XVIII. Courses of Instruction

Faculty of Arts

Faculty of Education

Faculty of Environmental Studies

Faculty of Fine Arts

Faculty of Pure and Applied Science

Courses of Instruction

African Studies – Arts

Program Office:
314 Founders College, 416-736-5148, ext. 66939
Coordinator of the Program:
P. Idahosa
Members:
A. Baudot, Glendon/French; M.J. Blincow, Anthropology; H. Bouraoui, French Studies; J. Curto, History; N. DeShane, Fine Arts/Dance; Z. Ellis, French Studies; D.B. Freeman, Geography; S. Kanya-Forstner, History; P.E. Lovejoy, History; G .Mianda, Glendon/Women's Studies; E. Morera, Philosophy; M. Olaogun, English; R Saunders, Political Science; S. Saul, Atkinson/Political Science; A. Sekyi-Otu, Social Science; R. Simms, Fine Arts/Music; P. Stamp, Social Science; R.B. Witmer, Fine Arts/Music.

Since its inception in 1974, the Interdisciplinary Program in African Studies has provided students with the opportunity to pursue their interest in Africa in conjunction with another discipline. Students can double major or minor in African studies and an Honours BA program in the Faculty of Arts, or they can take a series of courses that complement their specialization in another subject area.

Students in the program usually take an interest not only in the broad range of thematic academic issues of the program, but also in the wider issues which have an impact upon Africa and its peoples. This interest is represented through a newsletter, events mounted by the program in conjunction with students, faculty and often the community and outside institutions. Because African studies has a commitment to both the intrinsic benefits of academic inquiry and to the well being of the peoples of Africa, the program can therefore equip students seeking to do graduate work, work with African communities within Canada and work abroad.

York's African Studies Program is designed to give graduates a broad theoretical framework and a set of highly-developed analytical skills. The career and employment opportunities for our graduates are potentially excellent, in view of society's growing awareness of the importance of international, gender and equity issues. Prospective employers welcome employees who are sensitive to international issues and comfortable with the emerging diversity of Canadian society. Alumni from our program have found work in a wide range of fields, including government, education, law, social work, public service, business and media. A degree in African studies will offer you the challenge of personal and political insight, and it will encourage you to grow intellectually beyond the confines of traditional academic learning.

For specific program requirements please consult the Faculty of Arts Programs of Study section of this Calendar.

Courses in African Studies

For course descriptions, please refer to the appropriate departmental/divisional listings in this Calendar or the relevant departmental/divisional supplemental calendar. Not all of the courses listed below will necessarily be offered in any given year. For details of courses to be offered, please consult the African studies supplemental calendar.

Subject to degree credit exclusion and in-Faculty regulations, and with the approval of the program coordinator, students may take courses at the Faculties of Atkinson, Fine Arts or Glendon for major or credit in African studies.

Note: For purposes of meeting program requirements, all foundations courses will count as six credits towards the major or minor.

AS/ANTH 3320 6.0 Religious Ritual and Symbolism.
AS/ANTH 3410 6.0 Ethnicity and Nationalism.
AS/ECON 3310 3.0 Development Economics I.
AS/ECON 3320 3.0 Development Economics II.
AS/EN 2371 6.0 Post-Colonial Literature: African Literature.
AS/EN 4210G 3.0 African Diasporic Dialogues: Imagining ofTradition.
ES/ENVS 4220 3.0 Urbanization in Developing Countries.
FA/FILM 3610 3.0 Studies in National Cinemas.
AS/GEOG 3090 3.0 The African Environment.
AS/GEOG 4370 3.0 The Geography of Third World Development.
AS/HIST 1000M 6.0 The Indian Ocean in Early Modern Times.
AS/HIST 2750 6.0 African History, from 1800 to the present.
AS/HIST 3535 6.0 African-Canadian History.
AS/HIST 3700 6.0 African, Caribbean and Latin American Connections: The Making of the South Atlantic World.
AS/HIST 3930J 3.0A (Fall) Special Topics in History: Practicum In Research Technique: Harriet Tubman Seminar.
AS/HIST 4700 6.0 The Partition of Africa.
AS/HIST 4770 6.0 The African Urban Past.
AS/HUMA 1300 9.0 Cultures of Resistance in the Americas: The African American Experience.
AS/PHIL 3130 3.0 Philosophical Issues Around Race and Ethnicity.
AS/PHIL 3180 3.0 Conversations with African Philosophy.
AS/POLS 3560 6.0 Politics of the Third World.
AS/POLS 3570 3.0 Africa: Politics of Continental Crisis.
AS/SOSC 2480 9.0 Introduction to African Studies.
AS/SOSC 2810B 6.0 Literature, Art and Society: Social Thought in African and Caribbean Literature.
AS/SOSC 2990L 6.0 Gender and Culture in Comparative Perspective.
AS/SOSC 3480 6.0 Culture, Democracy and Development in Africa.
AS/SOSC 4090 6.0 Directed Reading.

Prerequisite: Permission of the Social Science Division.

AS/SOSC 4990N 6.0 African Popular Culture.
GL/SOCI 3610 3.0 Sociologie de l'Afrique Noire.
AK/AS/GL/WMST 3524 3.0 Colonialism, Gender and Societies in Black Africa.
AK/AS/GL/WMST 3524 3.0 Colonialisme, genre sociétés en Afrique noire.

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Anthropology – Arts

Department Office:
2054 Vari Hall, 416-736-5261
Chair of the Department:
N. Adelson
Distinguished Research Professor Emeritus:
P.H. Gulliver
Professors:
G. Gold, J. Nagata, M. Rodman, M. Silverman, P. Van Esterik
Professors Emeriti:
P. Harries-Jones, F. Henry, E. Kallen, S. Romalis
Associate Professors:
N. Adelson, M. Blincow, W. Kenneth Little, D.P. Lumsden, G. Thaiss, D .Yon [Jt. with Fac. of Education]
Assistant Professors:
S. Gururani, D. Murray, A. Schrauwers, D. Winland

The Department of Anthropology concentrates its attention and resources in the area of change in the contemporary world, especially as we move toward new social challenges at the beginning of this century. Our courses deal with how people live their lives at the unpredictable edges of political, social and cultural stability. As anthropologists, we are interested in exploring with you how people are subjected to, participate in and contest the processes of living in a world that is now interconnected by new and powerful economic, cultural and technological forces. Thus, we have courses that engage a range of issues: diasporic communities and displaced peoples such as refugees; contemporary problems in health and nutrition; the role that gender, religion, science and popular cultures play in the construction of everyday social life; and a critical analysis of evolution, ecology and environmental movements. Other courses focus on processes of change in the pre-historic and historic past and examine the rise of tropical urbanism, the colonial process and the ways people invent themselves through the use of the past. Within these varying subject matters we ask questions about how class, race, gender and ethnic identity politics are produced and expressed in shifting local and global contexts of power. Rather than saying that anthropology simply reflects on the world, we also try to show you how it is actually immersed in the changing state of things. The program focuses on both the uses and challenges of theories and methods of the cultural, historical and social sciences to produce a unique anthropological understanding of the processes of pre-historical, historical and contemporary change. The hope is that such courses will prepare you to ask critical questions about the possibility of

all expressions of contemporary and future social life.

Note: For specific program requirements please consult the Faculty of Arts Programs of Study section of this Calendar.

Courses in Anthropology

Not all of the courses listed below will necessarily be offered in any given year. For details of courses to be offered, please consult the anthropology supplemental calendar.

Subject to degree credit exclusion and in-Faculty regulations, and with the approval of the program coordinator, students may take courses at the Faculties of Atkinson, Fine Arts or Glendon for major or minor credit in anthropology.

AS/ANTH 1110 6.0 Introduction to Social Anthropology. An introduction to anthropology from the perspectives acquired through comparative study of primitive and complex societies. The course illustrates both the diversity and the recurring principles of social behaviour. Topics include economic organization, kinship patterns, political and legal systems, and ritual and religion.

AS/ANTH 2000 3.0 Selected Topics in Social Anthropology. Information concerning Anthropology's annual selected topic course offerings is available in the department's supplemental calendar.

AS/ANTH 2010 6.0 Selected Topics in Social Anthropology. Information concerning Anthropology's annual selected topic course offerings is available in the department's supplemental calendar.

AS/ANTH 2100 6.0 One World, Many Peoples. A fundamental change in recent history has been the formation of an increasingly interdependent world amidst widespread diversity of societies and cultures. This course surveys the possibilities and problems of implementing programs of social, economic and cultural development within this context.

AS/ANTH 2110 6.0 Issues in Social Anthropology. How do anthropologists explain the various issues current in the discipline? The course focuses on explanations of such topics as symbolic versus materialist approaches, the rationality of peasant economic action and the formalist-substantivist debate.

Prerequisite: AS/ANTH 1110 6.0.

AS/ANTH 2120 6.0 Visualizing Ourselves, Visualizing Others: Media, Representation and Culture. This course interrogates the relationship between media and culture. It focuses on media representations in different cultural contexts in order to develop critical analytical skills for understanding the processes through which identities and social inequalities are produced, contested and transformed.

AS/ANTH 2140 6.0 Introduction to Archaeology and Paleoanthropology. How did the human species originate? How did human society and culture develop? This course introduces students to archaeological and paleoanthropological methods for studying human antiquity. They will also survey the prehistory of humankind's biological, social and cultural evolution.

AS/ANTH 2150 6.0 Early Civilizations: Cities, Urbanism and Early States. This is a survey of the archaeology and historical anthropology of early complex societies in the old world (such as the peoples and cultures of Egypt, Mesopotamia, Iran and China) and in the New World (such as the Aztecs, Maya and Inca).

AS/ANTH 2160 6.0 Native Peoples of North America. An examination of the origins and diversity of Canadian Indian culture types prior to and during the historical period of contact (first term). A discussion and analysis of legal, political, economic and cultural issues during the later years of Euro-Canadian influence (second term).

AS/ANTH 2180 3.0 Social Anthropology of the Middle East. Despite the many sociocultural differences in the Middle East, there is, nevertheless, a sense of "unity in diversity." Using anthropological concepts, such similarities and differences in religion, politics, the family, urban, rural and tribal life, and modernization are explored.

AS/ANTH 3000 3.0 Selected Topics in Social Anthropology. Information concerning Anthropology's annual selected topics course offering is available in the department's supplemental calendar.

AS/ANTH 3010 6.0 Selected Topics in Social Anthropology. Information concerning Anthropology's annual selected topics course offering is available in the department's supplemental calendar.

AS/ANTH 3020 6.0 Race, "Racism" and Popular Culture. This course concentrates on race and racism as a major source of conflict, particularly in Canadian, British and American societies. The theoretical literature on racism as well as applied models developed to reduce racial conflict will be studied in depth.

AS/ANTH 3030 6.0 Discourses Of Colonialism. This course examines the processes by which much of the world has been, and still is, imagined and represented as an object of the Euro-American imagination. It investigates the practices that form those attitudes that shape political and economic domination.

Degree credit exclusion: AS/ANTH 3010D 6.0 (Fall/Winter 1993-1994 to Fall/Winter 2001-2002).

AS/ANTH 3070 3.0 Psychic Skeptics and Pseudoscience: A Cultural Critique of the New Age. This course views the cacophony of ideas surrounding New Age and the attempt to justify various beliefs by pseudoscience/

science. A cultural critique of New Age includes an analysis of technology, science and skepticism in various social and political contexts.

Degree credit exclusion: AS/ANTH 3000A 3.0 (Fall/Winter 1997-1998 to Fall/Winter 2001-2002).

AS/ANTH 3080 6.0 Modes of Enablement: A Cultural Perspective on Physical Disability. A comparative look at visible and non-visible disabilities, the relationship between the disabled and others. Topics include the symbolic and behavioural correlates of physical disability, relationships between the disabled, their support persons and the health professionals.

Degree credit exclusion: AS/ANTH 3000G 3.0.

AS/ANTH 3090 6.0 Gender, Science and Society. This course focuses on a critical study of the biomedical sciences, especially the role of women in science, interpretations of their social and reproductive roles and an assessment of major concepts in the representation of gender and visible minorities in medicine.

AS/ANTH 3110 6.0 Acquiring Research Skills. This introduction to research focuses on learning both qualitative and quantitative research skills within the context of a project designed and implemented by the class. Fieldwork, survey design and data analysis are covered, all within the context of using a computer.

Prerequisites: AS/ANTH 1110 6.0 and AS/ANTH 2110 6.0.

AS/ANTH 3120 6.0 Anthropology of Tourism. This course explores the sites/sights of tourist practice. Beginning with an historical analysis of tourism in relationship to European colonial expansion, we then consider the cultural significance of contemporary tourism both at home and abroad.

Degree credit exclusion: AS/ANTH 3010B 6.0.

AS/ANTH 3140 6.0 Archaeological Research Techniques: York University – MTRCA Summer Archaeological Field School. The course introduces students to basic methods of archaeological field work and laboratory analysis through the excavation of a late Iroquoian site in Ontario. Students integrate the data derived from their investigations with what is known about the culture and history of the people under study.

Prerequisite: Any one of AS/ANTH 2140 6.0; AS/ANTH 2150 6.0; or AS/ANTH 2160 6.0.

AS/ANTH 3150 6.0 Culture, Evolution and Ecology. The course begins with a discussion of Darwinian evolution and moves on to consider how global ecology alters these conventional views. Ideas about the interlinkage between evolution and ecology and aspects of the new naturalistic approach is discussed.

AS/ANTH 3160 6.0 Family and Kinship in Comparative Perspective. This course seeks to develop cross-cultural perspectives on such topics as marriage and mating, the formation of domestic groups, extended kinship ties and social networks, the kindred and various forms of descent groups, the family as a "pathway to

madness" and many other topics. The stress is on the importance of kinship as an ideology and set of symbols for ordering human relationships.

AS/ANTH 3170 6.0 Historical Anthropology and Politics of History. This course examines: (a) how and why anthropologists have incorporated history into their ethnographic work and (b) the ways in which the past is perceived and used, both by anthropologists and the people amongst whom they study.

Degree credit exclusion: AS/ANTH 3000P 3.0.

AS/ANTH 3180 6.0 Human Evolution and Physical Anthropology. An introduction to physical anthropology within the perspective of evolutionary theory. Topics include: the modern evolutionary synthesis; the primate fossil record; human physical evolution; ethnology and the evolution of behaviour; human biology in respect to adaptation and natural selection.

AS/ANTH 3190 6.0 Nutritional Anthropology: Food and Eating in Cross-cultural Perspective. This course introduces students to nutritional anthropology. It uses a biocultural model, linking biological, social and cultural determinants of food use. The course stresses linkages between food and health, and application of anthropological field methods to examining food-related problems.

AS/ANTH 3220 6.0 Greed, Globalization and the Gift: New Perspectives in Economic Anthropology. This course examines capitalist enterprise historically and ethnographically. It focuses upon forms of corporate capitalism; the historic spread of capitalism and the "world system"; globalization; and the failure of neo-liberal development to deliver economic prosperity.

AS/ANTH 3230 6.0 Women, Culture and Society. This course examines the contribution of anthropology to women's studies. We discuss the relationship between biology and culture, the evolution and learning of sex roles, and the roles and status of women in comparative perspective.

AS/ANTH 3250 3.0 China and the Chinese Diaspora. This course focuses on selected issues in the culture, economics, politics and international role of today's China, as well as on the identity and experiences of the overseas Chinese (e.g. as in Canada and the Caribbean), to address anthropological theorizing of "diasporas".

Degree credit exclusion: AS/ANTH 3000M 3.0.

AS/ANTH 3280 6.0 Psychiatric Anthropology and Social Stress. This course is concerned with furthering the mutual relevance of social anthropology and psychiatry, and with developing a true "anthropology of suffering". It integrates theories and findings from the fields of medical anthropology, transcultural psychiatry and psychosomatic medicine, in its focus on psychosocial stress research.

AS/ANTH 3320 6.0 Religious Ritual and Symbolism. Religious systems are examined in cross-cultural perspective. Emphasis is placed on the religious, ritualistic and moral aspects of

behaviour in preliterate and modern societies. Attention also focuses on the cosmologies which give meaning to these categories of behaviour.

AS/ANTH 3330 6.0 Health and Illness in Cross-Cultural Perspective. Comparative perspectives on health, illness and medical systems are studied from the viewpoint of anthropology and related disciplines. Emphasis is placed on understanding the roles of the practitioner and patient in their social and cultural contexts and the importance of applied medical anthropology to the wider community.

AS/ANTH 3350 3.0/3350 6.0 Culture as Performance: The Anthropology of the Arts. This course covers expressive aspects of culture: ritual, drama, the visual arts, dance and oral literature, in the framework of contemporary anthropological theories.

AS/ANTH 3360 6.0 The Politics of Power: Sexuality, Violence and Property in Everyday Life. This course focuses on the interconnections among three key sites of the everyday politics of power — sexuality (the body), violence and property — in a wide variety of different societies and cultures.

Degree credit exclusion: AS/ANTH 3010A 6.0.

AS/ANTH 3370 6.0 Power and Violence: The Making of "Modernity". This course examines the creation and perpetuation of the so-called "modern" world/"modernity" as a dominant socio-cultural system through its increasing proliferation and use of extreme forms of organized violence. It also examines the existence and possibilities of non-violent alternatives.

AS/ANTH 3400 6.0 Altering States: Citizenship and Civil Society in a Globalizing World. The idea of civil society has stirred social imaginations and political aspirations across the globe in recent years. This course analyzes those contexts where debates over civil society, citizenship, power and the state are located and contested.

AS/ANTH 3410 6.0 Ethnicity and Nationalism. This course examines the significance and perception of ethnicity and of class, both as concepts and as modes of establishing or of manipulating identity and of organizing social life in non-Western societies.

AS/ANTH 3420 6.0 Indigenous Minorities and Human Rights. This course focuses on how (nation)-states define minorities, and how definitions are contested by peoples striving for cultural, political and human rights. "Indigenousness" depends on state agendas and recognition by transnational charters in evolving multicultural societies, raising new discourses on pluralism.

AS/ANTH 4000 6.0 Independent Research. The advanced student has the opportunity to do independent research under the supervision of a faculty adviser chosen by the

student. The research must be written in the form of a final major essay. Specific details have to be worked out with the supervisor.

AS/ANTH 4010 3.0/4010 6.0 Directed Reading. A full-year (or half-year in either term) reading course may be taken by prior arrangement with an instructor. A copy of the agreed-upon requirements must be submitted to the department Chair.

Note: please consult the Faculty of Arts Academic Advising and Student Responsibility section for regulations on independent reading courses.

AS/ANTH 4030 6.0 Intercultural Training Skills. The purpose of this course is to offer students a body of theoretical knowledge and a repertoire of tools and skills that can be applied to training in intercultural communication, anti-racism, educational and employment equity and organizational development.

Degree credit exclusion: AS/ANTH 4200A 6.0.

AS/ANTH 4110 6.0 Development of Theory in Social Anthropology. Starting from the major scholars of the last century, the course of anthropology is critically traced through the present century, with the ultimate aim of assessing the contemporary condition of social anthropology.

Prerequisites: AS/ANTH 1110 6.0, AS/ANTH 2110 6.0 and AS/ANTH 3110 6.0.

Degree credit exclusion: AS/ANTH 4360 6.0.

AS/ANTH 4200 6.0 Selected Topics in Social Anthropology. Information concerning Anthropology's annual selected topics course offering is available in the department's supplemental calendar.

AS/ANTH 4210 3.0 Selected Topics in Social Anthropology. Information concerning Anthropology's annual selected topics course offering is available in the department's supplemental calendar.

AS/ANTH 4230 3.0 Place and Space: Cross-Cultural Approaches. Virtually every aspect of human activity involves ways in which space and place are conceptualized, used and shaped. This course examines the socio-cultural construction of places from anthropological and interdisciplinary perspectives, emphasizing student writing and participation in seminar discussion.

Degree credit exclusion: AS/ANTH 4210M 3.0.

AS/ANTH 4250 6.0 Religious Movements in Global Perspective. Within a framework of the politics of identity, this course explores the tension between religious and national identities, the character and scope of transnational religious communities, and takes up fundamentalism as one response to developments in cosmopolitan modern societies.

Degree credit exclusion: AS/ANTH 4200J 6.0 (from Fall/Winter 1997-1998 to Fall/Winter 2001-2002).

AS/ANTH 4260 6.0 Social and Cultural Change. Critical considerations of the theoretical dimensions in this field of anthropology (concepts, models, methodologies, explanations) leads to study of the causes, processes and effects of social change in a range of developed and Third World societies. Particular and contrasting case studies are examined in detail.

AS/ANTH 4340 6.0 Advocacy and Social Movements. This course examines how modern forms of communication have totally transformed the nature of advocacy and the social construction of knowledge in modern society. Specifically, it examines ways in which cultural norms are modified by the activities of social movements.

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Applied Mathematics – Arts, Pure and Applied Science

See Mathematics and Statistics.

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Norman Bethune College – Arts, Environmental Studies, Pure and Applied Science

Academic Program Office:
  205 Norman Bethune College,
  416-736-5164, ext. 22035
Academic Adviser:
  R. Kenedy
  216 Norman Bethune College,
  416-736-2100, ext. 33940

Science Courses

SC/BC 1800 3.0 First-Year University Seminar in Science. Each seminar course is a small group (25 student) in-depth exploration of a topic of current scientific interest, led by a faculty member actively interested in the area. The aim is to introduce students to university scholarship in science. One and one-half hours per week for two terms. Three credits.

Prerequisite: Open only to students in their first year of university studies in science or by permission of the instructor.

SC/BC 1850 6.0 Biomedical Ethics and the New Genetics. Recent developments in genetics and biotechnology are rapidly generating both medical breakthroughs and societal dilemmas. This course provides an understanding of basic principles of molecular biology and human genetics, and examines societal and bioethical implications of the new genetics. Three lecture/seminar hours. Two terms. Six credits.

Cross-listed to: SC/NATS 1850 6.0.

Degree credit exclusions: SC/NATS 1680 6.0, SC/NATS 1800J 6.0A, SC/NATS 1800J 6.0B, SC/NATS 1850 6.0. Not open to students enrolled in Biology programs.

SC/BC 3030 3.0 Technical and Professional Writing. This writing-intensive course is for upper-year science students and others in related fields. Students develop confidence and competence in professional and technical writing. Focus is on communication of complex information in a clear, sensible style. Three hours per week. One term. Three credits.

Prerequisite: At least six non-science general education credits.

Corequisite: Concurrent enrolment in at least one 3000- or 4000-level science course (or course which is cross-listed with a science course), or permission of the instructor.

Degree credit exclusions: SC/BC 3050 3.0, AS/SC/COSC 3530 3.0.

Faculty of Arts Foundations Courses

Listed below are the 1000- and 2000-level nine-credit foundations courses which are part of the Faculty of Arts general education requirement and are affiliated with Norman Bethune College. These courses introduce students to interdisciplinary study, emphasize critical thinking, reading and writing skills at the university level, and reflect the academic mandate of the college.

AS/HUMA 1905 9.0 Dangerous Visions, Brave New Worlds: The Science Fiction Culture and our Scientific Age. This course explores how the medium of science fiction has given cultural expression to changing attitudes towards modern science and technology. Topics include science fiction and the computer, relativity and quantum theory, religious belief, genetics and potential apocalypses.

AS/HUMA 1910 9.0 Science and the Humanities: Nature and Human Nature. This course investigates how scientific thinking about the place of human beings in nature involves humanistic thinking about the place of nature in being human.

Degree credit exclusion: AS/HUMA 1910 6.0.

AS/HUMA 2915 9.0 Darwin, Einstein and the Humanities. An intensive examination of how Darwin and Einstein's scientific thought both shaped and was shaped by their respective intellectual, cultural and social context.

AS/HUMA 2920 9.0 Spreading the Word: Knowledge, Technology and Culture. This course explores technologies of knowledge in social and cultural context, examining histories of classification, ethical and political concerns about information, debates over artificial intelligence and artificial life, and the social impact of technologies like the book, telegraph and computer.

AS/SOSC 2040 9.0 Nature and Human Nature. An enquiry into the biological dimensions of human culture with emphasis on findings of evolutionary theory, zoology and primate studies in order to understand the evolutionary determinants of "primitive" and "modern" societies.

Degree credit exclusion: AS/SOSC 1040 6.0.

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Biology – Pure and Applied Science

Department Office:
  247 Farquharson, 416-736-5243
Undergraduate Office:
  108 Farquharson, 416-736-5311
Chair of the Department:
  A.J. Hilliker
Undergraduate Coordinator:
  P.J. Wilson
University Professor:
  A.S.M. Saleuddin
Distinguished Research Professor:
  D. Regan
Distinguished Research Professors Emeriti:
  K.G. Davey, P.B. Moens
Professors:
  M.B. Coukell, M.B. Fenton, I.B .Heath, J.A.M. Heddle, A.J. Hilliker, R.R. Lew, L.E. Licht, D.M. Logan, L.D.M. Packer, R.E. Pearlman, J.S. Shore, C.G.H. Steel, R.A. Webb, H. Wilson, G.E. Wu
Professors Emeriti:
  M.G. Boyer, B. Colman, A. Forer, B.G. Loughton, D.M. Nicholls
Associate Professors:
  D.R. Bazely, A. Bédard, M.M. Crerar, P. Lakin-Thomas, J. C. McDermott, C. Peng, B.J. Stutchbury, K.A. White, N. Yan
Associate Professors Emeriti:
  D.M. Cameron, J.G. Little, J.S. Tait
Assistant Professors:
  I. Coe, L. Donaldson, K. Hudak, G. Sweeney
Associate Lecturers:
  E.C. Gardonio,P.J. Wilson

Biology is the science of life. It is concerned with structure, function, evolution and distribution of all living organisms. The Department of Biology is sufficiently large and its faculty members sufficiently varied in research interests to offer undergraduate instruction in all the major areas of biology. It specializes, however, in four areas: physiology, cell biology, molecular biology and population biology. Specialized programs in biology (see the Faculty of Pure and Applied Science Programs of Study section of this Calendar) require completion of a prescribed core of courses which expose the student to general areas of biology, but also give the student wide flexibility in selecting courses.

