Business
An introduction to the principles and practices of international business. Topics include political and cultural differences, trade theory, global marketing, global human resource management and global strategy.
Prerequisite: enrolment in the B.I.B. program.
Lectures three hours a week.

BUSI 1704 [0.5 credit] (formerly 42.174*)
Quantitative Methods in Business I
Quantitative tools used in business and economics. Basic review of required concepts. Financial mathematics; linear algebra, linear optimization with applications and matrix algebra with business applications. Basic preparation for the study of calculus.
Prerequisite: enrolment is restricted to students in the B.I.B. program.
Precludes additional credit for MATH 0107, MATH 1109 and BUSI 1703.
Lectures three hours and tutorials one hour a week.