Courses in Biology

Biology courses whose numbers begin with the digit 4 are normally offered in alternate years - with the exception of SC/BIOL 4000 3.0/4000 8.0, SC/BIOL 4040 3.0, SC/BIOL 4200 3.0, SC/BIOL 4290 4.0, SC/BIOL 4245 3.0, SC/BIOL 4255 3.0 and SC/BIOL 4370 3.0, which have been offered annually in recent years.

The contact hour information in the course outlines below specifies the number of hours per week when the course is taught in the daytime in a fall/winter session. If the course is offered in the evening and/or in a summer session, the format and scheduling may be different, though equivalent in credit value.

SC/BIOL 1010 6.0 Biological Science. A course for Biology students examining unifying concepts and fundamental principles of biology. The course offers an introduction to cell and molecular biology, genetics, ecology and evolution. The laboratory exercises are an integral component; therefore, students must pass the laboratory section in order to pass the course. Three lecture hours, two lecture hours per week in alternate weeks; one tutorial hour per week; 12 three-hour laboratories. Two terms. Six credits.

Prerequisite: OAC chemistry or SC/CHEM 1500 4.0.

Degree credit exclusions: SC/BIOL 1410 6.0, AK/ NATS 1910 6.0.

SC/BIOL 1410 6.0 Principles and Processes in Biology. Emphasizing fundamental biological principles and processes of both plants and animals, this course examines aspects of the evolution and diversity of life, cell structure and function, heredity and ecosystems. For science students who do not plan to continue in biology. Because laboratory exercises are an integral component of the course, students must pass the laboratory section of the course in order to pass the course. Three lecture hours, two lecture hours per week in alternate weeks; one tutorial hour per week; 12 three-hour laboratories. Two terms. Six credits.

Prerequisite: OAC chemistry or SC/CHEM 1500 4.0.

Degree credit exclusions: SC/BIOL 1010 6.0, AK/ NATS 1910 6.0.

SC/BIOL 2010 4.0 Plant Biology. Current advances in plant biology research, highlighting plant structure, physiology, development and diversity. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisite: SC/BIOL 1010 6.0.

Degree credit exclusion: AK/BIOL 2010 8.0.

SC/BIOL 2020 4.0 Cell Biology and Biochemistry I. A study of the cell biology and biochemistry of biomolecules. Topics include intermediary metabolism related to bioenergetics, including the biology of mitochondria and chloroplasts, protein structure and function, nucleic acid replication, gene expression, chromosome organization and recombinant DNA technology. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisites: SC/BIOL 1010 6.0; both SC/CHEM 1000 3.0 and SC/CHEM 1001 3.0, or SC/CHEM 1000 6.0.

Corequisite: SC/CHEM 2020 6.0 or SC/CHEM 2020 5.0.

SC/BIOL 2021 4.0 Cell Biology and Biochemistry II. A study of those aspects of cell biology and biochemistry not included in SC/BIOL 2020 4.0. Topics include membranes, the endomembrane system, the cytoskeleton, cellular motility, the extracellular matrix, intercellular communication and intracellular regulation. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisite: SC/BIOL 2020 4.0.

SC/BIOL 2030 4.0 Animals. (formerly SC/ BIOL 2030 5.0 — before 2000-2001) A study of the diversity of animals, their structure, physiology and evolution. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisite: SC/BIOL 1010 6.0.

Degree credit exclusions: SC/BIOL 2030 5.0, SC/BIOL 2031 4.0, SC/BIOL 2031 3.0, AK/ BIOL 2010 8.0.

SC/BIOL 2031 3.0 Animals. (formerly SC/ BIOL 2031 4.0 — before 2000-2001) A lecture study of the diversity of animals, their structure, physiology and evolution. (Same as the lecture part of SC/BIOL 2030 4.0.) Three lecture hours. One term. Three credits.

Prerequisite: SC/BIOL 1010 6.0.

Degree credit exclusions: SC/BIOL 2030 5.0, SC/BIOL 2030 4.0, SC/BIOL 2031 4.0, AK/ BIOL 2010 8.0.

SC/BIOL 2040 4.0 Genetics. (formerly SC/ BIOL 2040 5.0 — before 2000-2001) A study of the organization and behaviour of genes and chromosomes and their roles in cells, organisms, populations and evolution. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisite: SC/BIOL 1010 6.0.

Degree credit exclusion: SC/BIOL 2040 5.0.

SC/BIOL 2050 4.0 Ecology. (formerly SC/ BIOL 2050 3.0 — before 2000-2001) A study of the interactions between organisms and their abiotic environments, presented in an evolutionary context. Includes processes of evolution, ecosystems and communities, competition, predation, population ecology and current environmental problems such as habitat loss and extinction. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisite: SC/BIOL 1010 6.0.

Prerequisite or corequisite: SC/BIOL 2060 3.0.

Degree credit exclusion: SC/BIOL 2050 3.0.

SC/BIOL 2060 3.0 Biometrics. (formerly SC/ BIOL 3090 3.0 — before 2000-2001) Problems of experimental design encountered in biological and physical research; basic statistical theory using non-parametric as well as parametric approaches. The project period is devoted to the solving of statistical problems with the use of computers. Two lecture hours, one project period. One term. Three credits.

Prerequisites: AK/AS/SC/COSC 1520 3.0 or AK/AS/SC/COSC 1530 3.0 or AK/AS/SC/ COSC 1540 3.0; AS/SC/MATH 1014 3.0 or AS/ SC/MATH 1505 6.0 or both AS/SC/MATH 1013 3.0 and AS/SC/MATH 1025 3.0 or equivalents.

Degree credit exclusions: AK/BIOL 3080 3.0, SC/BIOL 3090 3.0, AK/BIOL 3090 3.0, AS/ ECON 2500 3.0, AS/ECON 3210 3.0, AK/ ECON 3470 3.0, AK/ECON 3480 3.0, AS/ ECON 3500 3.0, ES/ENVS 2010 6.0, ES/ ENVS 2010 3.0, AS/SC/GEOG 2420 3.0, AS/ SC/KINE 2050 3.0, AS/SC/KINE 3150 3.0, AK/ AS/SC/MATH 1131 3.0, AS/SC/MATH 1132 3.0, AK/AS/SC/MATH 2560 3.0, AK/AS/SC/ MATH 2570 3.0, AS/SC/PHED 2050 3.0, AS/ POLS 3300 6.0, AK/AS/SC/PSYC 2020 6.0, AK/AS/SC/PSYC 2021 3.0, AK/AS/SC/PSYC 2022 3.0, AK/PSYC 2510 3.0, AK/PSYC 3110 3.0, AS/SOCI 3030 6.0.

SC/BIOL 3001 2.0/3001 3.0 Field Course. A course given at one of several biological stations, the objective of which is to give the student the opportunity to study plants and animals in their natural surroundings. The departmental brochure should be consulted for further details. Two-week field course. Three credits (3001 3.0). One-week field course. Two credits (3001 2.0).

Prerequisites: SC/BIOL 2010 4.0; one of SC/ BIOL 2030 5.0, SC/BIOL 2030 4.0, SC/BIOL 2031 4.0, SC/BIOL 2031 3.0; plus special prerequisites where specified for some modules.

Note: Students must be manually enrolled in this course through the Biology Department early in the January prior to the session in which the course is offered. Enrolment is not possible at any other time of year. In addition to the tuition fee levied by the University, each student must pay for transportation, room and board.

SC/BIOL 3002 2.0/3002 3.0 Field Course. This is a second field course, which may be taken for credit, the contents of which must differ materially from SC/BIOL 3001 2.0/3001 3.0 as determined by the course director. The departmental brochure should be consulted for further details. Two-week field course. Three credits (3002 3.0). One-week field course. Two credits (3002 2.0).

Prerequisite: SC/BIOL 3001 2.0 or SC/BIOL 3001 3.0 or permission of the course director; plus special prerequisites where specified for some modules.

Note: Students must be manually enrolled in this course through the Biology Department early in the January prior to the session in which the course is offered. Enrolment is not possible at any other time of year. In addition to the tuition fee levied by the University, each student must pay for transportation, room and board.

SC/BIOL 3003 2.0/3003 3.0 Field Course. This is a third field course, which may be taken for credit, the contents of which must differ materially from SC/BIOL 3001 2.0/3001 3.0 and SC/BIOL 3002 2.0/3002 3.0, as determined by the course director. The departmental brochure should be consulted for

further details. Two-week field course. Three credits (3003 3.0). One-week field course. Two credits (3003 2.0).

Prerequisite: SC/BIOL 3002 2.0 or SC/BIOL 3002 3.0 or permission of the course director; plus special prerequisites where specified for some modules.

Note: Students must be manually enrolled in this course through the Biology Department early in the January prior to the session in which the course is offered. Enrolment is not possible at any other time of year. In addition to the tuition fee levied by the University, each student must pay for transportation, room and board.

SC/BIOL 3010 3.0 Advanced Biochemistry. A detailed discussion of enzyme structure and function. The chemistry and metabolism of biological molecules. Metabolic regulation at the level of enzyme activity. Knowledge of general concepts of metabolism and of basic aspects of enzyme structure and function is assumed. Three lecture hours. One term. Three credits.

Cross-listed to: SC/CHEM 3050 3.0.

Prerequisites: SC/BIOL 2020 4.0; SC/CHEM 2020 6.0 or SC/CHEM 2020 5.0.

Prerequisite or corequisite: Three additional chemistry credits at the 2000 or 3000 level (e.g. SC/CHEM 2011 3.0) are strongly recommended.

Degree credit exclusion: SC/CHEM 3050 3.0.

SC/BIOL 3030 4.0 Physiology of the Invertebrates. A treatment of the physiology of major invertebrate phyla with emphasis on interphyletic relationships. Laboratory exercises address the diversity and physiology of invertebrates. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisite: SC/BIOL 2030 5.0 or SC/BIOL 2030 4.0.

SC/BIOL 3060 4.0 Animal Physiology I. Fundamental concepts in sensory, neural and behavioural physiology. The biochemical mechanisms whereby nerve cells detect and transmit information and the processes whereby information is integrated in the nervous system and gives rise to the outputs of behaviour. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisite: SC/BIOL 2030 5.0 or SC/BIOL 2030 4.0; both SC/BIOL 2020 4.0 and SC/ BIOL 2021 4.0 strongly recommended as prerequisite(s) or corequisite.

SC/BIOL 3070 4.0 Animal Physiology II. The processes of digestion, osmoregulation and excretion, circulatory systems and gaseous exchange, metabolism, growth and reproduction are considered. The course adopts a comparative approach, first analyzing the basic principles underlying physiological activities, then examining the means whereby different organisms perform them. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisite: SC/BIOL 2030 5.0 or SC/BIOL 2030 4.0; both SC/BIOL 2020 4.0 and SC/ BIOL 2021 4.0 strongly recommended.

SC/BIOL 3100 2.0 Current Topics in Biological Research. A review of the research in progress by members of the Department of Biology. This course is designed to prepare Honours students for SC/ BIOL 4000 8.0 and SC/BIOL 4000 3.0. Two lecture hours per week in the fall term, assignments due in the winter term. Two credits.

Prerequisite: Open only to students registered in an Honours Program in Biology, normally in the year prior to that in which they will undertake their Honours thesis work.

SC/BIOL 3110 3.0 Molecular Biology I: Nucleic Acid Metabolism. Discussion of the metabolism of DNA and RNA, including the physical-chemical properties of nucleic acids; DNA-protein interactions; chromosome structure; nucleic acid replication, repair and recombination; recombinant DNA technology. Three lecture hours. One term. Three credits.

Prerequisites: SC/BIOL 2020 4.0; SC/BIOL 2021 4.0; SC/BIOL 2040 5.0 or SC/BIOL 2040 4.0.

SC/BIOL 3120 3.0 Immunobiology. The biology and chemistry of the immune response. Structure and function of antibodies; antibody diversity; anatomy and development of the immune system; cellular interactions; immunological responses in disease. Production and use of monoclonal and polyclonal antibodies. Three lecture hours. One term. Three credits.

Prerequisites: SC/BIOL 2020 4.0; SC/BIOL 2021 4.0.

SC/BIOL 3130 3.0 Molecular Biology II: Regulation of Gene Expression. Gene structure and function. Mechanisms of gene expression in prokaryotes and eukaryotes. Storage and retrieval of genetic information; transcription, translation and their control. Three lecture hours. One term. Three credits.

Prerequisite: SC/BIOL 3110 3.0.

SC/BIOL 3140 4.0 Advanced Biochemistry and Molecular Genetics Laboratory. Research techniques used in biochemistry and molecular biology, including recombinant DNA technology, are illustrated. Purification of a restriction endonuclease; isolation and mapping of bacterial plasmids, bacteriophage and recombinant molecules; PCR (polymerase chain reaction); nucleic acid hybridization. Enrolment restricted to 12 students. One lecture hour, six laboratory hours over two days per week, plus additional laboratory hours throughout the week. One term. Four credits.

Prerequisite or corequisite: SC/BIOL 3110 3.0. SC/BIOL 3130 3.0 strongly recommended as a prerequisite or corequisite.

SC/BIOL 3150 3.0 Microbiology. Fundamentals of microbiology; microbial organisms; microbe-host interactions; viruses and viral infections; microorganisms and human disease; environmental and applied microbiology. Three lecture hours. One term. Three credits.

Prerequisites: SC/BIOL 2020 4.0; SC/BIOL 2021 4.0; SC/BIOL 2040 5.0 or SC/BIOL 2040 4.0.

SC/BIOL 3160 4.0 Plant Physiology. Basic physiological processes of plants and plant cells, including photosynthesis, respiration, nitrogen metabolism, water relations, solute uptake and translocation. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisites: SC/BIOL 2010 4.0; SC/BIOL 2020 4.0; SC/BIOL 2021 4.0.

SC/BIOL 3170 3.0 Concepts in Animal Ecology. Current major topics in ecology with special emphasis on animals. Lecture material is based on primary sources and includes population growth, productivity, predation and optimization, community ecology and conservation. The laboratory material stresses field studies and quantitative approaches to related questions. Two lecture hours, three laboratory hours. One term. Three credits.

Prerequisites: One of SC/BIOL 2030 5.0, SC/ BIOL 2030 4.0, SC/BIOL 2031 4.0, SC/BIOL 2031 3.0; SC/BIOL 2050 4.0 or SC/BIOL 2050 3.0; AK/AS/SC/COSC 1520 3.0 or AK/AS/SC/ COSC 1530 3.0 or AK/AS/SC/COSC 1540 3.0.

Prerequisite or corequisite: SC/BIOL 2060 3.0 or SC/BIOL 3090 3.0.

SC/BIOL 3200 3.0 Processes of Evolution. The process and principles of evolution, the mechanisms by which genetic change occurs, the patterns of genetic variation and molecular studies that relate the structure of organisms to their evolution are examined. Three lecture hours. One term. Three credits.

Prerequisite: SC/BIOL 2040 5.0 or SC/BIOL 2040 4.0.

SC/BIOL 3500 3.0 Plant Geography. An analysis of the geography of higher plants, emphasizing processes that operate at the species population level, the origin and diversity of higher plant life, geographic patterns of diversity and floras, and dynamics of species populations at local and continental scales. Two lecture hours, two laboratory hours. One term. Three credits.

Cross-listed to: AS/SC/GEOG 3500 3.0.

Prerequisite: SC/BIOL 2050 4.0 or SC/BIOL 2050 3.0 or AS/SC/GEOG 2500 3.0 or permission of the instructor.

Degree credit exclusion: AS/SC/GEOG 3500 3.0.

SC/BIOL 4000 3.0/4000 8.0 Honours Thesis. A substantial review essay based on library investigations (4000 3.0) or research thesis based on laboratory and/or field investigations (4000 8.0) under the supervision of a faculty member. Rules governing this course are outlined in the Department of Biology undergraduate handbook. Two terms. Eight credits (4000 8.0). One term. Three credits (4000 3.0).

Prerequisites: Normally, students take SC/BIOL 3100 2.0 as a prerequisite for SC/BIOL 4000 3.0 and SC/BIOL 4000 8.0. In exceptional circumstances, SC/BIOL 3100 2.0 may be taken as a corequisite with the permission of the course director. Open only to students in the final year of the Specialized Honours Program in Biology or, in exceptional circumstances, by permission of the department.

SC/BIOL 4020 3.0 Mycology. A study of the fungi, emphasizing their diversity, physiology and biology and their interactions with human affairs. Some field collecting, identification and culture work are required. Two lecture hours, three laboratory hours. One term. Three credits.

Prerequisite: SC/BIOL 2010 4.0.

SC/BIOL 4040 3.0 Genetic Stability and Change. Stability and flexibility of the genomes of prokaryotic and eukaryotic cells. Genetic recombination, DNA repair, mutation inductions; genome rearrangement and the transposition of DNA. The roles of these processes in evolution and in the induction of human disease. Three lecture hours. One term. Three credits.

Prerequisite: SC/BIOL 3110 3.0; SC/BIOL 3130 3.0 strongly recommended as prerequisite or corequisite.

SC/BIOL 4050 3.0 Plant Development. Physiological processes controlling the growth, differentiation and reproduction of plants. Two lecture hours, three laboratory hours. One term. Three credits.

Prerequisites: SC/BIOL 2010 4.0; SC/BIOL 2020 4.0; SC/BIOL 2021 4.0; or by permission of the course director.

SC/BIOL 4061 3.0 Cell and Molecular Biology of Development. This course presents a genetic and molecular biological approach to the field of developmental biology. Topics range from unicellular systems, both prokaryotic and eukaryotic, to more complex, multicellular systems. Three lecture hours. One term. Three credits.

Prerequisites: SC/BIOL 2020 4.0; SC/BIOL 2021 4.0; SC/BIOL 2040 5.0 or SC/BIOL 2040 4.0.

SC/BIOL 4070 3.0 Behavioural Ecology. Interactions between the behaviour and ecology of animals are discussed from several points of view, including feeding, use of space, mate selection, mother-young interactions, social behaviour, learning and communication. Laboratories include techniques for studying behaviour and seminars reviewing recent research. Two lecture hours, three laboratory hours. One term. Three credits.

Prerequisite: One of SC/BIOL 2030 5.0, SC/BIOL 2030 4.0, SC/BIOL 2031 4.0, SC/BIOL 2031 3.0.

SC/BIOL 4080 3.0 Methods in Aquatic Ecology. Lake morphometry; water movement; temperature effects; water chemistry; freshwater flora and fauna; productivity. The laboratory deals with the taxonomy of freshwater organisms, the use of limnological equipment and the practical aspects of energy flow. Six hours per week (including lectures, laboratories and field experience). Two weekend field trips. One term. Three credits.

Prerequisites: SC/BIOL 2010 4.0; one of SC/BIOL 2030 5.0, SC/BIOL 2030 4.0, SC/BIOL 2031 4.0, SC/BIOL 2031 3.0; SC/BIOL 2050 4.0 or SC/BIOL 2050 3.0; SC/BIOL 2060 3.0 or SC/BIOL 3090 3.0; AK/AS/SC/COSC 1520 3.0 or AK/AS/SC/COSC 1530 3.0 or AK/AS/SC/COSC 1540 3.0.

Note: An additional fee will be charged for room and board while at the field site.

SC/BIOL 4090 4.0 Plant Ecology. This course reflects the diversity of topics that make up the field of plant ecology: ecosystems, plant population ecology, physiological and evolutionary ecology, plant-herbivore interactions and applied ecology. Laboratories cover field and laboratory techniques, including sampling methods. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisites: SC/BIOL 2010 4.0; SC/BIOL 2050 4.0 or SC/BIOL 2050 3.0.

SC/BIOL 4095 3.0 Applied Plant Ecology. This course concentrates on how pollution, including acid precipitation and climatic change, and activities such as overgrazing have affected plant growth and productivity. Three lecture hours. One term. Three credits.

Prerequisite: SC/BIOL 2050 4.0 or SC/BIOL 2050 3.0 or permission of the instructor; SC/BIOL 4090 4.0 is recommended.

SC/BIOL 4100 3.0 Natural History. A study of the life histories of selected flora and fauna in major ecosystems, with special emphasis on local species and interrelationships within ecosystems. Two lecture hours, three laboratory hours. One term. Three credits.

Prerequisites: SC/BIOL 2010 4.0; SC/BIOL 2030 5.0 or SC/BIOL 2030 4.0; SC/BIOL 2050 4.0 or SC/BIOL 2050 3.0.

SC/BIOL 4110 4.0 Eukaryotic Genetics. The relationship between chromosomal structure and function, with emphasis on eukaryotic, especially human, genetics. The laboratory is designed to teach mammalian cell culture and cytogenetic techniques. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisites: SC/BIOL 2020 4.0; SC/BIOL 2021 4.0; SC/BIOL 2040 5.0 or SC/BIOL 2040 4.0.

SC/BIOL 4120 3.0 Phycology. Classification and phylogeny of the algae; life cycles and reproduction; some aspects of algal physiology. Two lecture hours, three laboratory hours. One term. Three credits.

Prerequisite: SC/BIOL 2010 4.0.

SC/BIOL 4130 3.0 Plant Evolution. An analysis of patterns of variation among plants, emphasizing the evolutionary processes which brought them about. Topics include biosystematics, speciation, hybridization, isolating mechanisms and mating systems. Two lecture hours, three laboratory hours. One term. Three credits.

Prerequisites: SC/BIOL 2010 4.0; SC/BIOL 2050 4.0 or SC/BIOL 2050 3.0.

SC/BIOL 4140 3.0/4140 4.0 Advanced Cell Biology I. Selected topics in cell biology, such as the principles of microscopy, cell motility. Restricted laboratory enrolment. Three lecture hours, three laboratory hours. One term. Four credits (4140 4.0). Three lecture hours. One term. Three credits (4140 3.0).

Prerequisites: SC/BIOL 2020 4.0; SC/BIOL 2021 4.0.

SC/BIOL 4150 3.0 Cellular Regulation. A detailed examination of molecular, cellular and physiological processes associated with the action of peptide hormones, neuro-transmitters and growth factors. Emphasis is on cell receptors and signal transduction mechanisms involving cyclic nucleotides and calcium. Three lecture hours. One term. Three credits.

Prerequisites: SC/BIOL 2020 4.0; SC/BIOL 2021 4.0; SC/BIOL 3010 3.0 and SC/BIOL 3110 3.0 strongly recommended as prerequisites or corequisites.

SC/BIOL 4151 3.0 Membrane Transport. The fundamental properties of solute transport are presented by discussing active ion pumps, passive transporters and ion channels of bacteria, plants and animals. The role of transport in regulating the intracellular environment in animals and plants is emphasized. Three lecture hours. One term. Three credits.

Prerequisites: SC/BIOL 2020 4.0; SC/BIOL 2021 4.0; SC/BIOL 3010 3.0 and SC/BIOL 3110 3.0 strongly recommended as prerequisites or corequisites.

SC/BIOL 4160 3.0 Photosynthesis. A study of the process of photosynthesis at the biochemical, organelle and whole-organism levels, including structure of the photosynthetic apparatus, primary light-harvesting processes, electron transport, photophosphorylation, mechanism of carbon dioxide fixation in higher plants and algae, photorespiration. Two lecture hours, three laboratory hours. One term. Three credits.

Prerequisite: SC/BIOL 3160 4.0.

SC/BIOL 4170 2.0/4170 3.0/4170 4.0 Special Topics. Half courses on special topics not ordinarily included in other courses in Biology. One term. Four, three or two credits.

SC/BIOL 4190 3.0/4190 4.0 Advanced Cell Biology II. A discussion course emphasizing the relationships between ultrastructure, function and development, especially processes involving the cytoskeleton. Restricted laboratory enrolment. Three lecture hours, three laboratory hours. One term. Four credits (4190 4.0). Three lecture hours. One term. Three credits (4190 3.0).

Prerequisites: SC/BIOL 2020 4.0; SC/BIOL 2021 4.0.

SC/BIOL 4200 3.0 Selected Readings in Biology. A reading course offered by special arrangement between an individual student and a faculty supervisor which focuses on a specialized area of biology of mutual interest. The subject matter must be significantly different from that of the student's honours thesis. A student may take this course only once for credit. One term. Three credits.

Prerequisite: Students can be in any Program in Biology, but must have a science grade point average equal to or greater than 6.0 (B).

SC/BIOL 4220 4.0 Histology. Structure and function of tissues in vertebrates, with special emphasis on human histology. The laboratory deals with basic histological and histochemical techniques, such as tissue sectioning and staining, and localization of enzymes. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisites: SC/BIOL 2020 4.0; SC/BIOL 2021 4.0.

SC/BIOL 4230 4.0 General Entomology. The distinguishing characteristics, biology and economic importance of the major orders and families of insects. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisite: SC/BIOL 2030 5.0 or SC/BIOL 2030 4.0.

SC/BIOL 4240 4.0 Mammalian Systematics and Ecology (Mammalogy). The systematics, life history and ecology of mammals. Emphasis is on North American genera and the species of eastern Canada. Field and laboratory techniques are an integral part of the course. Three lecture hours and three laboratory hours per week, one required weekend field trip. One term. Four credits.

Prerequisites: SC/BIOL 2030 5.0 or SC/BIOL 2030 4.0; SC/BIOL 2050 4.0 or SC/BIOL 2050 3.0.

SC/BIOL 4245 3.0 Conservation Biology. This course explores the role of biological science in efforts to conserve natural resources, systems and the organisms therein. Two lecture hours, three laboratory hours. One term. Three credits.

Cross-listed to: ES/ENVS 4110 3.0.

Prerequisites: SC/BIOL 2010 4.0; one of SC/ BIOL 2030 5.0, SC/BIOL 2030 4.0, SC/BIOL 2031 4.0, SC/BIOL 2031 3.0; SC/BIOL 2040 5.0 or SC/BIOL 2040 4.0; SC/BIOL 2050 4.0 or SC/BIOL 2050 3.0; or permission of the instructor.

Degree credit exclusion: ES/ENVS 4110 3.0.

SC/BIOL 4250 3.0 Ornithology. A review of the adaptations of birds, including flight, physiology, behaviour and ecology, and their taxonomic diversity and evolution. Laboratories include field trips, a study of bird anatomy and examination of museum specimens. Two lecture hours, three laboratory hours. One term. Three credits.

Prerequisite: One of SC/BIOL 2030 5.0, SC/ BIOL 2030 4.0, SC/BIOL 2031 4.0, SC/BIOL 2031 3.0.

SC/BIOL 4255 3.0 Biodiversity. We do not know the number of species on Earth, even to the nearest order of magnitude. This course discusses the factors that influence the number of species in an area and the importance of biodiversity to humanity. Two lecture hours, three laboratory hours. One term. Three credits.

Cross-listed to: ES/ENVS 4111 3.0.

Prerequisite: Completion of 60 credits towards a degree in biology or environmental science or environmental studies, or permission of the instructor.

Degree credit exclusion: ES/ENVS 4111 3.0.

SC/BIOL 4260 3.0 Systematic Biology in Theory and Practice. Systematics is the science of describing and categorizing biological diversity at all levels. It is central to most areas of biological inquiry. This course teaches students the history of systematics, its methods and their applications throughout biology. Two lecture hours, one three-hour laboratory/computer session. One term. Three credits.

Prerequisites: SC/BIOL 2010 4.0; one of SC/ BIOL 2030 5.0, SC/BIOL 2030 4.0, SC/BIOL 2031 4.0, SC/BIOL 2031 3.0.

SC/BIOL 4265 3.0 Pollutants, Invaders and Global Change. This course summarizes our progress in conceptualizing, understanding and in solving large-scale ecological problems caused by the introduction of pollutants and exotic species to the environment. Three lecture hours. One term. Three credits.

Prerequisites: One of SC/BIOL 2030 5.0, SC/ BIOL 2030 4.0, SC/BIOL 2031 4.0, SC/BIOL 2031 3.0; either SC/BIOL 2050 4.0 or SC/BIOL 2050 3.0 or permission of the instructor.

SC/BIOL 4270 3.0 Reproduction. Molecular, genetic, cytological and evolutionary aspects of sexual reproduction. Comparison of the regulatory genes and proteins of sexual differentiation in *Saccharomyces*, *Drosophila*, *Caenorhabditis elegans*, mice, human and plants. Evolutionary advantages and disadvantages of sexual reproduction; asexual reproduction through parthenogenic mechanisms. Three lecture hours. One term. Three credits.

Prerequisites: SC/BIOL 2020 4.0; SC/BIOL 2021 4.0; SC/BIOL 2040 5.0 or SC/BIOL 2040 4.0.

SC/BIOL 4280 3.0 Plant Molecular Biology. This course covers the uses of genetically engineered plants in basic research and industry. Emphasis is placed on methods for isolating higher plant genes and elucidating regulatory mechanisms. The agronomic potential of plant genetic engineering is discussed. Three lecture hours. One term. Three credits.

Prerequisites: SC/BIOL 3110 3.0; SC/BIOL 3160 4.0.

SC/BIOL 4285 3.0 Human Molecular Genetics. The course covers the application of genetic and molecular biological techniques to study human diseases and other related areas, and discusses ethical concerns that might arise from this research. Three lecture hours. One term. Three credits.

Prerequisite or corequisite: SC/BIOL 3130 3.0.

SC/BIOL 4290 4.0 Biotechnology. This laboratory course covers some of the methods currently in use in biotechnology research in industry and academia. Emphasis is placed on methods for transforming eukaryotes with marker genes. Advanced methods used in molecular biology are also covered. Two lecture hours, six laboratory hours. One term. Four credits.

Prerequisite: SC/BIOL 3110 3.0.

Degree credit exclusion: SC/BIOL 4290 3.0.

SC/BIOL 4300 3.0 Origins and Development of Biological Theories. An analysis of some central ideas in the philosophy of science. The origins and expansion of biological theories, with emphasis on Darwinism, the gene concept, "the new synthesis", and the reinterpretation of these theories in molecular biological terms. Three lecture hours. One term. Three credits.

Prerequisite: Open only to students in the final year of an Honours Program in Biology or with permission of the instructor.

Degree credit exclusion: SC/BIOL 4170Q 3.0.

SC/BIOL 4305 3.0 Controversies in the Modern Life Sciences. The study of past and contemporary controversies in genetics, evolutionary theory and ecology. The focus is on analyzing the diverse aims, concepts, theories, techniques, and institutional strategies which have shaped the development of modern biology. Three lecture hours. One term. Three credits.

Prerequisite: SC/BIOL 2040 5.0 or SC/BIOL 2040 4.0.

Prerequisite or corequisite: SC/BIOL 3200 3.0.

Degree credit exclusion: SC/BIOL 4170Q 3.0.

SC/BIOL 4310 3.0 Biological Timekeeping. An examination of the biological rhythms of cells, tissues and whole animals; the mechanisms of biological timekeeping and how those "clocks" interact with each other to coordinate physiological events within an animal and with the environment. Three lecture hours. One term. Three credits.

Prerequisites: SC/BIOL 2020 4.0; SC/BIOL 2021 4.0; one of SC/BIOL 2030 5.0, SC/BIOL 2030 4.0, SC/BIOL 2031 4.0, SC/BIOL 2031 3.0.

SC/BIOL 4320 3.0 Vertebrate Endocrinology. Vertebrate endocrine structure and function; synthesis and regulation of hormones; mechanisms of hormone actions; and hormonal integration of physiological processes. Three lecture hours. One term. Three credits.

Prerequisites: SC/BIOL 2020 4.0; SC/BIOL 2021 4.0; one of SC/BIOL 2030 5.0, SC/BIOL 2030 4.0, SC/BIOL 2031 4.0, SC/BIOL 2031 3.0.

Degree credit exclusion: AS/SC/KINE 4448 3.0.

SC/BIOL 4330 3.0 Invertebrate Endocrinology. An examination of the hormonal control of processes in selected invertebrates, particularly those involved in the control of postembryonic development. Three lecture hours. One term. Three credits.

Prerequisite: SC/BIOL 2030 5.0 or SC/BIOL 2030 4.0.

SC/BIOL 4340 3.0 Fish Biology. A study of fish biology (ichthyology), including anatomy, systematics, physiology, behaviour and ecology of freshwater and marine fishes. Special emphasis is placed on the unique features of fishes and their functional adaptation to aquatic environments. Three lecture hours. One term. Three credits.

Prerequisite: SC/BIOL 2030 5.0 or SC/BIOL 2030 4.0.

SC/BIOL 4350 4.0 Comparative Chordate Anatomy. A comparative study of the biology of chordate animals in which the evidence of their evolutionary relationships is emphasized. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisite: SC/BIOL 2030 5.0 or SC/BIOL 2030 4.0.

SC/BIOL 4360 4.0 Parasitology. Biology of animal parasites; developmental, structural and functional adaptations to the parasitic environments; immune and other responses of hosts; parasitic diseases. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisite: SC/BIOL 2030 5.0 or SC/BIOL 2030 4.0.

Degree credit exclusion: SC/BIOL 4360 3.0.

SC/BIOL 4370 3.0 Neurobiology. An analysis of recent advances in neurobiology, particularly information processing and storage in nervous systems and the biochemical basis of learning, memory and behaviour. The neurobiology of addiction, diseases of the nervous system and regeneration are also discussed. Three lecture hours. One term. Three credits.

Prerequisites: SC/BIOL 2020 4.0; SC/BIOL 2021 4.0; SC/BIOL 3060 4.0.

SC/BIOL 4380 3.0 Systems Neuroscience. This course investigates the neural basis of visual and auditory perception, echolocation, smell, short- and long-term memory, and motor control. Emphasis is on understanding how neural interactions analyze sensory information and control complex behaviour. Three lecture hours. One term. Three credits.

Prerequisite: SC/BIOL 3060 4.0.

SC/BIOL 4400 3.0 Behavioural Genetics. Differences in behaviour are analyzed through evolutionary and mechanistic approaches. Hypotheses, models, experimental and field data are used to address the importance of heredity and environment in the development of individual differences, social systems, communication, habitat and sexual selection. Two lecture hours, three laboratory hours. One term. Three credits.

Prerequisites: SC/BIOL 2040 5.0 or SC/BIOL 2040 4.0; SC/BIOL 2050 4.0 or SC/BIOL 2050 3.0; SC/BIOL 2060 3.0 or SC/BIOL 3090 3.0.

SC/BIOL 4410 3.0 Advanced *Drosophila* Genetics. A study of recent advances in *Drosophila* genetics. The course addresses techniques such as chromosomal analysis, lethal tagging, genetic dissection, mosaic analysis, genetic screens, transposon tagging, enhancer trapping, methods for manipulating genes in transgenic flies and genetic ablation. Three lecture hours. One term. Three credits.

Prerequisites: SC/BIOL 2020 4.0; SC/BIOL 2021 4.0; SC/BIOL 2040 5.0 or SC/BIOL 2040 4.0.

SC/BIOL 4420 3.0 Herpetology. A detailed presentation of the biology of amphibians and reptiles (herpetology) is given. Topics include taxonomy, reproduction, feeding, defence, environmental physiology of living forms. Special emphasis is placed on identification and life history of Canadian herpetofauna. Two lecture hours, three laboratory hours. One term. Three credits.

Prerequisites: SC/BIOL 2030 5.0 or SC/BIOL 2030 4.0; SC/BIOL 2050 4.0 or SC/BIOL 2050 3.0.

SC/BIOL 4450 4.0 Animal Development. Fertilization, cleavage, differentiation and development in selected animals. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisites: SC/BIOL 2020 4.0; SC/BIOL 2021 4.0; SC/BIOL 2030 5.0 or SC/BIOL 2030 4.0; SC/BIOL 2040 5.0 or SC/BIOL 2040 4.0.

SC/BIOL 4510 3.0 Cellular and Molecular Basis of Muscle Physiology. Topics include muscle development, muscle-specific gene expression, molecular basis of muscle contraction, biochemical plasticity of muscle, sarcolemmal and nuclear signal transduction in muscle. Three lecture hours. One term. Three credits.

Cross-listed to: AS/SC/KINE 4510 3.0.

Prerequisite(s): Both SC/BIOL 2020 4.0 and SC/BIOL 2021 4.0, or AS/SC/KINE 3011 3.0.

Degree credit exclusion: AS/SC/KINE 4510 3.0.

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Business-Oriented Programs

Coordinated Programs in Business, Public Policy and Administrative Studies

Students interested in administration or business may delay their choice of program until the end of their first year by declaring the Coordinated Program in Business, Public Policy and Administration. For more information regarding the coordinated programs in Business, Public Policy and Administrative Studies, please refer to the Faculty of Arts Programs of Study section of this Calendar.

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Business and Society – Arts

Program Office:
  Division of Social Science, S739 Ross, 416-736-5054
Web Address:
  www.yorku.ca/sosci/programs/bands.html
Coordinator:
  D. Reed, S740 Ross, 416-736-5054

The Business and Society (BUSO) Program is a liberal arts degree program that provides students with the tools needed to study and research the relationship between business and society. The Honours BA and BA degree programs in Business and Society represent innovative multidisciplinary degree programs that provide students with the opportunity to study the relationship between business and society in a variety of new forms. The core courses, which include a second-year foundations course (AS/SOSC 2340 9.0) will provide students with basic analytical tools to study business and society. In addition to the core, both Honours BA and BA students will choose two of the nine following streams to focus their studies in: economics, environmental studies, geography, history, mathematics, political science, psychology, sociology and social science (labour studies).

Some students in the BUSO Program and in other degree programs may also wish to pursue basic courses in business skills in order to prepare for employment. Faculty of Arts students interested in enhancing their business related skills are eligible to enrol in any of the professional certificates offered by the Faculties of Atkinson and Arts, e.g. Certificate in Business Fundamentals or the Certificate in Non-profit Management. These certificates provide an additional avenue for Faculty of Arts students to develop business-related skills.

For specific program requirements please consult the Faculty of Arts Programs of Study section of this Calendar.

Courses in Business and Society

For course descriptions, please refer to the appropriate departmental/divisional listings in this Calendar or the relevant departmental/divisional supplemental calendar. Not all of the courses listed below will necessarily be offered in any given year. For details of courses to be offered, please consult business and society in the supplemental calendar.

Subject to degree credit exclusion and in-Faculty regulations, and with the approval of the program coordinator, students may take courses at Atkinson, Fine Arts or Glendon for major credit in Business and Society.

Note: For purposes of meeting program requirements, all foundations courses will count as six credits towards the major.

Program Core

AK/ADMS 1000 3.0 Introduction to Administrative Studies.
AK/AS/SC/COSC 1520 3.0 Introduction to Computer Use I.
AS/ECON 1000 3.0 Introduction to Microeconomics.
AS/ECON 1010 3.0 Introduction to Macroeconomics.
AS/MATH 1581 3.0 Business Mathematics I.
AS/POLS 1090 3.0 Introduction to Business, Government and Society.
AS/SOSC 2340 9.0 Foundations of Business and Society.
*AS/SOSC 4040 6.0 Issues in Business and Society.

*Required for the Honours BA Program in Business and Society

Economics Stream

AS/ECON 2500 3.0 Introductory Statistics for Economists.
AS/ECON 3210 3.0 Use of Economic Data.
AS/ECON 3140 3.0 Monetary Economics.
AS/ECON 3150 3.0 International Trade I.
AS/ECON 3580 3.0 Introductory Financial Accounting for Economists.
AS/ECON 3590 3.0 Introductory Managerial Accounting for Economists.
AS/ECON 4400 3.0 Corporate Finance I.
AS/ECON 4410 3.0 Corporate Finance II.
AS/ECON 4500 3.0 Canadian Business Law I.
AS/ECON 4510 3.0 Canadian Business Law II.

Environmental Studies Stream

ES/ENVS 1000 6.0 Approaches to Environmental Studies.
ES/ENVS 2000 3.0 Paradigms in Environmental Studies.
ES/ENVS 2100 3.0 Foundations of Nature, Technology and Society.
ES/ENVS 2400 3.0 Foundations of Environmental Policy and Action.
ES/ENVS 3120 3.0 Environmental History.
ES/ENVS 3130 3.0 Energy and the Environment.
ES/ENVS 3410 3.0 Environmental Policy I.
ES/ENVS 3420 3.0 Environmental Law.
ES/ENVS 3430 3.0 Environmental Assessment.
ES/ENVS 3440 3.0 Resource Management.
ES/ENVS 3510 3.0 Environmental Economics I.
ES/ENVS 4120 3.0 Natural History.
ES/ENVS 4140 3.0 Environmental Thought.
ES/ENVS 4410 3.0 Environmental Policy II.
ES/ENVS 4430 3.0 Impact Assessment Process and Practice.
ES/ENVS 4442 3.0 Environmental Monitoring and Auditing.
ES/ENVS 4510 3.0 Environmental Economics II.
ES/ENVS 4530 3.0 Risk Assessment in Resource Management.

Geography Stream

AS/GEOG 1000 6.0 Introduction to World Geography.
AS/GEOG 1410 6.0 Introduction to Human Geography.
AS/GEOG 2100 6.0 Economic Geography.
AS/GEOG 3130 3.0 The Global Economy.
AS/GEOG 3140 3.0 Retailing, Shopping, Society and Space.
AS/GEOG 4170 3.0 Immigration, Ethnicity and Race in Modern Cities.
AS/GEOG 4220 3.0 Geographies of Industry.
AS/GEOG 4240 3.0 The Planning of Urban Public Facilities.
AS/GEOG 4370 3.0 Geography of Third World Development.
AS/GEOG 4380 3.0 Urban Social Policy.

History Stream

AS/HIST 1010 6.0 War, Revolution and Society in the 20th Century.
AS/HIST 1020 6.0 The Emergence of the Nation-State: The Quest for National Identity in Europe and North America.
AS/HIST 1030 6.0 Imperialism and Nationalism in Modern Asia.
AS/HIST 1050 6.0 Ordinary People in a Changing World: Europe and North America, 1700-1914.
AS/HIST 1090 6.0 Business and International Economy, 1600-2000.
AS/HIST 2220 6.0 Medieval and Early Modern Europe.
AS/HIST 2300 6.0 Modern Europe.
AS/HIST 2310 6.0 Russian Culture: Continuity and Conflict (cross-listed to: AS/HUMA 2990D 6.0, AS/RU 2750 6.0).
AS/HIST 2400 6.0 British History.
AS/HIST 2500 6.0 Canadian History.
AS/HIST 2600 6.0 United States History.
AS/HIST 2710 6.0 East Asia: Tradition and Defiance.
AS/HIST 2720 6.0 Modern Latin America, 1810 to the present (formerly AS/HIST 3720 6.0).
AS/HIST 2750 6.0 African History, from 1800 to the present (formerly AS/HIST 3750 6.0).
AS/HIST 3211 3.0 Economic Development of Preindustrial Europe.
AS/HIST 3212 3.0 Society in Preindustrial Europe.
AS/HIST 3531 6.0 Working Class In Canadian Society (cross-listed to: AS/SOSC 3210 6.0).
AS/HIST 3560 3.0 Canadian Economic Development to 1870.
AS/HIST 3561 3.0 Canadian Economic Development, 1870 to 1985.
AS/HIST 3660 3.0 US Economic and Business History to 1880.
AS/HIST 3670 3.0 US Business History Since 1880: The Origins and Consequences of Managerial Capitalism.
AS/HIST 3700 6.0 African, Caribbean and Latin American Connections: The Making of the South Atlantic World.
AS/HIST 3820 3.0 Welfare States in Comparative Perspective.
AS/HIST 4050C 6.0 Family, Work, and Community: Canadian Society in the 19th and 20th Centuries.
AS/HIST 4240 6.0 Human Economy and Natural Environment in Preindustrial Europe.
AS/HIST 4260 6.0 Topics in Early Modern European Social and Cultural History.
AS/HIST 4440 6.0 Land and Power in Early Modern England.
AS/HIST 4450 6.0 Themes in 18th-Century British Social History.
AS/HIST 4505 6.0 Canadian Labour and Immigration History (cross-listed to: GL/HIST 4220 6.0).
AS/HIST 4511 6.0 20th-Century Canadian Social History.
AS/HIST 4610 6.0 Political Power in American Society.
AS/HIST 4640 6.0 Organizing the United States for War.
AS/HIST 4690 6.0 Race and Politics in America Since WW II.
AS/HIST 4700 6.0 The Partition of Africa.
AS/HIST 4720 6.0 Post-Emancipation Societies in the Americas.
AS/HIST 4750 6.0 Backwardness and Revolution in Latin America.

Mathematics and Statistic Stream

Option A: Operations Research

AK/AS/MATH 1550 6.0 Mathematics with Management Applications.
AK/AS/SC/MATH 2221 3.0 Linear Algebra with Applications I.
AK/AS/SC/MATH 2560 3.0 Elementary Statistics I.
AK/AS/SC/MATH 3170 6.0 Operations Research I.
AS/MATH 4570 6.0 Applied Optimization.

Option B: Statistics

AK/AS/MATH 1550 6.0 Mathematics with Management Applications.
AK/AS/SC/MATH 2560 3.0 Elementary Statistics I.
AK/AS/SC/MATH 2570 3.0 Elementary Statistics II.
AK/AS/SC/MATH 3034 3.0 Applied Categorical Data Analysis.
AK/AS/SC/MATH 3330 3.0 Regression Analysis.
AK/AS/SC/MATH 3430 3.0 Sample Survey Design.
AS/SC/MATH 4730 3.0 Experimental Design.
AS/MATH 4930 3.0 Time Series and Spectral Analysis.

Political Science Stream

AS/POLS 1000 6.0 Introduction to Politics: Exploring the Democratic Experience (cross-listed to: AK/POLS 2410 6.0).
AS/POLS 2100 6.0 Introduction to Canadian Government and Politics (cross-listed to: AK/POLS 3420 6.0).
AS/POLS 2610 6.0 Public Policy and Administration.
AS/POLS 3110 3.0 The Process of Urban Politics I: Issues, Institutions and Ideology.
AS/POLS 3115 3.0 Process of Urban Politics II: Structure, Agency and Urban Change.
AS/POLS 3140 3.0 Political Economy of Labour in Canada (cross-listed to: AS/SOSC 3280 3.0).
AS/POLS 3145 3.0 Government and Business in Canada (cross-listed to: AK/POLS 3209L 3.0).
AS/POLS 3165 6.0 Problems in Canadian Business Law (cross-listed to: AS/SOSC 3165 6.0).
AS/POLS 3190 6.0 Public Administration.

AS/POLS 3270 3.0 Global Political Economy I: Theory and Approaches.
AS/POLS 3275 3.0 Global Political Economy II: Issues and Problems Since 1945.
AS/POLS 3300 6.0 Statistics for Social Sciences (cross-listed to: AS/SOCI 3030 6.0).
AS/POLS 3600 3.0 Public Law I: The Constitution and the Courts in Canada.
AS/POLS 3605 3.0 Public Law II: The Charter of Rights and Freedoms and the Limits of Public Administration.
AS/POLS 4110 6.0 Canadian Urban Policy.
AS/POLS 4114 3.0 Topics in Canadian State Finance: The National *versus* the Global Political Economy.
AS/POLS 4115 6.0 The Political Economy of State Finance.
AS/POLS 4125 3.0 Women and Current Policy Issues.
AS/POLS 4175 6.0 Canadian Federalism in Comparative Perspective.
AS/POLS 4290 3.0 Topics in International Political Economy.
AS/POLS 4295 3.0 Political Economy of Global Finance.
AS/POLS 4600 3.0 Politics and the Judicial Process in Canada.
AS/POLS 4605 3.0 Ethical Politics.
AS/POLS 4620 3.0 Health Policy in Canada.
AS/POLS 4625 3.0 Issues in Canadian Health Policy.
AS/POLS 4650 3.0 Provincial and Municipal Government in Ontario (cross-listed to: AK/POLS 4109D 3.0).

Psychology Stream

AK/AS/SC/PSYC 1010 6.0 Introduction to Psychology.
AK/AS/SC/PSYC 2020 6.0 Analysis of Psychological Data.
AK/AS/SC/PSYC 2021 3.0 Introduction to Descriptive Statistics.
AK/AS/SC/PSYC 2022 3.0 Introduction to Inferential Statistics and the Analysis of Variance.
AK/AS/SC/PSYC 2120 3.0 Social Psychology.
AK/AS/SC/PSYC 2130 3.0 Personality.
AK/AS/SC/PSYC 2230 3.0 Motivation.
AK/AS/SC/PSYC 3140 3.0 Abnormal Psychology.
AK/AS/PSYC 3430 3.0 Behaviour in Groups: Small Group Processes.
AK/AS/SC/PSYC 3450 3.0 Environmental Psychology.
AK/AS/SC/PSYC 3570 3.0 Organizational Psychology.
AK/AS/SC/PSYC 4020 6.0 Advanced Seminar in Social Psychology.
AK/AS/SC/PSYC 4030 6.0 Behaviour Modification and Behaviour Therapy.
AK/AS/SC/PSYC 4060 6.0 Psychology of Counselling.

Social Science (Labour Studies) Stream

AS/ECON 3240 3.0 Labour Economics – Theory.
AS/ECON 3250 3.0 Labour Economics – Institutions.
Political Economy Of Labour In Canada.
AS/SOSC 2210 9.0 Labour Relations in Canada.
AS/SOSC 3130 6.0 Women and Work: Production and Reproduction (cross-listed to: AS/WMST 3510 6.0).

AS/SOSC 3210 6.0 Working Class in Canadian Society.
AS/SOSC 3240 3.0 Labour and Globalisation I: North American Perspectives.
AS/SOSC 3241 3.0 Labour and Globalisation II: Comparative Perspectives.
AS/SOSC 3280 3.0 Political Economy Of Labour In Canada (cross-listed to: AS/POLS 3140 3.0).
AS/SOSC 3380 6.0 Law, Labour and the State.
AS/SOSC 3990Q 6.0 Unions, Workers and Democracy.
AS/SOSC 4210 6.0 Collective Bargaining Simulation.
AS/SOSC 4240 6.0 Labour Studies Placement.
AS/SOSC 4250 6.0 Special Topics in Labour Studies.
AS/SOCI 3600 3.0 The Sociology Of Work and Industry.

Sociology Stream

AS/SOCI 1010 6.0 Sociological Perspectives.
AS/SOCI 2070 6.0 Social Order and Social Organization.
AS/SOCI 3030 6.0 Statistics for Social Sciences (cross-listed to: AS/POLS 3300 6.0).
AS/SOCI 3620 6.0 Formal Organizations.
AS/SOCI 3600 3.0 The Sociology of Work and Industry.
AS/SOCI 3610 3.0 The Sociology of Occupations and Professions.
AS/SOCI 4120 6.0 Social Organization and Urban Culture.
AS/SOCI 4200 6.0 The Sociology of Conflict and Cooperation.
AS/SOCI 4210 6.0 Economic Sociology.
AS/SOCI 4300 3.0 Sociology of Health Care Delivery.
AS/SOCI 4450 6.0 Women in Development.
AS/SOCI 4620 6.0 Issues in Sociology of Work and Labour.

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Certificate in Business Fundamentals

Certificate Office:
Division of Social Science, S739 Ross, 416-736-5054, ext. 77805

The Certificate in Business Fundamentals provides students, and particularly those in one of the Faculty of Arts business related programs, with the opportunity to complete a concentration of courses related to the business management disciplines. This concentration: a) assists students who wish to pursue a career in the private sector, and b) provides an introduction to business management skills for students who are considering the pursuit of an MBA degree. York University students may earn a Certificate in Business Fundamentals in addition to fulfilling the requirements for an undergraduate degree. This certificate is open to students in all undergraduate Faculties except for students enrolled in the Schulich School of Business bachelor of business administration program or the Atkinson bachelor of administrative studies program. Students may not earn both a

Certificate in Business Fundamentals and a Certificate in Non-profit Management.

For certificate requirements please refer to the Faculty of Arts Programs of Study section of this Calendar.

Certificate in Business Fundamentals Courses

For course descriptions, please refer to the appropriate departmental/divisional listings in this Calendar or the relevant departmental/divisional supplemental calendar.

Note: For purposes of meeting certificate requirements, all foundations courses will count as six credits.

AS/ECON 1000 3.0 Introduction to Microeconomics.
AS/ECON 1010 3.0 Introduction to Macroeconomics.
AS/ECON 2300 3.0 Intermediate Microeconomic Theory I.
AS/ECON 2350 3.0 Intermediate Microeconomic Theory II.
AS/ECON 2400 3.0 Intermediate Macroeconomic Theory I.
AS/ECON 2450 3.0 Intermediate Macroeconomic Theory II.
AS/ECON 2500 3.0 Introductory Statistics for Economists.
AK/AS/SC/MATH 1300 3.0 Differential Calculus with Applications.
AS/MATH 1530 3.0 Introductory Mathematics for Economists I (cross-listed to: AS/ECON 1530 3.0).
AK/AS/MATH 1550 6.0 Mathematics with Management Applications.
AK/AS/SC/MATH 2560 3.0 Elementary Statistics I.
AK/AS/MATH 2580 3.0 Mathematics of Investment and Actuarial Science.
AS/PHIL 2070 3.0 Introductory Ethics.
AS/PHIL 2075 3.0 Introduction to Applied Ethics.
AS/POLS 2100 6.0 Introduction to Canadian Government and Politics (cross-listed to: AK/POLS 3420 6.0).
AS/POLS 2610 6.0 Public Policy and Administration.
AS/POLS 3300 6.0 Statistics for Social Sciences (cross-listed to: AS/SOCI 3030 6.0).
AK/AS/SC/PSYC 2020 6.0 Analysis of Psychological Data.
AK/AS/SC/PSYC 2021 3.0 Introduction to Descriptive Statistics.
AS/SOCI 3030 6.0 Statistics for Social Sciences (cross-listed to: AS/POLS 3300 6.0).
AS/SOSC 2210 9.0 Labour Relations in Canada
AS/SOSC 2340 9.0 Foundations of Business and Society

Listed below are required courses for the Certificate in Business Fundamentals mounted by the Schulich School of Business.

SB/BFND 3100 3.0 Management and Business: An Introduction. This course will provide an intensive introduction to the nature and role of business organizations. The role of business organizations in the political economy of Canada will be described.

Management functions including planning, decision making and control will be examined, and the major specialized management roles (operations management, finance and accounting, marketing/sales, human resources) will be introduced.

SB/BFND 3200 3.0 Finance and Accounting. Managers in business (as in all formal organizations) need to interpret and use financial information. This course will provide students with the fundamental conventions, standards and basic techniques used in collecting and using financial information in organizations.

Degree credit exclusions: AS/ECON 3580 3.0 Financial Accounting and AS/ECON 3590 3.0 Managerial Accounting. Students who have successfully completed AS/ECON 3580 3.0 and AS/ECON 3590 3.0 may not enrol in SB/ BFND 3200 3.0, and are therefore exempt from this requirement.

SB/BFND 4100 3.0 Markets and Marketing. This course examines the relationship between the business and a key component of its environment – the individuals or organizations to which it sells products and services. The primary focus of this course is how businesses learn about the markets they deal in, and how they act so as to be effective in attracting and keeping customers and clients.

SB/BFND 4200 3.0 Management Strategy and Implementation. Businesses exist in changing multi-dimensional environments. As social inventions, businesses in such environments need explicit strategy to survive and succeed. This course will identify different strategic options and the environment situations that make those options preferable. It will also examine the organizational design and human resource management implications of various strategic choices.

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Certificate in Non-profit Management

Certificate Office:
  Faculty of Arts, Department of Political Science, S672 Ross, 416-736-5267
Coordinator:
  Ray Bazowski

York University students may earn a Certificate in Non-profit Management in addition to fulfilling the requirements for an undergraduate degree. This certificate is open to students in all undergraduate Faculties except for students enrolled in the Schulich School of Business bachelor of business administration program or the Atkinson bachelor of administrative studies program. Students may not earn both a Certificate in Business Fundamentals and a Certificate in Non-profit Management.

For certificate requirements please refer to the Faculty of Arts Programs of Study section of this Calendar.

Certificate in Non-profit Management Courses

For course descriptions, please refer to the appropriate departmental/divisional listings in this Calendar or the relevant departmental/divisional supplemental calendar.
AS/ECON 1000 3.0 Introduction to Microeconomics.
AS/ECON 1010 3.0 introduction to Macroeconomics.
AS/ECON 2500 3.0 Introductory Statistics for Economists.
AK/AS/SC/MATH 2560 3.0 Elementary Statistics I.
AS/POLS 2100 6.0 Introduction to Canadian Government and Politics (cross-listed to: AK/POLS 3420 6.0).
AS/POLS 3125 3.0 Canadian Political Economy.
AS/POLS 3140 3.0 Political Economy of Labour in Canada (cross-listed to: AS/SOSC 3280 3.0).
AS/POLS 3190 6.0 Public Administration.
AS/POLS 3300 6.0 Statistics for Social Sciences (cross-listed to: AS/SOCI 3030 6.0).
AK/AS/SC/PSYC 2020 6.0 Analysis of Psychological Data.
AK/AS/SC/PSYC 2021 3.0 Introduction to Descriptive Statistics.
AS/SOSC 2210 9.0 Labour Relations in Canada.
AS/SOSC 2340 9.0 Foundations of Business and Society.
AS/SOSC 3190 6.0 Gender, Race and Class in Canada.
AS/SOSC 3370 6.0 Social Justice and Law.
AS/SOCI 3030 6.0 Statistics for Social Sciences (cross-listed to: AS/POLS 3300 6.0).
AS/SOCI 3310 6.0 Canadian Society: A Sociological Analysis.
AS/SOCI 3340 6.0 Social Change.
AS/SOCI 3430 6.0 Ethnicity, Power and Identity.

Listed below are required courses for the Certificate in Non-profit Management mounted by the Schulich School of Business.

SB/NPMG 3100 3.0 Introduction to the Non-profit Organization. This course serves as a general introduction to the non-profit sector and to the external environment of organizations that operate in this sector. The course explores the historical roots and the social, political and economic function of the non-profit sector in Canada, as well as in other countries and traditions throughout the world. It examines the legal and policy environments in which non-profit organizations operate and issues with respect to governance and accountability.

SB/NPMG 3200 3.0 Accounting and Finance for Non-profit Organizations. Managers in non-profit organizations need to interpret and use financial information. This course will provide students with the fundamental conventions, standards and basic techniques used in collecting and using financial information in organizations.

Degree credit exclusions: AS/ECON 3580 3.0 Financial Accounting and AS/ECON 3590 3.0 Managerial Accounting. Students who have successfully completed AS/ECON 3580 3.0 and AS/ECON 3590 3.0 may not enrol in SB/BFND 3200 3.0, and are therefore exempt from this requirement.

SB/NPMG 4100 3.0 Non-profit Marketing. This course examines the relationship between non-profit organizations and their external constituencies. The course includes an introduction to marketing theory and practice, and the application of these concepts in a non-profit setting. The scope of the course includes specialized topics in social marketing, volunteer marketing, fundraising and philanthropy and advocacy.

Degree credit exclusion: SB/BFND 4100 3.0.

SB/NPMG 4200 3.0 Organizational Behaviour and the Non-profit Organization. This course is designed to develop students' organizational competence. It examines the relationships between organizational performance and the behaviour of individuals, groups and overall organizations. The course introduces human resources management, with a particular focus on the culture and structure of non-profit organizations. Emphasis is given to the importance of interpersonal issues and to issues arising from workforce diversity, ethical challenges, funding pressures and technological change.

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Calumet College – Arts

Academic Program Office:
  235 Calumet College, 416-736-5098
College Master:
  Savitsa Sevigny
Academic Adviser:
  TBA

Listed below are the 1000- and 2000-level nine-credit foundations courses which are part of the Faculty of Arts general education requirement. These courses introduce students to interdisciplinary study and emphasize critical thinking, reading and writing skills at the university level, and reflect the academic mandate of the college.

Students enrolling in Calumet College foundation courses, in either the Division of Humanities or the Division of Social Sciences, will be members of Calumet College with access to academic advising, orientation programs, social and cocurricular events.

1000-Level Courses

AS/HUMA 1650 9.0 The Networked Imagination. This course explores the technological determinants operating today on almost all cultural forms. The main theme of this course is how the nature of digital representation and communication affects the nature of literature, visual arts and music, altering not only the forms and content, but the roles of artist/author and their audiences.

AS/HUMA 2190 9.0 Germany Through the Ages. Germany is now united after almost a half-century of division. In attempting to answer the question as to how new and how united this "New Germany" is, events and personalities are examined which throughout German history have shaped German culture and society.

Cross-listed to: AS/GER 2790 9.0.

Degree credit exclusion: AS/HUMA 2190 6.0.

AS/SOSC 1000 9.0 Introduction to Social Science. The course considers the distinctive characteristics of modern society including the impact of modernization on the family, religion, economic behaviour, politics and belief systems. It introduces many of the major concepts social scientists use in analyzing how society works.

Degree credit exclusions: AS/SOSC 1000 6.0, AS/SOSC 1009 9.0.

AS/SOSC 1731 9.0 CyberCities: The Community and Communication in Changing Urban Areas. Technology's impact on cities is examined, with emphasis on institutions and landscapes. Changes of metropolitan form, issues of community formation and emerging patterns of work, leisure and urban life are explored in the context of shifting modes of electronic communication.

AS/SOSC 1740 9.0 Development of Urban Economies: Comparing Canada and The Third World. This course compares urban economic development in Canada and the Third World in terms of industrialization, urbanization and economic dependency. Themes are: colonial cities and industrial dependence; the multinational corporation, technological dependence and urban employment; urban problems and alternative solutions.

Degree credit exclusion: AS/SOSC 1740 6.0.

AS/SOSC 2080 9.0 Information and Technology. This course provides students with critical stances with which to view our society's preoccupation with "information" and "technology". We explore how computers can manage information and how this impacts on issues of ethics, control, privacy, censorship and copyright.

Degree credit exclusions: AS/SOSC 1080 6.0, AS/SOSC 1080 9.0, AS/SOSC 1089 6.0, AS/ SOSC 1089 9.0, AS/SOSC 2089 9.0.

AS/SOSC 2310 9.0 Introduction to Communications. This course examines the relationships among the structure of information, the media and technology that convey it, its perception and interpretation by individuals, groups and organizations, and the social, economic and political processes that affect information production and dissemination.

Degree credit exclusion: AS/SOSC 2310 6.0.

AS/SOSC 2330 9.0 The Economics of Law, Policy and Organization. This course considers economics as a form of moral argument. This course considers how economists evaluate existing government policies in a broad variety of areas, including housing policies and rent control, environmental protection, and gender equity in the workplace.

Degree credit exclusions: AS/SOSC 3530 6.0, AS/POLS 3310 6.0.

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Centre for Academic Writing – Arts

Department Office:
 S329 Ross, 416-736-5134
Chair:
 J. Rehner
Associate Professor:
 R. Sheese
Assistant Professors:
 J. Blazina, B. McComb, P. Rozendal, J. Webber
Associate Lecturers:
 T. Greenwald, J. Rehner, J. Spencer
Current Contract Faculty:
 M. L. Bat-Hayim, E. Brulé, B. Giblon, J. Goulding, B. Lowinsky, A. Marquez, D. McKim, D. O'Neill, J. Shafer, B. Zimmerman

The Centre for Academic Writing assists students to become effective independent writers, within both their academic life and elsewhere. The primary means of achieving this objective is through the centre's individualized tutoring program. All Faculty of Arts students are eligible to enrol in this program and take advantage of the opportunity to work on their writing with one of the centre's experienced faculty. The centre also regularly offers mini-courses on various issues related to writing effectively in university.

The Centre for Academic Writing offers the following courses for degree credit.

AS/WRIT 1000 3.0 Academic Writing in the Social Sciences. The course examines the process of reading and writing academic papers with emphasis on the latter. Topics considered include writing as a learning process, developing academic ideas, using and documenting academic sources, planning and organizing a paper, revising and editing.

Degree credit exclusions: AS/CAW 1000 3.0, AS/CAW 1200 3.0, AS/WRIT 1200 3.0.

AS/WRIT 1200 3.0 Academic Writing in the Humanities. This course examines the process of reading and academic writing with emphasis on the latter. Topics include writing as a learning process, developing academic ideas, using and documenting academic sources, planning and organizing a paper, revising and editing.

Degree credit exclusions: AS/CAW 1200 3.0, AS/CAW 1000 3.0, AS/WRIT 1000 3.0.

AS/WRIT 2100 3.0 The Essay: Rhetoric and Writing. This course teaches academic writing in the historical and generic context of the essay. The rhetorical strategies of argumentative writing are examined through the reading and analysis of essays, and by writing short weekly assignments in a computer lab.

Note: Internet access is required for this course.

AS/WRIT 2200 3.0 Writing in a Pluralistic Society. This course examines the developing range of expectations which students face in their writing in a pluralistic setting from both a practical and theoretical perspective.

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Chemistry – Pure and Applied Science

Department Office:
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 H.I. Schiff
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Distinguished Research Professors Emeriti:
 G.O. Aspinall, H.O. Pritchard
Professor and Guy Warwick Rogers Chair in Atmospheric Chemistry:
 G.W. Harris
Professor and NSERC/MDS SCIEX Chair:
 K.W.M. Siu
Professors:
 D.R. Hastie, C.E. Holloway, A.C. Hopkinson, E. Lee-Ruff, C.C. Leznoff, M. Mozurkewich, W.J. Pietro, J. Rudolph
Professors Emeriti:
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Associate Professors:
 R.K. Allan, R. Fournier, S.N. Krylov, R. McLaren, M.G. Organ, P.G .Potvin, D.V. Stynes, I.M .Walker
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 D.N. Butler, G. Hunter, C.R. McArthur, C.M. Sadowski
Assistant Professors:
 R. Hudgins, P. Johnson, S. Morin
Associate Lecturer:
 M. Hempstead

Chemistry is the study of the structure and properties of matter including the energy changes that accompany chemical reactions. The understanding gained from these studies is applied in the prediction of the behaviour of matter and in the interpretation of a wide variety of phenomena. Chemistry is linked closely with a number of other subjects, ranging from astrophysics and earth science to the biological and medical sciences, which involve matter at various levels of complexity.

The Department of Chemistry offers undergraduate courses in all the major sub-disciplines of the subject, including physical, theoretical, analytical, inorganic, organic and biological chemistry. Specialized programs in Chemistry (see the Faculty of Pure and Applied Science Programs of Study section of this Calendar) include a required core of courses to ensure that the student acquires a broad knowledge of the subject, but also provide opportunities for the student to concentrate on areas of particular interest. In the applied chemistry area the Department of Chemistry also offers specialization in Atmospheric Chemistry (see the Faculty of

Pure and Applied Science Programs of Study section of this Calendar).

Courses in Chemistry

The contact-hour information in the course outlines below specifies the number of hours per week when the course is taught in the daytime in a fall/winter session. If the course is offered in the evening and/or in a summer session, the format and scheduling may be different, though equivalent in credit value.

SC/CHEM 1000 3.0 Chemical Structure. (formerly half of SC/CHEM 1000 6.0 — before 2001-2002) Introduction to chemistry with emphasis on physical and electronic structure of matter, including gases, liquids and solids. Topics include behaviour of gases; thermochemistry; atomic structure and periodic table; chemical bonding and architecture; structure of liquids and solids; frontiers of chemistry. Two and one-half lecture hours per week, one tutorial hour per week, six three-hour laboratory sessions. One term. Three credits.

Prerequisites: OAC chemistry or SC/CHEM 1500 4.0 or equivalent; OAC physics or SC/ PHYS 1510 4.0 or equivalent normally required.

Degree credit exclusions: SC/CHEM 1000 6.0, SC/CHEM 1010 6.0, AK/CHEM 2000 6.0.

SC/CHEM 1001 3.0 Chemical Dynamics. (formerly half of SC/CHEM 1000 6.0 — before 2001-2002) This course complements SC/ CHEM 1000 3.0 — with emphasis on chemical change and equilibrium. Topics include chemical kinetics; chemical equilibrium; entropy and free energy as driving forces for chemical change; electrochemistry; frontiers in chemistry. Two and one-half lecture hours per week, one tutorial hour per week, six three-hour laboratory sessions. One term. Three credits.

Prerequisites: OAC chemistry or SC/CHEM 1500 4.0 or equivalent; OAC physics or SC/ PHYS 1510 4.0 or equivalent normally required.

Degree credit exclusions: SC/CHEM 1000 6.0, SC/CHEM 1010 6.0, AK/CHEM 2000 6.0.

SC/CHEM 1500 4.0 Introduction to Chemistry. An introductory course in chemistry for students needing an adequate preparation for SC/CHEM 1000 3.0 and SC/ CHEM 1001 3.0. Topics include basic atomic theory, stoichiometry, the periodic table, chemical bonding, equilibria, acids and bases, oxidation-reduction and organic chemistry. Each student is counselled by a faculty adviser to enrol either in this course, or in SC/CHEM 1000 3.0 or SC/CHEM 1001 3.0, depending on previous chemistry experience. Three lecture hours per week, three laboratory hours and two tutorial hours in alternate weeks. One term. Four credits.

Degree credit exclusions: SC/CHEM 1520 4.0, AK/CHEM 1500 3.0. May not be taken by any student who has taken or is currently taking another university course in chemistry.

SC/CHEM 2010 3.0 Symmetry, Electronic Structure and Bonding. An introduction to elementary group theory and wavefunctions for atoms and molecules. Topics include descriptions of bonding and the use of symmetry in the construction of molecular orbitals and in the derivation of selection rules for electronic and vibrational spectroscopy. Three lecture hours, one tutorial hour. One term. Three credits.

Prerequisites: Both SC/CHEM 1000 3.0 and SC/CHEM 1001 3.0, or SC/CHEM 1000 6.0; AS/SC/MATH 1013 3.0; AS/SC/MATH 1014 3.0.

Prerequisite or corequisite: SC/PHYS 1410 6.0 or SC/PHYS 1010 6.0.

SC/CHEM 2011 3.0 Introduction to Thermodynamics. This course is an introduction to equilibrium chemical thermodynamics. The three laws of thermodynamics and the thermodynamic state functions are described. Many applications are considered, including the operation of heat engines, phase transformations, thermochemistry and chemical reaction equilibria. Three lecture hours, one tutorial hour. One term. Three credits.

Prerequisites: AS/SC/MATH 1013 3.0; AS/SC/ MATH 1014 3.0.

Degree credit exclusion: SC/CHEM 2050 3.0.

SC/CHEM 2020 6.0 Organic Chemistry. (formerly SC/CHEM 2020 5.0 — before Summer 2000) Structure including stereochemistry, physical and chemical properties of simple organic compounds; methods in structure determination; introductory concepts of reaction mechanisms and methods for determination of mechanisms. Two and one-half lecture hours per week, three laboratory hours every second week, one tutorial hour every week. Two terms. Six credits.

Prerequisite(s): Both SC/CHEM 1000 3.0 and SC/CHEM 1001 3.0, or SC/CHEM 1000 6.0.

Degree credit exclusions: SC/CHEM 2020 5.0, AK/CHEM 2020 7.0.

SC/CHEM 2030 4.0 Basic Inorganic Chemistry. The descriptive chemistry of the more common elements is discussed within the context of qualitative inorganic analysis. Principles of ionic equilibria in aqueous solution, elementary coordination chemistry and electrochemical potentials are presented. Three lecture hours, three laboratory hours, one tutorial hour. One term. Four credits.

Prerequisite(s): Both SC/CHEM 1000 3.0 and SC/CHEM 1001 3.0, or SC/CHEM 1000 6.0.

SC/CHEM 2080 4.0 Analytical Chemistry. Introduction to quantitative chemical analysis and the analytical method; errors and statistical analysis of data; gravimetric and volumetric methods of analysis including acid-base, precipitation, complexation and redox titrimetry; the effect of equilibria on chemical analysis; introduction to potentiometry and spectrophotometry. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisite(s): Both SC/CHEM 1000 3.0 and SC/CHEM 1001 3.0, or SC/CHEM 1000 6.0.

Degree credit exclusions: SC/CHEM 2110 5.0, SC/CHEM 2110 4.0.

SC/CHEM 3010 4.0 Physical Chemistry. An introduction to spectroscopy and statistical thermodynamics for atoms and small molecules. Determination and applications of enthalpies of formation, reaction and solution for different systems. Three lecture hours per week, five three-hour laboratories. First term. Four credits.

Prerequisites: SC/CHEM 2010 3.0; SC/CHEM 2011 3.0.

SC/CHEM 3011 4.0 Physical Chemistry. This is an introductory course in chemical kinetics as applied primarily to reactions in the gas phase but also in solution and at electrode surfaces. Three lecture hours per week, five three-hour laboratories. Second term. Four credits.

Prerequisite: SC/CHEM 2011 3.0.

Degree credit exclusion: SC/CHEM 3210 4.0.

SC/CHEM 3020 4.0 Organic Chemistry II. A course organizing structural organic chemistry on a mechanistic basis and applying these mechanisms to synthesis and degradation. The application of spectroscopic methods is also incorporated where appropriate. Three lecture hours per week, seven three-hour laboratories. One term. Four credits.

Prerequisites: SC/CHEM 2010 3.0; SC/CHEM 2020 6.0 or SC/CHEM 2020 5.0; SC/CHEM 2030 4.0.

Degree credit exclusion: SC/CHEM 3020 8.0.

SC/CHEM 3021 4.0 Organic Chemistry III. A course building on SC/CHEM 3020 4.0 and introducing methods for probing mechanisms, base-catalyzed reactions, rearrangements, cyclization, strain, pericyclic reactions and other topics. Three lecture hours per week, eight three-hour laboratories. One term. Four credits.

Prerequisite: SC/CHEM 3020 4.0.

Degree credit exclusion: SC/CHEM 3020 8.0.

SC/CHEM 3030 4.0 Transition Metal Chemistry. The chemistry of the transition metals is discussed from an historical perspective and within the context of modern theories of bonding, structure and spectroscopy. Topics include classical coordination compounds, organometallics, metallocenes, metal carbonyls and bioinorganic chemistry. Three lecture hours per week, seven three-hour laboratory sessions. One term. Four credits.

Prerequisites: SC/CHEM 2010 3.0; SC/CHEM 2020 6.0 or SC/CHEM 2020 5.0; SC/CHEM 2030 4.0.

Degree credit exclusion: SC/CHEM 3030 8.0.

SC/CHEM 3031 4.0 Physical Inorganic Chemistry. An introduction to physical and theoretical methods in inorganic chemistry. Topics are selected from the following: atomic structure and spectra, molecular orbital and ligand field theory, bonding, electronic spectroscopy, magnetism of metal complexes, photochemistry, electrochemistry, solid state chemistry, metal-metal bonding. Three lecture hours per week, eight three-hour laboratory sessions. One term. Four credits.

Prerequisite: SC/CHEM 3030 4.0.

Degree credit exclusion: SC/CHEM 3030 8.0.

SC/CHEM 3040 3.0 Computational Chemistry. An introduction to numerical methods for modeling reaction kinetics, thermodynamics and molecular spectra and structure. Operating system commands, symbolic algebra and molecular modeling software are used for computing exercises. Molecular orbitals, the Born-Oppenheimer approximation and potential energy surfaces are discussed. Two lecture hours, three computer laboratory hours. One term. Three credits.

Prerequisites or corequisites: SC/CHEM 2010 3.0; AK/AS/SC/COSC 1540 3.0.

SC/CHEM 3050 3.0 Advanced Biochemistry. A detailed discussion of enzyme structure and function. The chemistry and metabolism of biological molecules. Metabolic regulation at the level of enzyme activity. Knowledge of general concepts of metabolism and of basic aspects of enzyme structure and function is assumed. Three lecture hours. One term. Three credits.

Cross-listed to: SC/BIOL 3010 3.0.

Prerequisites: SC/CHEM 2020 6.0 or SC/CHEM 2020 5.0; SC/BIOL 2020 4.0.

Prerequisite or corequisite: Three additional chemistry credits at the 2000 or 3000 level (e.g. SC/CHEM 2011 3.0) are strongly recommended.

Degree credit exclusion: SC/BIOL 3010 3.0.

SC/CHEM 3051 3.0 Macromolecules of Biochemical Interest. A discussion of the structures and functions of naturally occurring macromolecules, including nucleic acids, proteins, polysaccharides and related macromolecular conjugates. Three lecture hours. One term. Three credits.

Prerequisite: SC/CHEM 2020 6.0 or SC/CHEM 2020 5.0.

Prerequisite or corequisite: SC/CHEM 3020 4.0.

Degree credit exclusion: SC/CHEM 3150 3.0.

SC/CHEM 3060 3.0 Introductory Atmospheric Chemistry. An introductory course linking chemistry and atmospheric science. Topics include atmospheric evolution; biogeochemical cycles; sources, transformations and sinks of atmospheric species; human impacts such as acid rain, photochemical smog and depletion of the ozone layer. Three lecture hours. One term. Three credits.

Cross-listed to: SC/EATS 3130 3.0.

Prerequisites: Both SC/CHEM 1000 3.0 and SC/CHEM 1001 3.0, or SC/CHEM 1000 6.0; one of AS/SC/MATH 1010 3.0, AS/SC/MATH 1014 3.0, AK/AS/SC/MATH 1310 3.0, AS/SC/MATH 1505 6.0.

Degree credit exclusions: SC/CHEM 3160 3.0, SC/EATS 3130 3.0.

SC/CHEM 3070 3.0 Industrial Chemistry and the Environment. The chemistry of industrial processes is studied together with the impact of their products on the environment. Topics include petroleum refining, the petrochemical industry, polymers, pesticides, dyes and pharmaceuticals. Molecular aspects of toxicology and pharmacology are discussed. Three lecture hours. One term. Three credits.

Prerequisite: SC/CHEM 2020 6.0 or SC/CHEM 2020 5.0.

Degree credit exclusion: SC/CHEM 3450 3.0.

SC/CHEM 3071 3.0 Pharmaceutical Discovery. A practical look into the pharmaceutical industry, providing an overview of the drug discovery process. Topics include choosing disease states to study, pharmacological assays, rational drug design, synthetic and analytical chemistry, toxicology, drug metabolism and clinical trials. Three hours. One term. Three credits.

Prerequisites: SC/CHEM 2020 6.0 or SC/CHEM 2020 5.0; SC/BIOL 2020 4.0.

SC/CHEM 3080 4.0 Instrumental Methods of Chemical Analysis. The theory and application of a variety of modern instrumental methods. Topics include basic electronics, signal processing, electroanalytical methods, optical spectroscopy, atomic absorption and emission spectroscopy, chromatography and mass spectrometry. This course covers applications relevant to modern chemical analysis. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisites: SC/CHEM 2080 4.0; SC/PHYS 1010 6.0 or SC/PHYS 1410 6.0.

Degree credit exclusions: SC/CHEM 3110 4.0, SC/CHEM 3120 4.0, SC/CHEM 3130 4.0.

SC/CHEM 3200 3.0/3200 4.0 Special Topics. Topics not ordinarily covered in other courses. Lectures and laboratories as appropriate. One term. Three or four credits.

Prerequisites: Vary depending on the particular topic.

SC/CHEM 4010 3.0 Introductory Quantum Chemistry. The theory of electronic structure and bonding in molecules in terms of Schroedinger wave mechanics; Pauli exclusion principle; Slater determinants; Born-Oppenheimer separation; variation principle; methods of constructing electronic wave functions for molecules; Hartree-Fock and configuration interaction methods. Three lecture hours. First term. Three credits.

Prerequisites: AS/SC/MATH 2015 3.0; AK/AS/SC/MATH 2270 3.0.

SC/CHEM 4011 3.0 Physical Chemistry. Dynamics of collision events in gas phase chemical kinetics; reactions in bulk systems and in molecular beams; applications to chemical lasers, atmospheric chemistry and combustion. Three lecture hours. Second term. Three credits.

Prerequisite: SC/CHEM 3011 4.0.

SC/CHEM 4020 3.0 Organic Chemistry IV. Stereochemistry, with emphasis on the determination of configuration, conformation analysis and reaction stereochemistry. Discussion of the biosynthesis of aromatic compounds, the acetate rule, the terpene rule and alkaloids. Structure elucidation and synthesis of selected natural products. Three lecture hours. One term. Three credits.

Prerequisite: SC/CHEM 3021 4.0.

SC/CHEM 4021 3.0 Synthetic Organic Chemistry. A course concentrating on strategies of synthesizing complex molecules, with emphasis on carbon-carbon bond-forming reactions, blocking groups, regioselectivity and stereochemical methods. Three lecture hours. One term. Three credits.

Prerequisite: SC/CHEM 3021 4.0.

SC/CHEM 4022 3.0 Theoretical Organic Chemistry. Molecular orbital theory, with applications to structure and reactivity of saturated and unsaturated molecules. Woodward-Hoffmann rules of orbital symmetry. Three lecture hours. One term. Three credits.

Prerequisites: SC/CHEM 2010 3.0; SC/CHEM 2020 6.0 or SC/CHEM 2020 5.0.

Prerequisite or corequisite: SC/CHEM 3021 4.0.

Degree credit exclusion: SC/CHEM 4040 3.0.

SC/CHEM 4023 3.0 Physical Organic Chemistry. Advanced topics, including methods for determining mechanisms, the study of reactive intermediates (carbocations, carbanions, carbenes, carbon radicals), acid catalysis and other aspects of mechanistic organic chemistry. Three lecture hours. One term. Three credits.

Prerequisite: SC/CHEM 3021 4.0.

SC/CHEM 4030 3.0 Instrumental Methods in Inorganic Chemistry. Theory and applications of instrumental methods for investigating the structure and properties of inorganic and organometallic compounds. Magnetic resonance techniques (NQR and ESR), ultraviolet-visible, infrared, Raman and resonance Raman spectroscopy are introduced and discussed. Three lecture hours. First term. Three credits.

Prerequisite: SC/CHEM 3031 4.0.

SC/CHEM 4031 3.0 Advanced Inorganic Chemistry. Advanced topics in inorganic chemistry, including ligand field theory, magnetism in dilute and coupled spin systems, NMR of paramagnetic molecules, electron spin resonance spectroscopy, space groups and crystal structure determination, photoelectron

and x-ray spectra of inorganic molecules and ions. Three lecture hours. Second term. Three credits.

Prerequisite: SC/CHEM 3031 4.0.

Degree credit exclusion: SC/CHEM 4130 3.0.

SC/CHEM 4032 3.0 Chemical Applications of Group Theory. A general introduction to symmetry operations, point groups, character tables, reducible and irreducible representations and direct products. Applications of group theory to problems in chemistry, with special reference to electronic and vibrational spectroscopy, crystal field and molecular orbital theory. Three lecture hours. One term. Three credits.

Prerequisites: SC/CHEM 2010 3.0; SC/CHEM 2030 4.0; a background in inorganic chemistry is desirable.

SC/CHEM 4050 3.0 Bioanalytical Chemistry. This course describes modern methods of bioanalytical chemistry in their application to the analysis of biological polymers: proteins, nucleic acids, carbohydrates and lipids. Analytical aspects of genomics and proteomics are considered. One term. Three credits.

Prerequisites: SC/CHEM 2020 6.0 or SC/CHEM 2020 5.0; SC/BIOL 2020 4.0 and SC/BIOL 2021 4.0.

SC/CHEM 4060 4.0 Chemistry of the Natural and Polluted Atmosphere. A detailed study of the chemistry of atmospheric trace gases, including stratospheric ozone, tropospheric oxidants, photochemical smog and acid deposition. Computer simulation of chemical reaction mechanisms is used throughout the course. Three lecture hours, two computer laboratory hours. One term. Four credits.

Prerequisites: SC/CHEM 3011 4.0; SC/CHEM 3060 3.0 or SC/EATS 3130 3.0.

SC/CHEM 4061 4.0 Transport and Chemistry of Atmospheric Trace Gases. A study of the processes that affect the composition of the atmosphere and the methods used to include these in numerical models. Included are sources, transport, deposition, photochemistry, biogeochemical cycles, one-dimensional computer models and analysis of atmospheric data sets. Three lecture hours, two computer laboratory hours. One term. Four credits.

Cross-listed to: SC/EATS 4170 4.0.

Prerequisites: SC/CHEM 3060 3.0 or SC/EATS 3130 3.0; AK/AS/SC/COSC 1540 3.0; AK/AS/SC/MATH 2270 3.0.

Degree credit exclusion: SC/EATS 4170 4.0.

SC/CHEM 4080 3.0 Advanced Analytical Separation Methods. (formerly SC/CHEM 4200D 3.0 — before 2001-2002) Advanced theory and practice of high-resolution separation techniques, especially high-resolution chromatography and capillary electrophoresis, with emphasis on the practical application of advanced theories and the problem of optimizing separation procedures. Analytical procedures as integrated methods.

Possibilities and limitations of interfacing sample injection, separation method and detection. Three lecture hours. One term. Three credits.

Prerequisite: SC/CHEM 3080 4.0.

Degree credit exclusion: SC/CHEM 4200D 3.0.

SC/CHEM 4091 3.0 Frontiers in Electrochemistry. This course will present selected aspects of modern surface electrochemistry, electrocatalysis and electroanalysis. It will introduce new methods and instrumentation employed to understand electrochemical processes at the molecular and atomic levels. This will include scanning probe methods (STM and AFM), IR spectroscopy and X-ray diffraction. One term. Three credits

Prerequisites or corequisites: SC/CHEM 3030 4.0; SC/CHEM 3080 4.0 or SC/CHEM 3120/3110 4.0. SC/CHEM 3011 4.0 and SC/CHEM 3031 4.0 are strongly recommended.

SC/CHEM 4100 3.0/4100 6.0 Research Project. An original laboratory or theoretical project, supported by studies of the relevant scientific literature. Not fewer than 200 laboratory hours, 12 tutorial hours. Two terms or equivalent. Six credits. Not fewer than 100 laboratory hours, six tutorial hours. One term or equivalent. Three credits.

Prerequisites: Only open to Honours students in the final year of study, with permission of the department.

SC/CHEM 4200 3.0/4200 4.0/4200 6.0 Special Topics. Topics not ordinarily covered in other chemistry courses. Lectures and laboratories over one or two terms as appropriate. Six, four or three credits.

SC/CHEM 4300 3.0/4300 6.0 Selected Topics in Chemistry. By special arrangement through the Chair of the Chemistry Department, a student may enrol in a reading course under the direction of a member of the Chemistry Department faculty to study in a special area of chemistry. Regular meetings. Two terms. Six credits. One term. Three credits.

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Classical Studies (Classics) – Arts

Program Office:
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Associate Professors Emeriti:
 J.C. Stephens; P.R. Swarney
Assistant Professor:
 V.G. Stephens
Visiting Lecturer:
 L. Broadhurst
Honorary Member:
 A.G. McKay
Associate Member:
 B. Roe

The Classical Studies Program offers a varied approach to the study of the Greek and Roman world through degree programs designed to meet a wide range of needs and interests. Courses in Greek and Latin language training and in classical literature are available to students who wish to develop their understanding of the history, poetry and philosophy of ancient Greece and Rome through detailed study of classical authors in the original languages. Classical studies in conjunction with history, humanities, philosophy and fine arts also offers courses based on English translations of classical authors which afford students an opportunity to investigate more generally the history, philosophy, literary history and the art and architecture of the classical world.

For the several programs of study available in classical studies, please consult the Faculty of Arts Programs of Study section of this Calendar.

Courses in Greek

I. Language Course

AS/GK 1000 6.0 Elementary Classical Greek.

Note: See the Languages, Literatures and Linguistics section.

II. Literature Courses

Note: Prerequisites for 2000-level courses: AS/GK 1000 6.0 or equivalent or permission of director of classical studies.

Note: Prerequisites for 3000-level courses: AS/GK 2000 6.0 or equivalent or permission of director of classical studies.

AS/GK 2000 6.0 Intermediate Classical and Biblical Greek. Selections from various ancient Greek authors chosen at the discretion of the instructor.

AS/GK 3010 3.0 Greek Tragedy. A study of the plays of Aeschylus, Sophocles and Euripides.

Degree credit exclusions: AS/GK 4010 3.0 (as of Fall/Winter 2000-2001), AS/GK 3010 6.0.

AS/GK 3030 3.0 Greek Epic Poetry. Readings from Homer's Iliad and Odyssey.

Degree credit exclusions: AS/GK 4030 3.0 (as of Fall/Winter 2000-2001), AS/GK 3030 6.0.

AS/GK 3040 3.0 Greek Historians. A study of selected works by Greek historians such as Herodotus, Thucydides and Xenophon.

Degree credit exclusions: AS/GK 4040 3.0 (as of Fall/Winter 2000-2001), AS/GK 4020 6.0 (prior to Fall/Winter 1990-1991).

AS/GK 3050 3.0 Socrates. A careful study of Socrates, the man and the philosopher, in the dialogues of Plato and the writings of other Classical Greek authors.

Degree credit exclusion: AS/GK 4050 3.0.

AS/GK 3060 3.0 Greek Rhetoric. A study of Greek prose style and the principals of Greek rhetoric.

Degree credit exclusions: AS/GK 4060 3.0, AS/GK 3060 6.0.

AS/GK 3110 3.0 Greek Lyric and Choral Poetry. A study of selected poems by Pindar and other lyric poets and of choral poetry drawn from Greek drama.

Degree credit exclusions: AS/GK 4110 3.0, AS/GK 4010 3.0 (prior to Fall/Winter 2000-2001), AS/GK 4020 6.0 (prior to Fall/Winter 1990-1991).

AS/GK 4010 3.0 Greek Tragedy. A study of the plays of Aeschylus, Sophocles and Euripides.

Prerequisite: Permission of director of classical studies.

Degree credit exclusions: AS/GK 3010 3.0, AS/GK 3010 6.0.

AS/GK 4030 3.0 Greek Epic Poetry. Readings from Homer's *Iliad* and *Odyssey*.

Prerequisite: Permission of director of classical studies.

Degree credit exclusions: AS/GK 3030 3.0, AS/GK 3030 6.0.

AS/GK 4040 3.0 Greek Historians. A study of selected works by Greek historians such as Herodotus, Thucydides and Xenophon.

Prerequisite: Permission of director of classical studies.

Degree credit exclusions: AS/GK 3040 3.0, AS/GK 4020 6.0 (prior to Fall/Winter 1990-1991).

AS/GK 4050 3.0 Socrates. A careful study of Socrates, the man and the philosopher, in the dialogues of Plato and the writings of other classical Greek authors.

Prerequisite: Permission of director of classical studies.

Degree credit exclusion: AS/GK 3050 3.0.

AS/GK 4060 3.0 Greek Rhetoric. A study of Greek prose style and the principals of Greek rhetoric.

Prerequisite: Permission of director of classical studies.

Degree credit exclusions: AS/GK 3060 3.0, AS/GK 3060 6.0.

AS/GK 4110 3.0 Greek Lyric and Choral Poetry. A study of selected poems by Pindar and other lyric poets and of choral poetry drawn from Greek drama.

Prerequisite: Permission of director of classical studies.

Degree credit exclusions: AS/GK 3110 3.0, AS/GK 4010 3.0 (prior to Fall/Winter 2000-2001), AS/GK 4020 6.0 (prior to Fall/Winter 1990-1991).

AS/GK 4130 6.0 Guided Readings in Greek Authors. An independent reading program with material chosen according to the interest of the student.

Prerequisite: Permission of director of classical studies.

Degree credit exclusion: AS/GK 4030 6.0 (prior to Fall/Winter 2000-2001).

Note: Please consult the Faculty of Arts Academic Advising and Student Responsibility section for regulations on independent study courses.

AS/GK 4140 6.0 Honours Essay. Open only to Honours candidates with the permission of the director.

Prerequisite: Permission of director of classical studies.

Degree credit exclusion: AS/GK 4040 6.0 (prior to Fall/Winter 2000-2001).

Note: Please consult the Faculty of Arts Academic Advising and Student Responsibility section for regulations on independent study courses.

Courses in Latin

I. Language Courses

AS/LA 1000 6.0 Elementary Latin.

Note: See the Languages, Literatures and Linguistics section.

II. Literature Courses

Note: Prerequisites for 2000-level courses: OAC Latin or AS/LA 1000 6.0 or permission of director of classical studies.

Note: Prerequisites for 3000-level courses: AS/LA 2000 6.0 or permission of director of classical studies.

AS/LA 2000 6.0 Intermediate Latin. This is an intensive course in the reading of Latin prose and poetry intended for students who have had OAC Latin or AS/LA 1000 6.0.

AS/LA 3010 3.0 Roman Epic Poetry. A study of two Augustan epics: Vergil's *Aeneid* and Ovid's *Metamorphoses*.

Degree credit exclusions: AS/LA 4010 3.0 (as of Fall/Winter 2000-2001), AS/LA 3010 6.0.

AS/LA 3020 3.0 Roman Lyric Poetry. A study of selected works of lyric poetry by authors such as Catullus and Horace.

Degree credit exclusions: AS/LA 4020 3.0 (as of Fall/Winter 2000-2001), AS/LA 3020 6.0.

AS/LA 3030 3.0 Roman Elegiac Poetry. A study of the love poems of Propertius, Tibullus and Ovid.

Degree credit exclusions: AS/LA 4030 3.0 (as of Fall/Winter 2000-2001), AS/LA 3030 6.0.

AS/LA 3040 3.0 Roman Philosophical Writings. A study of the works of Lucretius, Cicero and others.

Degree credit exclusion: AS/LA 4040 3.0 (as of Fall/Winter 2000-2001).

AS/LA 3050 6.0 Survey of Latin Literature. A survey of ancient Latin literature designed to supplement existing course offerings and to give students a sense of the range of Roman literary expression.

Degree credit exclusion: AS/LA 4050 6.0.

AS/LA 3060 3.0 Roman Historians. A study of selected works by Roman historians such as Caesar, Livy and Tacitus.

Degree credit exclusion: AS/LA 4060 3.0.

AS/LA 3070 3.0 Roman Rhetoric. The course examines the main principles of Roman rhetoric through a study in the original Latin of selected speeches of Cicero, speeches incorporated into other Roman prose texts and passages from works of rhetorical theory.

Degree credit exclusion: AS/LA 4070 3.0.

AS/LA 3110 3.0 The Roman Novel. Studies in Petronius and Apuleius.

Degree credit exclusions: AS/LA 4110 3.0, AS/LA 4010 3.0 (prior to Fall/Winter 2000-2001), AS/LA 4010 6.0 (prior to Fall/Winter 1993-1994).

AS/LA 3120 3.0 Roman Satire. A study of the development and central themes of Roman Satire and the literary achievement of the Roman Satirists, particularly Horace and Juvenal.

Degree credit exclusions: AS/LA 4120 3.0, AS/LA 4020 3.0 (prior to Fall/Winter 2000-2001), AS/LA 3060 6.0 (prior to Fall/Winter 1993-1994).

AS/LA 4010 3.0 Roman Epic Poetry. A study of two Augustan epics: Vergil's *Aeneid* and Ovid's *Metamorphoses*.

Prerequisite: Permission of director of classical studies.

Degree credit exclusions: AS/LA 3010 3.0, AS/LA 3010 6.0.

AS/LA 4020 3.0 Roman Lyric Poetry. A study of selected works of lyric poetry by authors such as Catullus and Horace.

Prerequisite: Permission of director of classical studies.

Degree credit exclusions: AS/LA 3020 3.0, AS/LA 3020 6.0.

AS/LA 4030 3.0 Roman Elegiac Poetry. A study of the love poems of Propertius, Tibullus and Ovid.

Prerequisite: Permission of director of classical studies.

Degree credit exclusions: AS/LA 3030 3.0, AS/LA 3030 6.0.

AS/LA 4040 3.0 Roman Philosophical Writings. A study of the works of Lucretius, Cicero and others.

Prerequisite: Permission of director of classical studies.

Degree credit exclusion: AS/LA 3040 3.0.

AS/LA 4050 6.0 Survey of Latin Literature. A survey of ancient Latin literature designed to supplement existing course offerings and to give students a sense of the range of Roman literary expression.

Prerequisite: Permission of director of classical studies.

Degree credit exclusion: AS/LA 3050 6.0.

AS/LA 4060 3.0 Roman Historians. A study of selected works by Roman historians such as Caesar, Livy and Tacitus.

Prerequisite: Permission of director of classical studies.

Degree credit exclusion: AS/LA 3060 3.0.

AS/LA 4070 3.0 Roman Rhetoric. The course examines the main principles of Roman rhetoric through a study in the original Latin of selected speeches of Cicero, speeches incorporated into other Roman prose texts and passages from works of rhetorical theory.

Prerequisite: Permission of director of classical studies.

Degree credit exclusion: AS/LA 3070 3.0.

AS/LA 4110 3.0 The Roman Novel. Studies in Petronius and Apuleius.

Prerequisite: Permission of director of classical studies.

Degree credit exclusions: AS/LA 3110 3.0, AS/LA 4010 3.0 (prior to Fall/Winter 2000-2001), AS/LA 4010 6.0 (prior to Fall/Winter 1993-1994).

AS/LA 4120 3.0 Roman Satire. A study of the development and central themes of Roman Satire and the literary achievement of the Roman Satirists, particularly Horace and Juvenal.

Prerequisite: Permission of director of classical studies.

Degree credit exclusions: AS/LA 3120 3.0, AS/LA 4020 3.0 (prior to Fall/Winter 2000-2001), AS/LA 3060 6.0 (prior to Fall/Winter 1993-1994).

AS/LA 4130 6.0 Guided Readings in Roman Authors. An independent reading program with material chosen according to the interest of the student.

Prerequisite: Permission of director of classical studies.

Degree credit exclusion: AS/LA 4030 6.0 (prior to Fall/Winter 2000-2001).

Note: Please consult the Faculty of Arts Academic Advising and Student Responsibility section for regulations on independent study courses.

AS/LA 4140 6.0 Honours Essay. Open only to Honours candidates with the permission of the director.

Prerequisite: Permission of director of classical studies.

Degree credit exclusion: AS/LA 4040 6.0 (prior to Fall/Winter 2000-2001).

Note: Please consult the Faculty of Arts Academic Advising and Student Responsibility

section for regulations on independent study courses.

Departmental and Divisional Courses in Classical Studies

For course descriptions, please refer to the appropriate departmental/divisional listings in this Calendar or the relevant departmental/divisional supplemental calendar. Not all of the courses listed below will necessarily be offered in any given year. For details of courses to be offered, please consult the classical studies supplemental calendar.

Subject to degree credit exclusion and in-Faculty regulations, and with the approval of the program coordinator, students may take courses at the Faculties of Atkinson, Fine Arts or Glendon for major or minor credit in classical studies.

Note: For purposes of meeting program requirements, all foundations courses will count as six credits towards the major.

Literature and Culture

AS/HUMA 1100 9.0 The Worlds of Greece and Rome.
AS/HUMA 1105 9.0 Myth and Imagination in Ancient Greece and Rome.
AS/HUMA 2100 9.0 The World of the Ancient Greeks.
AS/HUMA 2105 6.0 Roman Literature and Culture.
AS/HUMA 2110 9.0 Egypt in the Greek and Roman Mediterranean.
AS/HUMA 2830 9.0 The Founders of Christianity.
AS/HUMA 3100 6.0 Greek Drama and Culture.
AS/HUMA 3110 6.0 Roman Culture and Society.
AS/HUMA 3115 6.0 Myth in Ancient Greece: Texts and Theories.
AS/HUMA 4100 6.0 Studies in Greek and Roman Culture.
AS/HUMA 4101 6.0 Narratives in Ancient Art and Literature.
AK/HUMA 1710 6.0 Roots of Western Culture: The Ancient World.

Greek and Roman History

AS/HIST 2100 6.0 Ancient Greece and Rome.
AS/HIST 3120 6.0 Foundations of Athenian Democracy.
AS/HIST 3130 6.0 The Roman Revolution.
AS/HIST 3131 6.0 Rome and Empire: From War to the Pax Romana.
AS/HIST 3150 6.0 Early Greek History from the Bronze Age to the Persian Wars.
AS/HIST 4050K 6.0 Alexander the Great: Myth and Reality.
AS/HIST 4120 6.0 Problems in the History of Ancient Greece.
AS/HIST 4130 6.0 Problems in Roman History.
AS/HIST 4140 6.0 Problems in Hellenistic History.
AS/HIST 4150 6.0 Topics in Ancient Social History.
GL/HIST 2540 6.0 Ancient History.

Philosophy

AS/PHIL 2010 3.0 The Origins of Western Philosophy.
AS/PHIL 2015 3.0 Plato and Aristotle.
AS/PHIL 4030 3.0 Topics in Ancient Philosophy.

Political Thought

AS/POLS 3010 3.0 Ancient and Medieval Political Thought.
AS/POLS 4030 3.0 Classical Political Thought.

Art and Architecture

FA/VISA 2520 3.0 Greek Art and Architecture.
FA/VISA 2530 3.0 Roman Art and Architecture.
FA/VISA 4540 6.0 Problems in Ancient or Medieval Art and Architecture.

The following courses are largely, but not exclusively, concerned with classical antiquity. No more than two may satisfy degree requirements in classical studies.

AS/ANTH 2140 6.0 Introduction to Archaeology and Palaeoanthropology.
AS/ANTH 2150 6.0 Early Civilization: Cities, Urbanism and Early States.
AS/ANTH 3000N 6.0 Barbarian Europe.
AS/HIST 2110 6.0 The Ancient Near East.
AS/HIST 3100 6.0 Mesopotamian History.
AS/HIST 3110 6.0 Ancient Israel: From its Origins in the Settlement to the Babylonian Exile.
AS/HIST 3111 6.0 Practicum in Biblical Archaeology (cross-listed to: AS/HUMA 3000N 6.0).
AS/HIST 4100 6.0 Selected Problems in Israelite History.
AS/HUMA 1110 9.0 Greek and Biblical Traditions.
AS/HUMA 2810 6.0 The Hebrew Bible.
AS/HUMA 3000N 6.0 Practicum in Biblical Archaeology (cross-listed to: AS/HIST 3111 6.0).
AS/HUMA 3895 6.0 Magic and Imagination.
AS/HUMA 4650 6.0 Myth and Mythology.
AS/HUMA 4820 6.0 Sex and Violence in the Hebrew Bible.
FA/VISA 3830 3.0 Aspects of Portraiture.
FA/VISA 4370 6.0 Signs and Symbolism in Western Art.
FA/VISA 4800E 3.0 The Body in Western Art.
AK/HUMA 3421 3.0 Interpreting the New Testament I.
AK/HUMA 3422 3.0 Interpreting the New Testament II.
AK/HUMA 3433 3.0 Lands of the Bible I.
AK/HUMA 3434 3.0 Lands of the Bible II.

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Colleges - Refer to Individual College

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Communication Arts – Joint Program with Colleges of Applied Arts and Technology

Students in the Faculty of Arts may study concurrently towards a Honours BA or BA degree at York and a diploma or certificate in one of four areas of study in communication arts at Centennial or Seneca College. The following

areas are available through the colleges of applied arts and technology:

- Book and Magazine Publishing (Centennial - certificate)
- Corporate Communications (Centennial - diploma)
- Creative Advertising (Seneca - diploma)
- Radio and Television Broadcasting (Seneca - diploma)

Faculty of Arts students in an Honours BA program are eligible for entry to the joint program after the successful completion of at least 90 credits at York and students in a BA program are eligible for entry after the successful completion of at least 60 credits at York. All students must complete the requirements for an Honours BA or BA degree in the Faculty of Arts. The joint program normally takes only one year longer to complete because some advanced standing credit is given by York and the college, if conditions of eligibility for advanced standing are met.

For further information, please contact the Advising Centre, S319 Ross, 416-736-5022.

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Communication Studies – Arts

Program Office (Division of Social Science):
301 Calumet College, 416-736-5057
Coordinator of the Program:
J. Durlak
Advisers:
B. Crow, Social Science; K. Dowler, Social Science, J. Durlak, Social Science; F. Fletcher, Political Science; D. Hogarth, Social Science; D. Kehoe, Social Science; B. Seaton, Social Science

Communication studies is offered as an Honours Double Major Interdisciplinary BA program and as a Specialized Honours BA program. Communication studies provides students with a comprehensive understanding of the traditional forms of mass communication (print, radio, film, television). It also examines the emerging interactive telecommunications networks and computer systems which have introduced new media and services such as teleconferencing and electronic publishing.

The emphasis of the program is academic rather than technical. Communication studies cannot be viewed as providing vocational skills such as journalism. The aim is to produce graduates who have acquired skills in communications analysis and a synthesis of knowledge in the increasingly complex field of communications.

Students in the Honours Double Major Interdisciplinary program may combine communication studies with another approved discipline such as anthropology, computer science, economics, English, French studies, German, humanities, Italian, linguistics, philosophy, psychology, political science, Russian, Spanish, sociology and women's studies. Students may also combine communication studies with one of the following approved free-standing interdisciplinary programs: classical studies, creative writing, East Asian studies and religious studies. Students who wish to pursue an Honours Double Major

Interdisciplinary BA in a discipline within the Faculty of Arts not formally linked with the program must submit a statement to the program coordinator and Chair or undergraduate director of the other discipline which outlines their proposed course of study and an argument as to how this course of study would result in a firm academic link between the theme of the program and the other discipline. Written approval must be attained from the communication studies program coordinator and the Chair or director of undergraduate studies of the other discipline.

The Specialized Honours BA Program in Communication Studies is a limited enrolment program. Admission to the program requires that students achieve a 6.0 (B) average in AS/SOSC 2310 9.0, Introduction to Communications and at least six other communication studies credits and a cumulative grade point average of at least 5.0 (C+). Continuation in and graduation from, the program requires that students maintain a cumulative grade point average of 5.0 (C+) as well as at least a 6.0 (B) average on all 54 communication studies credits. For more information regarding admission to the Specialized Honours BA program, please consult the communication studies supplemental calendar or contact the program office.

For information regarding specific degree requirements and program courses, please consult the Faculty of Arts Programs of Study section of this Calendar. Descriptions of the content and format of communication studies courses are to be found in the appropriate divisional and departmental listings in this Calendar. For Atkinson courses, please see the Atkinson Calendar.

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Computer Science – Arts, Atkinson, Pure and Applied Science

Department Office:
1003 Computer Science Building, 416-736-5053
Undergraduate/Graduate Office:
1003 Computer Science Building, 416-736-5334
Chair of the Department:
P.H. Cribb
Professors:
E. Arjomandi, P.W. Dymond, M.R.M. Jenkin, J.W.H. Liu, J.C. Majithia, G .Tourlakis, J. Tsotsos
Associate Professors:
M. Aboelaze, J. Amanatides, J. Edmonds, R. Hornsey, Y. Lesperance, S. MacKenzie, M. Mandelbaum, A. Mirzaian, J. Ostroff, P.H. Roosen-Runge, M. Spetsakis, Z. Stachniak, A. Toptsis, R.M. Wharton, R.P. Wildes, J. Xu
Associate Professor Emeritus:
J. Mason

Assistant Professors:
R. Allison, A. An, P. Godfrey, G.J. Gotshalks, J. Gryz, R. Paige, E. Ruppert, W. Stuerzlinger, V. Tzerpos, F. van Breugel, A. Wallis
Senior Lecturer:
P.H. Cribb
Associate Lecturer:
H. Roumani
Lecturer:
S. Datta

Computer science is the study of processes involving the storage, transmission and transformation of information in the context of modern electronic technology. Both theoretical and applied areas of computer science are represented in the courses offered by the department. The introductory courses (two for majors, three for non-majors) are concerned largely with programming as the primary tool used for understanding and controlling computation. The higher-level courses deal with theoretical concerns, the practical design of hardware and software, and a variety of application areas.

For specific requirements of programs offered by this department, see the Faculty of Pure and Applied Science Programs of Study section of this Calendar for BSc and BSc Honours programs and the Faculty of Arts Programs of Study section of this Calendar for BA and BA Honours programs. For degree programs offered through the Atkinson Faculty of Liberal and Professional Studies, see the Calendar of that Faculty.

Courses in Computer Science

A supplemental calendar detailing courses and topics to be offered in the next year is available from the department office in March.

For the purpose of satisfying departmental degree requirements, the number of computer science credits taken outside the Department of Computer Science may not exceed six credits in core areas (here defined to be 1000- and 2000-level computer science courses, 3000-level computer science courses satisfying the breadth requirement and, for Specialized Honours students, any required 3000- and 4000-level computer science courses) and 12 credits in total.

Course numbering. Computer science courses with 5 as the second digit of the course number may be used to satisfy Faculty degree requirements but do not count as computer science major credits. 3000- and 4000-level computer science courses are divided by number into four areas as follows: theory and numerical computation (second digit is 1), systems (second digit is 2), software development (second digit is 3) and applications (second digit is 4).

Courses in computer science have three class hours a week for one term (three credits - course numbers end in 3.0), unless otherwise indicated.

The Department of Computer Science will not permit any student to take more than 12 computer science credits per term in the fall and winter terms and six computer science

credits in the summer term. Students who work full-time are strongly advised to take no more than six credits in any term.

For prerequisite purposes, AS/SC/MATH 1000 3.0 or AS/SC/MATH 1013 3.0 may be substituted in lieu of AK/AS/SC/MATH 1300 3.0; AS/SC/MATH 1010 3.0 or AS/SC/MATH 1014 3.0 in lieu of AK/AS/SC/MATH 1310 3.0; AK/AS/SC/MATH 1021 3.0 or AS/SC/MATH 2021 3.0 or AK/AS/SC/MATH 2221 3.0 in lieu of AS/SC/MATH 1025 3.0.

1000-Level Courses

AK/AS/SC/COSC 1020 3.0 Introduction to Computer Science I. The main objective of the course is to introduce the student to problem solving using a procedural programming language. The course also covers the tools and techniques of an advanced interactive programming environment and simple data structures and algorithms. Three lecture hours, laboratory exercises.

Prerequisites: If no university-level mathematics: OAC calculus and one other OAC in mathematics (normally finite mathematics or algebra and geometry) with an average grade of 75 per cent in all OAC mathematics and no grade less than 65 per cent; otherwise: at least six credits of university-level mathematics with a grade average over all MATH credits of 5.0 (C+) or better (7.0 (B+) or better if it is a service course (second digit is 5) or AK/MATH 1710 6.0). Recommended: Previous programming experience; for example, a high school programming course or AK/AS/SC/COSC 1530 3.0.

Degree credit exclusions: AK/COSC 2200B 3.0, AK/COSC 2410 6.0, AK/COSC 2411 3.0, AK/AS/ITEC 1020 3.0, AK/AS/ITEC 1620 3.0.

AK/AS/SC/COSC 1030 3.0 Introduction to Computer Science II. The main objective of the course is to provide the student with a rudimentary understanding of algorithms and data structures. Three lecture hours, laboratory exercises.

Prerequisite: AK/AS/SC/COSC 1020 3.0 or AK/COSC 2411 3.0 or AK/AS/ITEC 1020 3.0.

Degree credit exclusions: AK/COSC 2410 6.0, AK/COSC 2412 3.0, AK/AS/ITEC 1030 3.0, AK/AS/ITEC 2620 3.0.

AK/AS/SC/COSC 1520 3.0 Introduction to Computer Use I. An introduction to the use of computers focusing on concepts of computer technology and organization (hardware and software) and the use of applications such as spreadsheets, database and information retrieval tools for problem solving. The course requires extensive laboratory work. This course is designed for students who are not computer science majors. Students who plan to major in computer science are advised to take AK/AS/SC/COSC 1020 3.0.

Degree credit exclusions: AK/COSC 1200 3.0, AK/COSC 1210 3.0. This course is not open to any student who has passed or is taking AK/

AS/SC/COSC 1020 3.0 or AK/COSC 2200B 3.0 or AK/COSC 2410 6.0 or AK/COSC 2411 3.0 or AK/AS/ITEC 1020 3.0.

AK/AS/SC/COSC 1530 3.0 Introduction to Computer Use II. Concepts of computer systems and technology — e.g. software engineering, algorithms, programming languages, theory of computation. Practical work focuses on problem solving using a high-level programming language. The course requires extensive laboratory work. This course is designed for students who are not computer science majors, but may be used as preparation by those who wish to major in computer science but lack programming background. Students who plan to major in computer science must also take AK/AS/SC/COSC 1020 3.0 and AK/AS/SC/COSC 1030 3.0.

Degree credit exclusions: AK/AS/SC/COSC 1540 3.0. This course is not open to any student who has passed or is taking AK/AS/SC/COSC 1020 3.0 or AK/COSC 2200B 3.0 or AK/COSC 2410 6.0 or AK/COSC 2411 3.0 or AK/AS/ITEC 1020 3.0.

AK/AS/SC/COSC 1540 3.0 Computer Use for the Natural Sciences. Introduction to problem solving using computers — top down and modular design; implementation in a procedural programming language — control structures, data structures, subprograms; application to simple numerical methods, modelling and simulation in the sciences; use of library subprograms.

Degree credit exclusions: AK/AS/SC/COSC 1530 3.0. This course is not open to any student who has passed or is taking AK/AS/SC/COSC 1020 3.0 or AK/COSC 2200B 3.0 or AK/COSC 2410 6.0 or AK/COSC 2411 3.0 or AK/AS/ITEC 1020 3.0.

2000-Level Courses

General Prerequisites. All 2000-level computer science courses require the following general prerequisites:

- AK/AS/SC/COSC 1030 3.0 or AK/COSC 2412 3.0 or AK/AS/ITEC 1030 3.0;
- a cumulative grade point average of 4.5 or better over all completed computer science courses;
- AK/AS/SC/MATH 1090 3.0 or AK/MATH 2441 3.0.

AK/AS/SC/COSC 2001 3.0 Introduction to Theory of Computation. Introduction to the theory of computing, including automata theory, formal languages and Turing machines; theoretical models and their applications in various fields of computer science. The emphasis is on practical applications of the theory and concepts rather than formal rigour.

Prerequisites: General prerequisites.

Degree credit exclusion: AK/COSC 3431 3.0.

AK/AS/SC/COSC 2011 3.0 Fundamentals of Data Structures. A study of fundamental data structures and their use in the efficient implementation of algorithms. Topics include abstract data types, lists, stacks, queues, trees and graphs.

Prerequisites: General prerequisites.

Degree credit exclusions: AK/COSC 3501 3.0, AK/AS/ITEC 2011 3.0.

AK/AS/SC/COSC 2021 3.0 Computer Organization. Computer structures, digital representation of data, machine languages, instruction execution and addressing techniques. The major functional blocks of a computer: main memory, control unit, arithmetic and logic unit, input/output bus structures, interrupt system, DMA channels, peripheral devices.

Prerequisites: General prerequisites.

Degree credit exclusions: AK/COSC 3411 3.0, AK/COSC 3412 3.0, AK/COSC 3460 3.0, AK/AS/ITEC 2021 3.0.

AK/AS/SC/COSC 2031 3.0 Software Tools. Tools commonly used in the software development process: the C language; shell programming; filters and pipes; version control systems and "make"; debugging and testing.

Prerequisites: General prerequisites.

SC/COSC 2501 3.0 Fortran and Scientific Computing. Covers computer-base problem solving in a variety of scientific and engineering settings. Introduces the FORTRAN programming language and its interface with scientific libraries. Applications are drawn mainly from scientific areas such as numerical methods, processing experimental data, simulation and data visualization.

Prerequisite: AK/AS/SC/COSC 1020 3.0 or AK/AS/SC/COSC 1030 3.0.

Degree credit exclusion: AK/AS/SC/1540 3.0.

3000-Level Courses

General Prerequisites. Most 3000-level computer science courses require the following general prerequisites, in addition to or including any specifically stated in the course outlines below:

- AK/AS/SC/COSC 2011 3.0 or AK/COSC 3501 3.0 or AK/AS/ITEC 2011 3.0;
- at least one of AK/AS/SC/COSC 2001 3.0, AK/AS/SC/COSC 2021 3.0, AK/AS/SC/COSC 2031 3.0, AK/COSC 3411 3.0, AK/COSC 3431 3.0, AK/AS/ITEC 2021 3.0;
- a cumulative grade point average of 4.5 or better over all completed computer science courses;
- AK/AS/SC/MATH 1300 3.0; AK/AS/SC/MATH 1310 3.0;
- at least one of AS/SC/MATH 1025 3.0, AK/AS/SC/MATH 2090 3.0, AK/AS/SC/MATH 2320 3.0, AK/MATH 2442 3.0.

SC/COSC 3001 1.0 Organization and Management Seminar in Space and Communication Sciences. A seminar course taught by guest speakers from industry, government and the University. Content changes from year to year, but includes such topics as professional ethics, communications regulations, space law, space science policy, project management, privacy and security issues in computing. One lecture hour in alternate weeks. Two terms. One credit.

Cross-listed to: SC/EATS 3001 1.0, SC/PHYS 3001 1.0.

Prerequisite: Eligibility to proceed in the Specialized Honours Stream in Space and Communication Sciences beyond the 2000-level requirements.

Degree credit exclusions: AS/SC/COSC 3002 1.0, SC/EATS 3001 1.0, SC/PHYS 3001 1.0.

AS/SC/COSC 3002 1.0 Organization and Management Seminar. A seminar course taught by guest speakers from industry, government and the University. Content changes from year to year, but includes such topics as professional ethics, communications regulations, project management, privacy and security, legal issues in computing. One lecture hour in alternate weeks. Two terms. One credit.

Prerequisites: General prerequisites.

Degree credit exclusions: SC/COSC 3001 1.0, SC/EATS 3001 1.0, SC/PHYS 3001 1.0.

AK/AS/SC/COSC 3010 3.0 Special Topics in Computer Science. Half courses or seminars on particular topics not otherwise available.

Prerequisites: Vary depending on the particular topic but include at least the general prerequisites.

AK/AS/SC/COSC 3101 3.0 Design and Analysis of Algorithms. Review of fundamental data structures. Analysis of algorithms: time and space complexity. Algorithm design paradigms: divide-and-conquer, exploring graphs, greedy methods, local search, dynamic programming, probabilistic algorithms, computational geometry. NP-complete problems.

Prerequisites: General prerequisites, including AK/AS/SC/MATH 2090 3.0 or AK/AS/SC/MATH 2320 3.0 or AK/MATH 2442 3.0.

Degree credit exclusion: AK/COSC 3432 3.0.

AK/AS/SC/COSC 3121 3.0 Introduction to Numerical Computations I. An introductory course in computational linear algebra. Topics include simple error analysis, linear systems of equations, non-linear equations, linear least squares and interpolation.

Cross-listed to: AS/SC/MATH 3241 3.0.

Prerequisites: One of AK/AS/SC/COSC 1540 3.0, AK/AS/SC/COSC 2031 3.0, AK/COSC 3501 3.0; one of AS/SC/MATH 1010 3.0, AS/SC/MATH 1014 3.0, AK/AS/SC/MATH 1310 3.0; one of AK/AS/SC/MATH 1021 3.0, AS/SC/MATH 1025 3.0, AS/SC/MATH 2021 3.0, AK/AS/SC/MATH 2221 3.0.

Degree credit exclusions: AK/COSC 3511 3.0, AS/SC/MATH 3241 3.0.

AK/AS/SC/COSC 3122 3.0 Introduction to Numerical Computations II. Algorithms and computer methods for solving problems of differentiation, integration, differential equations, and an introduction to systems of non-linear equations.

Cross-listed to: AS/SC/MATH 3242 3.0.

Prerequisites: AK/AS/SC/MATH 2270 3.0; AK/AS/SC/COSC 3121 3.0 or AK/COSC 3511 3.0 or AS/SC/MATH 3241 3.0.

Degree credit exclusions: AK/COSC 3512 3.0, AS/SC/MATH 3242 3.0.

AK/AS/SC/COSC 3201 3.0 Digital Logic Design. Introduction to logic design. Analysis and design of combinatorial and sequential circuits. Standard MSI and LSI circuits, programmable logic device (PLD) and their use in the design of digital systems. Reliable design and fault detection. Laboratory experiments.

Prerequisites: General prerequisites, including AK/AS/SC/COSC 2021 3.0 or AK/COSC 3411 3.0 or AK/AS/ITEC 2021 3.0.

AK/AS/SC/COSC 3211 3.0 Data Communication. This course covers, in some detail, the first three layers in the OSI computer communication model. It concentrates on the data link and network layers. Examples of local area networks and wide area networks are presented in detail.

Prerequisites: General prerequisites; including AK/AS/SC/MATH 2090 3.0, and AK/AS/SC/COSC 2021 3.0 or AK/COSC 3411 3.0 or AK/AS/ITEC 2021 3.0.

Degree credit exclusions: AK/AS/SC/COSC 3213 3.0, AK/COSC 3409A 3.0.

AK/AS/SC/COSC 3213 3.0 Computer Networks I. This course introduces the basics of communications and networking. Topics include transmission media; fundamental limits; protocols and hierarchies; the OSI model; encoding of data as signals; error and flow control; medium access; routing; internetworking; transport services; high-level applications.

Prerequisites: General prerequisites.

Degree credit exclusions: AK/AS/SC/COSC 3211 3.0, AK/AS/SC/COSC 3212 3.0, AK/COSC 3409A 3.0, AK/COSC 3409B 3.0, AK/AS/ITEC 3210 3.0.

AK/AS/SC/COSC 3221 3.0 Operating System Fundamentals. (formerly AK/AS/SC/COSC 3321 3.0 — before Summer 2000) Principles of operating systems. Concurrent processes, CPU scheduling, deadlocks, memory management, file systems, protection and security, and case studies.

Prerequisites: General prerequisites, including AK/AS/SC/COSC 2021 3.0 or AK/COSC 3411 3.0 or AK/AS/ITEC 2021 3.0; AK/AS/SC/COSC 2031 3.0.

Degree credit exclusions: AK/AS/SC/COSC 3321 3.0, AK/COSC 3470 3.0.

AK/AS/SC/COSC 3301 3.0 Programming Language Fundamentals. Formal syntax: Backus-Naur form and extensions, syntax diagrams, grammars and parsing; elements of formal language theory; type theory and data structures of algorithmic languages; control structures and their composition. Subprograms: argument-parameter binding mechanisms.

Prerequisites: General prerequisites, including AK/AS/SC/COSC 2001 3.0 or AK/COSC 3431 3.0.

Degree credit exclusion: AK/COSC 3420 6.0.

AK/AS/SC/COSC 3311 3.0 Software Design. A study of design methods and their use in the correct implementation, maintenance and evolution of software systems. Topics include design, implementation, testing, documentation needs and standards, support tools. Students design and implement components of a software system.

Prerequisites: General prerequisites; including AK/AS/SC/MATH 2090 3.0, and AK/AS/SC/COSC 2001 3.0 or AK/COSC 3431 3.0; AK/AS/SC/COSC 2031 3.0.

AK/AS/SC/COSC 3331 3.0 Object-Oriented Programming and Design. Introduction to the theoretical and practical methods of object-oriented software construction. Topics include single and multiple inheritance, type hierarchies, polymorphism, operator overloading, class library design, templates, constraint-based programming and contract model of design.

Prerequisites: General prerequisites.

Degree credit exclusion: AK/COSC 3650 3.0.

AK/AS/SC/COSC 3341 3.0 Introduction to Program Verification. (formerly AK/AS/SC/COSC 3111 3.0 — before Summer 2000) Application of logic to programs; weakest precondition; semantics of a simple programming language; correctness; development of correctness proofs from specifications; application to software design; performance bounds; transformation and synthesis.

Prerequisites: General prerequisites, including AK/AS/SC/MATH 2090 3.0.

Degree credit exclusion: AK/AS/SC/COSC 3111 3.0.

AK/AS/SC/COSC 3401 3.0 Functional and Logic Programming. Students, who are familiar with the procedural and object-oriented approaches offered by Java and C, learn about and contrast functional programming (using a language like Standard ML) and logic programming (using the language Prolog).

Prerequisites: General prerequisites, including AK/AS/SC/MATH 2031 3.0.

AK/AS/SC/COSC 3402 3.0 Introduction to Concepts of Artificial Intelligence. The concept of artificial intelligence. Interpretation of learning and reasoning as computational processes; simulation using logic and inference rules; analysis of the structure of

visual scenes; game playing by computer; natural language analysis and synthesis; domain-independent planning and problem solving.

Prerequisites: AK/AS/SC/COSC 3401 3.0; AK/ AS/SC/MATH 2090 3.0 or AK/AS/SC/MATH 2320 3.0 or AK/MATH 2442 3.0.

Degree credit exclusion: AK/COSC 3551 3.0.

AK/AS/SC/COSC 3408 3.0 Simulation of Discrete Systems. Introduction to simulating discrete-event systems and queuing problems. Use of probability distributions and random number generation. Model building, testing, use and validation. Application to case studies.

Prerequisites: General prerequisites; AK/AS/ SC/MATH 2560 3.0.

Degree credit exclusions: AK/COSC 3451 3.0, AS/SC/MATH 4930B 3.0.

AK/AS/SC/COSC 3418 3.0 Simulation of Continuous Systems. Introduction to dynamic continuous systems. Mathematical representation, numerical solution; stability and error accumulation. Use of general-purpose procedural languages and special-purpose languages. Control systems and feedback loops. Applications to population studies, fluid systems, politico-economic models and other case studies.

Prerequisites: General prerequisites; AK/AS/ SC/MATH 2560 3.0.

AK/AS/SC/COSC 3421 3.0 Introduction to Database Systems. Concepts, approaches and techniques in database management systems (DBMS). Logical model of relational databases. An introduction to relational database design. Other topics such as query languages, crash recovery and concurrency control.

Prerequisite: General prerequisites.

Degree credit exclusions: AS/SC/COSC 3412 3.0, AK/COSC 3503 3.0, AK/AS/ITEC 3421 3.0, AK/AS/ITEC 3220 3.0.

AK/AS/SC/COSC 3461 3.0 User Interfaces. This course introduces user interfaces and the tools and mechanisms to create and prototype them. Students work in small groups and learn how to design user interfaces, how to realize them and how to evaluate the end result.

Prerequisite: General prerequisites.

Degree credit exclusions: AK/AS/ITEC 3461 3.0, AK/AS/ITEC 3230 3.0. Not open to students who successfully completed AS/SC/ COSC 4341 3.0 or AS/SC/COSC 4361 3.0 before Fall 1999.

4000-Level Courses

General Prerequisites. All 4000-level computer science courses require the following general prerequisites, in addition to or including any specifically stated in the course outlines below:

- AK/AS/SC/COSC 2001 3.0 or AK/COSC 3431 3.0;
- AK/AS/SC/COSC 2011 3.0 or AK/COSC 3501 3.0 or AK/AS/ITEC 2011 3.0;

- AK/AS/SC/COSC 2021 3.0 or AK/COSC 3411 3.0 or AK/AS/ITEC 2021 3.0;
- AK/AS/SC/COSC 2031 3.0;
- at least 12 credits in computer science at the 3000 level;
- a cumulative grade point average of 4.5 or better over all completed computer science courses;
- AK/AS/SC/MATH 2090 3.0.

SC/COSC 4001 6.0 Space and Communication Sciences Workshop. This course is intended to allow the student to carry out the development of a specific space project, under the supervision of a faculty member, a government scientist or an industrial associate. The equivalent of nine laboratory hours per week for two terms.

Cross-listed to: SC/EATS 4001 6.0, SC/PHYS 4001 6.0.

Prerequisite: Satisfactory completion of the 3000-level courses in the space and communication sciences core.

Degree credit exclusions: AK/AS/SC/COSC 4080 3.0, SC/EATS 4001 6.0, SC/PHYS 4001 6.0.

AK/AS/SC/COSC 4010 3.0 Special Topics in Computer Science. Half courses or seminars on particular topics not otherwise available.

Prerequisites: Vary depending on the particular topic, but include at least the general prerequisites.

AK/AS/SC/COSC 4080 3.0 Computer Science Project. A project in computer science chosen in consultation with, and supervised by, a member of the department.

Prerequisites: General prerequisites; permission of the course director. Normally restricted to students who have taken 36 credits in computer science.

Degree credit exclusion: SC/COSC 4001 6.0.

AK/AS/SC/COSC 4101 3.0 Advanced Data Structures. Amortized and worst-case analysis of data structures. Data structuring paradigms: self-adjustment and persistence. Lists: self-adjustment with the move-to-front heuristic. Search trees: splay trees, finger search trees. Heaps: skew heaps, fibonacci heaps. Union-find trees. Link-and-cut trees. Multidimensional data structures and dynamization.

Prerequisites: General prerequisites, including AK/AS/SC/COSC 3101 3.0 or AK/COSC 3432 3.0.

AK/AS/SC/COSC 4111 3.0 Automata and Computability. Introduction to more advanced topics in theoretical foundations of computer science, including the study of formal languages and automata, formal models of computation, and computational complexity measures.

Prerequisites: General prerequisites, including AK/AS/SC/COSC 3101 3.0 or AK/COSC 3432 3.0.

Degree credit exclusion: AK/COSC 4021 3.0.

AK/AS/SC/COSC 4201 3.0 Computer Architecture. The internal structure and design ideas embodied in many computers and the techniques for evaluating them. Fast arithmetic algorithms, memory system designs, pipeline techniques, input-output subsystems and parallel computing structures. Future trends in computer architecture.

Prerequisites: General prerequisites, including AK/AS/SC/COSC 3201 3.0 or AK/COSC 3411 3.0, and AK/AS/SC/COSC 3221 3.0 or AK/ SC/COSC 3321 3.0.

AK/AS/SC/COSC 4211 3.0 Performance Evaluation of Computer Systems. This course introduces the concept of modelling a computer system, using queuing theory techniques and simulation techniques, then it examines the practical applications of these concepts in some case studies. These case studies are chosen to have a practical impact.

Prerequisites: General prerequisites, including AK/AS/SC/COSC 3211 3.0 or AK/AS/SC/COSC 3213 3.0 or AK/COSC 3409A 3.0, and AK/AS/SC/ COSC 3408 3.0 or AK/COSC 3451 3.0.

AK/AS/SC/COSC 4213 3.0 Computer Networks II. This course covers more advanced topics in networking and concentrates on higher-level protocols, security, network programming and applications.

Prerequisites: General prerequisites, including AK/AS/SC/COSC 3212 3.0 or AK/AS/SC/COSC 3213 3.0.

AK/AS/SC/COSC 4221 3.0 Operating System Design. (formerly AK/AS/SC/COSC 4321 3.0 — before Summer 2001) An operating system has four major components: process management, input/output, memory management, file system. This project-oriented course puts OS principles into action: design and implementation of components of an OS, interaction with existing system software (using C under Unix).

Prerequisites: General prerequisites, including AK/AS/SC/COSC 3221 3.0 or AK/AS/SC/COSC 3321 3.0.

Degree credit exclusion: AK/AS/SC/COSC 4321 3.0.

AK/AS/SC/COSC 4301 3.0 Programming Language Design. Advanced features of algorithmic languages: modules (packages), exceptions and tasks. A survey of non-algorithmic languages: object-oriented languages, logic programming languages. Introduction to formal semantics. Recent developments in programming language design.

Prerequisites: General prerequisites, including AK/AS/SC/COSC 3301 3.0.

AK/AS/SC/COSC 4302 3.0 Compilers and Interpreters. Principles and design techniques for compilers and interpreters. Compiler organization, compiler writing tools, scanning, parsing, semantic analysis, run-time storage organization, memory management, code generation and optimization. Students implement a substantial portion of a compiler in a project.

Prerequisites: General prerequisites; AK/AS/SC/COSC 3301 3.0 is recommended.

Degree credit exclusion: AK/COSC 3420 6.0.

AK/AS/SC/COSC 4311 3.0 System Development. A study of concurrency and communication in system development. Specification, design and implementation of computer systems which continuously interact with other systems. Topics may include object-oriented modelling, formal specification languages, CASE tools.

Prerequisites: General prerequisites, including AK/AS/SC/COSC 3221 3.0 or AK/AS/SC/COSC 3311 3.0 or AK/AS/SC/COSC 3321 3.0.

AK/AS/SC/COSC 4351 3.0 Real-Time Systems Theory. Specification and verification techniques for real-time systems with many interacting components. Formal design of real-time systems using (a) programming languages with unambiguous semantics of time-related behaviour and (b) scheduling algorithms.

Prerequisites: General prerequisites, including one of AK/AS/SC/COSC 3111 3.0, AK/AS/SC/COSC 3221 3.0, AK/AS/SC/COSC 3311 3.0, AK/AS/SC/COSC 3321 3.0, AK/AS/SC/COSC 3341 3.0.

AK/AS/SC/COSC 4352 3.0 Real-Time Systems Practice. Introduction to the correct use and applications of real-time programming languages. Examples of real-time programming languages are studied in detail and applied to the solution of typical real-time programming problems (e.g. communication networks, avionic systems and process control).

Prerequisites: General prerequisites, including one of AK/AS/SC/COSC 3221 3.0, AK/AS/SC/COSC 3301 3.0, AK/AS/SC/COSC 3311 3.0, AK/AS/SC/COSC 3321 3.0.

AK/AS/SC/COSC 4401 3.0 Artificial Intelligence. Introduction to the main ideas of current machine learning research: induction, abduction, deduction; learning from examples and formal models, Bayes' rule, Solomonoff's idea, Gold paradigm, Valiant model of learning, Rissanen's minimum description length principle; distribution free and unsupervised learning.

Prerequisites: General prerequisites, including AK/AS/SC/COSC 3402 3.0 or AK/COSC 3551 3.0.

AK/AS/SC/COSC 4402 3.0 Logic Programming. This course is an introduction to fundamental concepts of logic programming and logic programming languages. In the course, the logic programming language PROLOG is discussed and programming techniques and applications are studied.

Prerequisites: General prerequisites, including AK/AS/SC/COSC 3401 3.0 and one of AK/AS/SC/COSC 3101 3.0, AK/AS/SC/COSC 3111 3.0, AK/AS/SC/COSC 3341 3.0, AK/COSC 3432 3.0.

AK/AS/SC/COSC 4411 3.0 Database Management Systems. A study of principles of database management systems. A thorough analysis of theory of normal, relational algebra and calculus and query languages based on these concepts. Other topics: security and integrity issues, concurrency control, distributed systems, query optimization.

Prerequisites: General prerequisites, including one of AS/SC/COSC 3412 3.0, AK/AS/SC/COSC 3421 3.0, AK/COSC 3503 3.0, AK/AS/ITEC 3421 3.0.

Degree credit exclusion: AK/COSC 4442 3.0.

AK/AS/SC/COSC 4413 3.0 Building E-Commerce Systems. Technological infrastructure for electronic commerce on the Internet. Terminology and architectures. Security and cryptography. Content presentation. Web protocols. Adaptive, intelligent agents and data mining. Vertical applications.

Prerequisites: General prerequisites, including AK/AS/SC/COSC 3212 3.0 or AK/AS/SC/COSC 3213 3.0, AK/AS/SC/COSC 3221 3.0 or AK/AS/SC/COSC 3321 3.0, AK/AS/SC/COSC 3421 3.0.

Degree credit exclusion: AK/AS/ITEC 4020 3.0.

AK/AS/SC/COSC 4421 3.0 Introduction to Robotics. An introduction to robot arms and autonomous vehicles. The course covers control and manipulator theory, robot sensors and navigation.

Prerequisites: General prerequisites; AS/SC/MATH 1025 3.0.

AK/AS/SC/COSC 4422 3.0 Computer Vision. An introductory course in computer vision: high- and low-level vision systems, the measurement and interpretation of visual data, static and dynamic scene analysis.

Prerequisites: General prerequisites, including AK/AS/SC/COSC 3121 3.0 or AK/COSC 3511 3.0 or AS/SC/MATH 3241 3.0.

AK/AS/SC/COSC 4431 3.0 Computer Graphics. (formerly AK/AS/SC/COSC 4331 3.0 — before Summer 2001) Algorithms for the creation, manipulation and display of objects in an interactive graphical environment.

Prerequisites: General prerequisites; AS/SC/MATH 1025 3.0.

Degree credit exclusion: AK/AS/SC/COSC 4331 3.0.

AK/AS/SC/COSC 4441 3.0 Human-Computer Interaction. (formerly AK/AS/SC/COSC 4341 3.0 — before Summer 2001) This course introduces the concepts and technology necessary to design, manage and implement interactive software. Students work in small groups and learn how to design user interfaces, how to realize them and how to evaluate the end result. Both design and evaluation are emphasized.

Prerequisites: General prerequisites; AK/AS/SC/COSC 3461 3.0 or AK/AS/ITEC 3461 3.0 is recommended.

Degree credit exclusion: AK/AS/SC/COSC 4341 3.0.

AK/AS/SC/COSC 4451 3.0 Signals and Systems. (formerly AK/AS/SC/COSC 4242 3.0 — before Summer 2001) An introduction to the mathematical background in signals and systems required for computer vision and robotics; signal and image processing: sampling, discrete Fourier transform, filtering; linear system theory; Kalman filtering; feedback.

Prerequisites: General prerequisites; AK/AS/SC/COSC 3121 3.0 or AK/COSC 3511 3.0 or AS/SC/MATH 3241 3.0.

Degree credit exclusions: AK/AS/SC/COSC 4242 3.0, SC/EATS 4020 3.0, AS/SC/MATH 4130B 3.0, AS/SC/MATH 4830 3.0, SC/PHYS 4060 3.0.

AK/AS/SC/COSC 4461 3.0 Hypermedia and Multimedia Technology. (formerly AK/AS/SC/COSC 4361 3.0 — before Summer 2001) Design and application of computer systems which provide information resources for learning, online-help, conceptual exploration, visualization and entertainment; e.g. hypertext/hypermedia, networked information-servers, systems for collaborative work, and "virtual reality". One or two topics are discussed in depth using current research literature. Normally offered in alternate years.

Prerequisites: General prerequisites, including AK/AS/SC/COSC 3461 3.0 or AK/AS/ITEC 3461 3.0.

Degree credit exclusion: AK/AS/SC/COSC 4361 3.0.

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Creative Writing – Arts

Program Office:
 210 Vanier College, 416-736-5910
Program Coordinator:
 R. Teleky
Associate Professors:
 S. Swan, R. Teleky

The Creative Writing Program is an Honours BA program offered by the Faculty of Arts. Students wishing to major in creative writing should apply for the introductory course, AS/HUMA 2900 9.0, at the end of their first year by submitting a portfolio of 10-15 pages of prose-fiction and poetry to 210 Vanier College. Students must successfully complete this course (AS/HUMA 2900 9.0) or have the equivalency before applying for the major. Students may apply for admission to the program at the end of their second year of study and before completion of their first 78 credits.

The primary objective of the program is to give students with the talent and ambition for a career in writing the opportunity to develop their talent and to make it the centre of a program of University study. Two major assumptions inform this program: first, that the capabilities of talent can be increased through training, and second, that the necessary curriculum for aspiring writers consists of the

study of language and writing idioms of past and contemporary writers. The program therefore aims in its lower years to acquaint students with the various ways of writing which the leading writers of our time have made possible. In the upper years, the program encourages specialization in one or two genres and aims to expose students to the history of formal experimentation and growth in particular genres.

Normally, the 42 credit Honours major in creative writing will consist of AS/HUMA 2900 6.0 "Introduction to Creative Writing" in the second year of university study and at least 18 credits in creative writing workshops at the 3000 and 4000 levels in the third and fourth year. Normally, 12 of these credits must be at the 3000 level and six credits at the 4000 level. Except in special circumstances, no more than 12 credits in workshop courses should be taken in any one year. Students will complete a 42 credit major by adding to these workshop courses from the list below. (Faculty of Arts legislation requires that, in order to obtain an Honours — 120 credits — BA, students must take a total of at least 18 credits at the 4000 level including at least 12 credits at the 4000 level in each Honours major). In selecting courses, students are strongly advised to develop a program of study which will allow for transfer to another major subject in one of the departments of arts or fine arts (e.g. English, Theatre).

For specific requirements of degree programs in Creative Writing, please consult the Faculty of Arts Programs of Study section of this Calendar. Not all courses will necessarily be offered in any given year; consult the department's supplementary calendar for details of courses to be offered.

1. Admission to the Program

a) Students who wish to enter the Creative Writing Program as majors are strongly recommended to take one of the following among their first 30 credits.

AS/EN 1200 6.0 Introduction to Literary Genres.
AS/EN 1300 6.0 Aspects of English Literature.
AS/HUMA 1610 9.0 The Art of Writing.

b) Students in either the Faculty of Arts or the Faculty of Fine Arts may enrol in the Creative Writing Program. Students may obtain conditional admission to the program by enrolling in AS/HUMA 2900 6.0. (Portfolios of 10 to 15 pages of poetry and prose fiction are required for admission to this course.)

c) Students enrolled in AS/HUMA 2900 9.0 who wish to obtain full admission to the program as majors should submit to their HUMA 2900 9.0 instructor a 15- to 20-page portfolio (of original work in at least two genres) sometime during the second term (preferably before March). Acceptance of this portfolio by the program committee constitutes full admission of the student as a creative writing major.

d) Students may also apply for admission to the program after their first 48 credits (either at York or at another institution) and before completion of their first 78 credits by presenting a 15- to 20-page portfolio as evidence of equivalent writing experience to that provided by AS/HUMA 2900 9.0.

e) Deadlines: Students should submit their portfolios as early as possible when applying for full admission to the program. Most admissions to the program will be decided by June 1, although students may apply as late as September 1.

2. Admission to Upper-Level Workshop Courses as Non-Majors

Students who wish to apply for admission to one or more of the third-year workshops without becoming majors should submit to their AS/HUMA 2900 9.0 instructor a 15-20 page portfolio of work along with an application form (application forms are available from 261 Vanier College) in the appropriate genre sometime during the second term (preferably before March 19). Acceptance of this portfolio constitutes admission to the workshop when space is available, but does not guarantee admission.

Courses in Creative Writing

For course descriptions, please refer to the appropriate departmental/divisional listings in this Calendar or the relevant departmental/divisional supplemental calendar. Not all of the courses listed below will necessarily be offered in any given year. For details of courses to be offered, please consult the creative writing supplemental calendar.

Subject to degree credit exclusion and in-Faculty regulations, and with the approval of the program coordinator, students may take courses at the Faculties of Atkinson, Fine Arts or Glendon for major credit in creative writing.

Note: For purposes of meeting program requirements, all foundations courses will count as six credits towards the major.

Listed below are the workshop courses offered by the Creative Writing Program. Students will normally take 24 credits in these workshop courses during their years in the program (although additional workshops are permitted in certain circumstances).

AS/HUMA 2900 9.0 Introduction to Creative Writing (formerly AS/EN 2600 6.0).

(Portfolios of 10 to 15 pages of poetry and prose fiction are required for admission to this course.)

FA/FILM 2120 6.0 Introductory Screenwriting.
FA/FILM 3120 6.0 Intermediate Screenwriting.
FA/FILM 4120 6.0 Advanced Screenwriting.
AS/HUMA 3640 6.0 Intermediate Fiction Workshop.*
AS/HUMA 3645 6.0 Intermediate Poetry Workshop.
AS/HUMA 4630 6.0 Senior Fiction Workshop.*
AS/HUMA 4630C 6.0 Senior Prose Workshop: Non-Fiction.
AS/HUMA 4640 6.0 Senior Poetry Workshop.*
FA/THEA 3290 6.0 Playwriting I.
FA/THEA 4290 6.0 Advanced Playwriting and New Play Dramaturgy.

Portfolios are required for admission to these courses. Consult the program office.

Listed below are those (non-workshop) approved courses from which creative writing students may select their remaining courses; since the normal pattern is 24 credits in workshop and 18 non-workshop credits, students should study the list carefully and choose courses which they feel will most appropriately complement, text, illuminate and focus their own writing.

Note: This list offers a sense of the spectrum of courses available; alternative courses may, with the approval of the coordinator, be taken in fulfilment of the non-workshop quota.

AS/EN 1200 6.0 Introduction to Literature.
AS/EN 1300 6.0 Literature and Theory: An Introduction.
AS/EN 2060 6.0 Grammatical Structure of English.
AS/EN 2110 6.0 Introduction to Poetry.
AS/EN 2120 6.0 Drama.
AS/EN 2330 6.0 Fiction of the US since 1865.
AS/EN 2370 6.0 Post-Colonial Literature.
AS/EN 2450 6.0 Canadian Literature.
AS/EN 2470 6.0 Post Narrative: The Novel from Behn to James.
AS/EN 2510 6.0 British and American Poetry and Fiction 1900-1940.
AS/EN 2550 6.0 British Novel:1880-1930.
AS/EN 2690 6.0 Contemporary Literature.
AS/EN 2770 6.0 Modern and Contemporary Drama.
AS/EN 3010 6.0 Style and Stylistics.
AS/EN 3160 6.0 Special Topics: Modern Canadian Drama.
AS/EN 3165 6.0 From Fin-de-Siecle to Modernism.
AS/EN 3320 6.0 Poetry of the United States.
AS/EN 3340 6.0 Modern Canadian Fiction.
AS/EN 3350 6.0 Modern Canadian Poetry.
AS/EN 3430A 3.0 Canadian Women Writers.
AS/EN 3430D 3.0 Studies in Women Writers: Recent Women Fiction Writers.
AS/EN 3440 6.0 Post-Colonial Writing in Canada.
AS/EN 4110 6.0 History and Description of the English Language.
AS/EN 4140 6.0 Studies in Modern Poetry.
AS/EN 4150A 6.0 Recent Irish Fiction.
AS/EN 4230D 3.0 Studies in Post-Colonial Literature: Derek Walcott.
AS/EN 4230E 3.0 Studies in Post-Colonial Literature: Wole Soyinka.
AS/EN 4260 6.0 Studies in the Novel.
AS/EN 4270 6.0 Studies in Canadian Literature.
AS/HUMA 2610 6.0 Interdisciplinary Perspectives on Literature.
AS/HUMA 2640 9.0 Modes of Fantasy.
AS/HUMA 2670 9.0 Film and Literature.
AS/HUMA 3620 6.0 TheTragic Muse.
AS/HUMA 3660 6.0 The OralTradition.
AS/HUMA 3890 6.0 On Love.
AS/HUMA 4000M 6.0 Life Writing.
AS/HUMA 4050 6.0 Independent Studies. (Special approval required)
AS/HUMA 4610 6.0 Psychology and Literature (cross-listed to: AS/PSYC 4120 6.0).
AS/HUMA 4620 6.0 Works and Days: Writers on Their Art and Their Lives.
AS/HUMA 4650 6.0 Myth and Mythology.
AS/HUMA 4880D 3.0 The Works of Franz Kafka.
AS/LING 1000 6.0 Introduction to Linguistics.
AS/PHIL 3040 6.0 Aesthetics.

Note: Language courses (French, German, Latin and more) will normally also be accepted by the program as fulfilling non-workshop requirements. Please consult with your program adviser.

Note: For fine arts students registered in the Program in Creative Writing, all workshop courses in creative writing will be credited as fine arts courses.

For arts students registered in the program, all fine arts courses in creative writing will be credited as arts courses.

It should be noted that Glendon College offers, through its Department of English, a number of courses which are fully accredited by the Creative Writing Program for its students on either campus. These are as follows:

GL/EN 2590 6.0 Poetry and Poetics.
GL/EN 3260 6.0 Media.
GL/EN 3510 6.0 Literary Stylistics (either this course or AS/EN 3010 6.0).
GL/EN 3950 6.0 English-Speaking Theatre in Canada.
GL/EN 4250 3.0 Studies in Genres: Canadian Women Playwrights.
GL/EN 4340 6.0 Contemporary Literature (either this course or AS/EN 2690 6.0).
GL/EN 4560 6.0 Advanced Writing.

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Dance – Fine Arts

Department Office:
  240 Joan and Martin Goldfarb Centre for Fine Arts, 416-736-5137
Chair of the Department:
  P. Reed Doob
Professor:
  P. Reed Doob, S. Odom, M.J. Warner
Associate Professors:
  A.R. Blewchamp, K. Bowes-Sewell,
  N. De Shane, N.S. Fisher-Stitt, D. Krasnow,
  M.E. Manley, H. Small
Assistant Professors:
  D. Callison, S. Porter
Adjunct Professors:
  D. Grossman, G. Lum, M. Thakkar

Programs of Study

The Department of Dance offers a comprehensive education in dance as a performing art leading to either a BA (90 credit) or BFA Honours (120 credit) degree. Throughout the program students participate intensively in studio courses involving ballet and modern technique, conditioning for dancers, improvisation, music, composition/choreography, repertory, dance production, pedagogy and body therapies. Special performance opportunities are available through the York Dance Ensemble. Critical, analytical and writing skills are fully developed in the areas of dance studies and dance history, movement analysis, kinesiology and injury prevention, dance writing, dance ethnology and anthropology. The program is enriched by distinguished guest lecturers, master teachers and choreographers, performances, films, workshops and the integration of new technologies. The emphasis in the department is to prepare people for careers and graduate work in dance and other fields.

A placement evaluation is required of all entering students. All incoming students must have had some training in either ballet or modern dance. (See details in Faculty of Fine Arts evaluations.) Advancement to second, third and fourth level dance technique courses is by juried audition only.

Through the joint five-year NBS/York University diploma degree program students can combine study towards a BFA Honours in dance with the Teacher Training Program at the National Ballet School. Students interested in this joint program will be expected to declare their interest in the first year of study.

Dance majors are eligible to apply for the Concurrent Program of the Faculty of Education at the end of the first year of study.

A dance minor program is available for students who are majoring in another discipline in the Faculties of Arts, Environmental Studies, Fine Arts or Pure and Applied Science. The minor requires the equivalent of 30 credits in dance theory and practice.

Advanced Standing for the Professional Dancer

The Department of Dance offers professional dancers the opportunity to obtain an undergraduate degree by giving credit for experience gained in a performance career. If you are over 25 years of age and have been a professional dancer for more than five years, you are eligible to apply. Please contact the Dance Department for further information.

Courses in Dance

Note: Not all courses will be offered in any given year.

FA/DANC 1205 2.25 Ballet Technique. Introductory course in ballet. Emphasizes integrated movement, alignment, classical ballet vocabulary, artistic expression, as well as the creative process. Required of all dance majors. Five hours.

Corequisite: FA/DANC 1215 2.25.

FA/DANC 1206 2.25 Ballet Technique. Introductory course in ballet. Emphasizes integrated movement, alignment, classical ballet vocabulary, artistic expression, as well as the creative process. Required of all dance majors. Five hours.

Prerequisite: FA/DANC 1205 2.25.

Corequisite: FA/DANC 1216 2.25.

FA/DANC 1207 2.25 Ballet Technique. A continuation of work begun in FA/DANC 1205 2.25 in ballet. Emphasizes integrated movement, alignment, classical ballet vocabulary, artistic expression, as well as the creative process. Five hours.

Note: Open by permission of the department only.

FA/DANC 1208 2.25 Ballet Technique. A continuation of work begun in FA/DANC 1206 2.25 in ballet. Emphasizes integrated movement, alignment, classical ballet vocabulary, artistic expression as well as the creative process. Five hours.

Note: Open by permission of the department only.

FA/DANC 1215 2.25 Modern Technique. Introductory course in modern dance. Emphasizes integrated movement, alignment, modern dance vocabulary, artistic expression, as well as the creative process. Required of all dance majors. Five hours.

Corequisite: FA/DANC 1205 2.25.

FA/DANC 1216 2.25 Modern Technique. Introductory course in modern dance. Emphasizes integrated movement, alignment, modern dance vocabulary, artistic expression, as well as the creative process. Required of all dance majors. Five hours.

Prerequisite: FA/DANC 1215 2.25.

Corequisite: FA/DANC 1206 2.25.

FA/DANC 1217 2.25 Modern Technique. A continuation of work begun in FA/DANC 1215 2.25 in modern dance. Emphasizes integrated movement, alignment, modern dance vocabulary, artistic expression, as well as the creative process. Five hours.

Note: Open by permission of the department only.

FA/DANC 1218 2.25 Modern Technique. A continuation of work begun in FA/DANC 1216 2.25 in modern dance. Emphasizes integrated movement, alignment, modern dance vocabulary, artistic expression, as well as the creative process. Five hours.

Note: Open by permission of the department only.

FA/DANC 1220 1.5 Improvisation. An introduction to theory and practice in improvisation with a focus on the creative process in dance. Required of all dance majors. Open only to dance majors and minors. Three hours.

Corequisite: Enrolment in dance technique.

FA/DANC 1270 3.0 Dance Production. An introduction to the fundamentals of lighting design and stagecraft for dance, this course is taught with FA/THEA 1100 3.0 Stagecraft I. Lighting design, costume design, stage management, sound, front of house management or publicity may be covered. Course includes crew work on department productions. Theatre majors and dance majors attend the same lecture and separate labs. Required of all dance majors. Open only to dance majors and minors. Three hour lecture or lab each term.

Degree credit exclusions: FA/THEA 1100 3.0, FA/THEA 1100 6.0, FA/THEA 1510 3.0.

FA/DANC 1320 1.5 Conditioning for Dancers. A practical introduction to the fundamentals of physical conditioning for dancers. Injury prevention will be emphasized through applications of imagery, release, alignment, stretch and strength techniques, and movement re-education. Required of all first year dance majors. Open only to dance majors and minors. Three hours.

Corequisite: Enrolment in dance technique.

FA/DANC 1340 3.0 Introduction to Dance Studies. An exploration of contemporary themes and issues in dance using current approaches to research and theory. Required of all dance majors. Four hours.

Note: Open to non-majors with departmental permission.

FA/DANC 1500 6.0 The Dance Experience (Lecture/Studio). Studio and theoretical work in a variety of movement techniques especially designed for the non-major student. Not open to dance majors. Two hours studio, one and one-half hours lecture.

Note: May include improvisations, presentation of individual or group projects, reading, films, guest speakers and attendance at live performances. Audition not required.

FA/DANC 2205 2.25 Ballet Technique. Ballet technique for dance majors. Ongoing training develops artistic expression, classical ballet vocabulary, musicality and performance skills. Required of all dance majors seeking the BFA degree.

Prerequisite: FA/DANC 1206 2.25 and permission of the department. Admission is by juried audition.

Corequisite: FA/DANC 2215 2.25.

FA/DANC 2206 2.25 Ballet Technique. Ballet technique for dance majors. Ongoing training develops artistic expression, classical ballet vocabulary, musicality and performance skills. Required of all dance majors seeking the BFA degree.

Prerequisite: FA/DANC 2205 2.25.

Corequisite: FA/DANC 2216 2.25.

FA/DANC 2207 2.25 Ballet Technique. A continuation of work begun in FA/DANC 2205 2.25. Ongoing training in ballet to develop artistic expression, classical ballet vocabulary, musicality and performance skills. Five hours.

Note: Open by permission of the department only.

FA/DANC 2208 2.25 Ballet Technique. A continuation of work begun in FA/DANC 2206 2.25. Ongoing training in ballet to develop artistic expression, classical ballet vocabulary, musicality and performance skills. Five hours.

Note: Open by permission of the department only.

FA/DANC 2215 2.25 Modern Technique. Modern dance technique for dance majors. Ongoing training develops artistic expression, modern dance vocabulary, musicality and performance skills. Required of all dance majors. Five hours.

Prerequisite: FA/DANC 1216 2.25 and permission of the department. Admission is by juried audition.

Corequisite: FA/DANC 2205 2.25.

FA/DANC 2216 2.25 Modern Technique. Modern dance technique for dance majors. Ongoing training develops artistic expression, modern dance vocabulary, musicality and performance skills. Required of all dance majors seeking the BFA degree.

Prerequisite: FA/DANC 2215 2.25.

Corequisite: FA/DANC 2206 2.25.

FA/DANC 2217 2.25 Modern Technique. A continuation of work begun in FA/DANC 2215 2.25. Ongoing training in "modern" to develop artistic expression, modern dance vocabulary, musicality and performance skills. Five hours.

Note: Open by permission of the department only.

FA/DANC 2218 2.25 Modern Technique. A continuation of work begun in FA/DANC 2216 2.25. Ongoing training in "modern" to develop artistic expression, modern dance vocabulary, musicality and performance skills. Five hours.

Note: Open by permission of the department only.

FA/DANC 2225 3.0 Dance Composition I. Introductory study of the basic principles of dance composition; both practical movement studies and analytic/critical work will be employed to explore the creative process and to begin to develop the craft and skills of choreography. Required of all dance majors. Four and one-half hours.

Prerequisites: FA/DANC 1205 2.25, FA/DANC 1206 2.25, FA/DANC 1215 2.25 and FA/DANC 1216 2.25 or permission of the instructor.

Corequisite: Current enrolment in dance technique or permission of the instructor.

FA/DANC 2226 3.0 Dance Composition II. Further study of the basic principles of dance composition; development of studies toward completed works and examination of production and performance as it relates to choreography. Continued analytic/critical work of choreographed dances. Four and one-half hours.

Prerequisite: FA/DANC 2225 3.0.

Corequisite: Current enrolment in dance technique or permission of the instructor.

FA/DANC 2320 3.0 Dance Kinesiology. An introduction to the field of dance kinesiology and the analysis of movement from a scientific perspective. Correct and efficient movement patterns for dance technique are discussed through the examination of the muscular/skeletal system and its functions. Study includes identification of common muscle imbalances that impede good alignment and the optimal execution of dance technique. Required of all dance majors. Open only to dance majors. Open to non-majors with permission of the instructor.

Prerequisites: FA/DANC 1206 2.25, FA/DANC 1216 2.25 and FA/DANC 1320 1.5.

Corequisite: Enrolment in dance technique.

Prerequisite or corequisite: One of SC/NATS 1610 6.0, SC/NATS 1620 6.0, SC/NATS 1650 6.0, AS/SC/KINE 2031 3.0.

FA/DANC 2340 3.0 Dance History. An examination of the religious, social, cultural, political and performative functions of dance in western and non-western history. Required of all dance majors. Four hours.

Note: Open to non-majors with departmental permission.

FA/DANC 2355 3.0 Music for Dancers I. Combined theoretical studies and studio work which emphasize an integrated approach to music and dance. Development of skills relating to rhythm, music notation, musical form and style, through movement and library projects, and listening assignments. Required of all dance majors. Open to non-dance majors by permission of the course director. Three hours.

FA/DANC 2356 3.0 Music for Dancers II. Continuing theoretical studies and studio work in music for dancers, which emphasize an integrated approach to music and dance. The course works on the development of skills relating to complex rhythms, melody, vocalization and music notation. Lectures, group exercises, demonstrations, and listening and movement assignments. Not open to music majors. Three hours.

Prerequisite: FA/DANC 2355 3.0 or permission of the course director.

FA/DANC 2390 3.0, FA/DANC 2392 6.0 Special Options. A half- or full-year studies course at the second-year level, concentrating on dance activity of a specified period or genre. Topics are announced in the spring. This course may be offered in an intensive or standard format.

FA/DANC 3205 1.5 Ballet Technique. Ballet technique for dance majors. Ongoing training develops artistic expression, classical ballet vocabulary, musicality and athleticism.

Prerequisites: FA/DANC 2206 2.25 and permission of the department.

Corequisite: FA/DANC 3215 3.0.

FA/DANC 3206 1.5 Ballet Technique. Ballet technique for dance majors. Ongoing training develops artistic expression, classical ballet vocabulary, musicality and athleticism.

Prerequisite: FA/DANC 3205 1.5.

Corequisite: FA/DANC 3216 3.0.

FA/DANC 3207 1.5 Ballet Technique. A continuation of work begun in FA/DANC 3205 1.5. Ongoing training in ballet to develop artistic expression, classical ballet vocabulary, musicality and athleticism. Four hours.

Note: Open by permission of the department only.

FA/DANC 3208 1.5 Ballet Technique. A continuation of work begun in FA/DANC 3206 1.5. Ongoing training in ballet to develop artistic expression, classical ballet vocabulary, musicality and athleticism. Four hours.

Note: Open by permission of the department only.

FA/DANC 3215 3.0 Modern Technique. Modern dance technique for dance majors. Ongoing training develops artistic expression, modern dance vocabulary, musicality and athleticism.

Prerequisites: FA/DANC 2216 2.25 and permission of the department.

FA/DANC 3216 3.0 Modern Technique. Modern dance technique for dance majors. Ongoing training develops artistic expression, modern dance vocabulary, musicality and athleticism.

Prerequisite: FA/DANC 3215 3.0.

FA/DANC 3217 3.0 Modern Technique. A continuation of work begun in FA/DANC 3215 3.0. Ongoing training in "modern" to develop artistic expression, modern dance vocabulary, musicality and athleticism. Six hours.

Note: Open by permission of the department only.

FA/DANC 3218 3.0 Modern Technique. A continuation of work begun in FA/DANC 3216 3.0. Ongoing training in "modern" to develop artistic expression, modern dance vocabulary, musicality and athleticism. Six hours.

Note: Open by permission of the department only.

FA/DANC 3220 3.0 Choreography. Selected projects in choreography with continued work in structure and forms, and an increased focus on development of individual interests and style. Continued work in production, performance and criticism as related to choreography. Four and one-half hours.

Prerequisites: FA/DANC 2226 3.0 and permission of the Dance Department.

Corequisite: Current enrolment in dance technique.

FA/DANC 3235 3.0 Repertory/Reconstruction I. The first course in the study and performance of original or reconstructed choreographic works in a rehearsal and presentation setting. Rehearsal time outside of the course meetings will be scheduled close to performance dates. Four and one-half hours.

Corequisite: Current enrolment in dance technique.

FA/DANC 3236 3.0 Repertory/Reconstruction II. The second course in the study and performance of original or reconstructed choreographic works in a pre-professional rehearsal and presentation setting. The course provides opportunity to work closely with an experienced choreographer or recreator and to bring the work to a performance level. Rehearsals outside of the course meetings will be scheduled close to performance dates. Four and one-half hours.

Corequisite: Current enrolment in dance technique.

FA/DANC 3240 3.0/3240 6.0 Dance Ensemble Apprenticeship. An enriched performance/production experience for highly motivated third year dance majors wishing to concentrate on the performance and/or production areas. Students are required to commit to an intensive schedule, including evening rehearsals and out-of-town performances. Ensemble apprentices will focus on one or more aspects of dance company activity, which include performance, choreography, tour management, production support and publicity. Students in FA/DANC 3240 are expected to continue with FA/DANC 4245/4246 Dance Ensemble in the following year. A minimum of six hours per week, both fall and winter terms. With permission of the instructor students may take this course for six credits.

Corequisites: Performers must be enrolled in FA/DANC 3205 1.5, FA/DANC 3206 1.5, FA/DANC 3215 3.0 and FA/DANC 3216 3.0.

FA/DANC 3320 3.0 Body Therapy. Experiential and theoretical study of selected body therapies and approaches to movement re-education, such as Bartenieff Fundamentals, Alexander Technique, Feldenkrais Movement Awareness, Ideokinesis, and Pilates-based exercise. Lectures/studio, projects, demonstrations. Four hours.

Prerequisite or corequisite: one of SC/NATS 1610 6.0, SC/NATS 1620 6.0, SC/NATS 1650 6.0, AS/SC/KINE 2031 3.0.

FA/DANC 3321 3.0 Prevention and Care of Dance Injuries. An examination of prevention, recognition and treatment of dance injuries. Specific study of proper *versus* improper technique and its correlation to resultant injuries. Follow-up remedial procedures and therapeutic modalities to enhance healing are also studied. May be offered in extended or normal format.

Prerequisite or corequisite: One of: SC/NATS 1610 6.0, SC/NATS 1620 6.0, SC/NATS1650 6.0, AS/SC/KINE 2031 3.0 and FA/DANC 2320 3.0.

FA/DANC 3330 3.0 Dance Mosaic (Lecture/Studio). This course examines dance as a human phenomenon that both reflects and shapes culture. Through readings, films, lectures, discussions and guest artists, students are introduced to a variety of dance forms from different traditions. The course examines the place of dance in its own cultural setting as well as approaching issues facing dance in a multi-ethnic society. Open to non-majors. Two hours lecture, one hour lab.

Degree credit exclusions: FA/DANC 2390 3.0 taken in 1991-1992 or 1993-1994, FA/DANC 3390 3.0 taken in 1994-1995, FA/DANC 2330 3.0 taken in 1995-1996.

FA/DANC 3360 3.0 Movement Analysis I. A first course in the theory and practice of movement analysis focusing on the Laban Notation system and/or effort/shape analysis. Emphasis on developing reading and observation skills.

Prerequisite or corequisite: FA/DANC 2355 3.0.

Degree credit exclusions: FA/DANC 2360 3.0 and FA/DANC 3365 3.0.

FA/DANC 3370 3.0 Dance Pedagogy. Methods and materials associated with teaching dance technique to the adolescent and the adult. The lecture/studio portion of the course is augmented by assisting or observing a series of dance classes. Four hours plus practicum.

Prerequisite or corequisite: One of SC/NATS 1610 6.0, SC/NATS 1620 6.0, SC/NATS 1650 6.0, AS/SC/KINE 2031 3.0.

FA/DANC 3380 3.0 Dance Therapy. An introduction for the upper-level student to the professional field of dance therapy. The intention is to develop a basic understanding of the interrelationship between psychological states and their body expression. Lecture/demonstrations, in-class presentations and a clinical tour. Three hours.

Prerequisite: AS/PSYC 1010 6.0 or AS/PSYC 2110 3.0 or AS/PSYC 2130 3.0 or permission of the course director.

FA/DANC 4205 1.5 Ballet Technique. Ballet technique for dance majors. Ongoing training refines artistic expression classical ballet vocabulary, musicality and athleticism. Optional for all dance majors. Four hours.

Prerequisites: FA/DANC 3206 1.5 and permission of the department.

FA/DANC 4206 1.5 Ballet Technique. Ballet technique for dance majors. Ongoing training refines artistic expression, classical ballet vocabulary, musicality and athleticism. Optional for all dance majors. Four hours.

Prerequisite: FA/DANC 4205 1.5.

FA/DANC 4207 1.5 Ballet Technique. A continuation of work begun in FA/DANC 4205 1.5. Ongoing training in ballet to refine artistic expression, classical ballet vocabulary, musicality and athleticism. Four hours.

Note: Open by permission of the department only.

FA/DANC 4208 1.5 Ballet Technique. A continuation of work begun in FA/DANC 4206 1.5. Ongoing training in ballet to refine artistic expression, classical ballet vocabulary, musicality and athleticism. Four hours.

Note: Open by permission of the department only.

FA/DANC 4215 3.0 Modern Technique. Modern dance technique for dance majors. Ongoing training refines artistic expression, modern dance vocabulary, musicality and athleticism. Optional for all dance majors. Six hours.

Prerequisites: FA/DANC 3216 3.0 and permission of the department.

FA/DANC 4216 3.0 Modern Technique. Modern dance technique for dance majors. Ongoing training refines artistic expression, modern dance vocabulary, musicality and athleticism. Optional for all dance majors. Six hours.

Prerequisite: FA/DANC 4215 3.0.

FA/DANC 4217 3.0 Modern Technique. A continuation of work begun in FA/DANC 4215 3.0. Ongoing training in "modern" to refine artistic expression, modern dance vocabulary, musicality and athleticism. Six hours.

Note: Open by permission of the department only.

FA/DANC 4218 3.0 Modern Technique. A continuation of work begun in FA/DANC 4216 3.0. Ongoing training in "modern" to refine artistic expression, modern dance vocabulary, musicality and athleticism. Six hours.

Note: Open by permission of the department only.

FA/DANC 4220 3.0 Choreography. Selected projects in choreography with an emphasis on interdisciplinary productions and continued work on structure and form. Increased focus on the development of individual interests and style in choreography. Designed for highly motivated creative individuals. The course requires students to commit themselves to pre-performance and performance schedules related to productions of their work. Lectures/presentations/performances. Four and one-half hours.

Prerequisites: For dance majors, FA/DANC 2226 3.0 and permission of the Dance Department. This course is open to other qualified third- or fourth-year fine arts students by permission of the course director only.

FA/DANC 4245 3.0/4245 6.0 Dance Ensemble I. An enriched performance/production experience for highly motivated upper-level dance majors wishing to concentrate on the performance and/or production areas. Students are required to commit to an intensive schedule, including evening rehearsals and out-of-town performances. Ensemble members will focus on one or more aspects of dance company activity, which include performance, choreography, tour management, production support and publicity. This course may be repeated for credit by permission of the course director. Students in FA/DANC 4245 3.0 are expected to continue with FA/DANC 4246 3.0. Admission is by juried audition. Open to other fine arts majors by permission of the course director. Due to the heavy rehearsal schedule, there is a minimum of 12 hours per week. With permission of the instructor, students may take this course for six credits.

Corequisites: Performers must be enrolled in FA/DANC 4205 1.5 Ballet Technique and FA/DANC 4215 3.0 Modern Technique.

FA/DANC 4246 3.0/4246 6.0 Dance Ensemble II. The continuation of FA/DANC 4245 3.0, an enriched performance/production experience for highly motivated upper-level dance majors wishing to concentrate on the performance and/or production areas. Students are required to commit to an intensive schedule, including evening rehearsals and possible out-of-town performances. Ensemble members will focus on one or more aspects of dance company activity, which include performance, choreography, tour management, production support and publicity. This course may be repeated for credit, by permission of the course director. Due to the heavy rehearsal schedule, there is a minimum of 12 hours per week.

Prerequisite: FA/DANC 4245 3.0.

Corequisites: Performers must be enrolled in FA/DANC 4206 1.5 Ballet Technique and FA/DANC 4216 3.0 Modern Technique.

FA/DANC 4250 3.0, FA/DANC 4251 3.0, FA/DANC 4252 6.0 Special Projects. Fourth-year studio courses designed to provide students with an opportunity to reconstruct excerpts of established repertoire or to work on new compositions. Projects are announced in the spring. This course may be offered in an intensive or standard format.

Note: Open to qualified students by permission of the course director.

FA/DANC 4280 3.0 Jazz Dance. Introduction and practice of jazz dance technique which reflects North American culture. Styles of jazz dance that may be covered are Broadway, funk, street, lyrical and theatre dance. A theoretical component will involve the study of historical and cultural aspects of the North American jazz dance vernacular. Open to non-majors by permission of the instructor. Four hours.

Prerequisites: FA/DANC 1205 2.25, FA/DANC 1206 2.25, FA/DANC 1215 2.25, FA/DANC 1216 2.25 and FA/DANC 1340 3.0.

Degree credit exclusions: FA/DANC 4390 3.0 or FA/DANC 4390A 3.0 Special Options: Jazz Dance.

FA/DANC 4285 3.0 Indian Dance I. An introduction to the practice and theory of classical East Indian dance with reference to various styles. The course presents an integrated approach to rhythmics and movements of Indian dance for those with previous movement training. Open to non-majors with permission of the course director. Four hours studio lab/lecture per week.

Prerequisites: FA/DANC 1206 2.25 and FA/DANC 1216 2.25 or prior training in a classical Indian music or dance form and permission of the course director.

Degree credit exclusion: FA/DANC 4390C 3.0.

FA/DANC 4310 3.0 Dance Writing. This seminar focuses on reading selected historical and contemporary writing about dance, and it provides practical experience in critical, journalistic and promotional writing. Three hours.

Prerequisites: FA/DANC 1340 3.0, FA/DANC 2340 3.0 or equivalents.

Note: Open to non-majors with permission of the course director.

FA/DANC 4330 3.0 Anthropology of Dance in Canada. A survey of classical, folk, tribal and social dance traditions within the Canadian cultural context. Open to non-majors. Four hours.

Prerequisites: FA/DANC 3330 3.0 or equivalent and third- or fourth-year standing, or permission of the course director.

FA/DANC 4340 3.0 Topics in Historical or Cultural Dance Style. Practical and theoretical studies in historical or cultural dance style from a historical or ethnological perspective. The study of style in movement as it reflects a culture or a period of history is a central issue in dance scholarship. Methodologies of describing, recording and interpreting movement patterns in context are emphasized. Topics are announced each year in the spring. Open to non-majors. Four hours.

Prerequisites: FA/DANC 3330 3.0 or equivalent and third- or fourth-year standing, or permission of the course director.

FA/DANC 4345 3.0 Canadian Dance History. An investigation of selected periods, people, cultural, social and political events in the development of Canadian dance during the 19th and 20th centuries.

Prerequisites: FA/DANC 2340 3.0 and third- or fourth-year standing, or permission of the course director.

FA/DANC 4360 3.0 Movement Analysis II. This course concentrates on developing a good reading knowledge and vocabulary expansion at intermediate and advanced levels. Readings are undertaken in various dance styles. Writing exercises emphasize analysis of movement. Three hours.

Prerequisite: FA/DANC 2360 3.0 or FA/DANC 3360 3.0 or FA/DANC 3365 3.0.

FA/DANC 4370 3.0 Mentoring Practicum. A course for fourth year dance majors designed to develop practical teaching skills through mentoring and coaching entering students in the Department of Dance. Students create and implement individual programs through observation, analysis and communication. Required of all dance majors. Open only to dance majors. Two hours.

Prerequisites: FA/DANC 3205 1.5, FA/DANC 3206 1.5, FA/DANC 3215 3.0, FA/DANC 3216 3.0, FA/DANC 3321 3.0 and FA/DANC 3320 3.0 or FA/DANC 3370 3.0.

Corequisite: Current enrolment in dance technique.

FA/DANC 4375 3.0 Dance and the Child I. Theories, tools and applications for teaching dance to children (ages 3-6). Three hours lecture/studio, two hours practicum.

Prerequisites: FA/DANC 2206 2.25, FA/DANC 2216 2.25 and AS/PSYC 2110 3.0 or AS/PSYC 3410 3.0, or permission of the course director.

FA/DANC 4376 3.0 Dance and the Child II. Theories, tools and applications for teaching dance to children (ages 7-12). Three hours lecture/studio, two hours practicum.

Prerequisites: FA/DANC 2206 2.25, FA DANC 2216 2.25 and AS/PSYC 2110 3.0 or AS/PSYC 3410 3.0, or permission of the course director.

FA/DANC 4390 3.0, FA/DANC 4391 3.0, FA/DANC 4392 6.0 Special Options. Fourth-year studies or studio courses concentrating on dance activity of a specified period or genre. Topics are announced in the Undergraduate Lecture Schedule. May be offered in an intensive or standard format.

Note: Open to qualified students by permission of the course director.

FA/DANC 4400 3.0/4400 4.5/4400 6.0/4400 9.0/4400 12.0 Senior Projects. Students develop one or a series of self-directed interlinked projects, which may consist of research or field studies on a topic of interest (theoretical or creative) leading to a major piece of writing, a performance, an internship or some combination of these activities. By application to the department. Adjudication of the credit weighting of each project will be made by the department, based on the proposal. A supervisory committee may be established for projects involving more than six credits.

Prerequisite: Fourth-year standing.

FA/DANC 4401 3.0/4401 4.5/4401 6.0/4401 9.0/4401 12.0 Independent Studies. Students develop one or a series of interlinked self-directed research projects, which may consist of research on a topic of interest (theoretical or creative) leading to a major piece of writing, thesis, or series of essays. By application to the department. Adjudication of the appropriate credit weighting will be made by the department, based on the proposal. May be repeated for credit.

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Design – Fine Arts at York, Sheridan College

Department of Design, York University:
  283 Winters College, 416-736-5885
Chair of the Department:
  D. Newgren
Professor Emeritus:
  A. Tomcik
Associate Professors:
  D. Newgren, A. Oak, D. Scadding
Assistant Professors:
  W. Janczak, C-K. J. Peng, W. Wong
Department of Design, Sheridan College:
  A100 Sheridan-Trafalgar, 905-845-9430, ext. 2579
Associate Dean:
  M. Large
Design Program Coordinator:
  B. Tsang
Professors:
  I. Li, M. A. Maruska, E. Naus, B. Ross

Program of Study

The Honours bachelor of design program, which provides a professional education in a humanistic context, is jointly run by the design departments of York University and Sheridan College. Students in the joint bachelor of design Honours program enrol in courses at both institutions. The design degree (the first in Ontario) replaces the former Bachelor of Fine Arts – Design Stream offered by the Visual Arts Department at York University and the Diploma in Graphic Design offered by Sheridan College. The joint program offers a comprehensive, intensive and professional education in communication design and a curriculum that reflects the distinct theoretical, research and practicum focus and needs of the design profession and the emerging standards of the Registered Graphic Designers of Ontario. Students in the program benefit from small studio/practicum classes, design studies classes and an internship program. The design practicum courses focus on three major areas of design: communications, information and interactive/multimedia design; the design courses provide an integrated approach to design history, research and theory, design management and critical issues in design.

For information on supplementary evaluation requirements and program requirements, please refer to the Faculty of Fine Arts section of this Calendar.

Courses in Design

FA/YSDN 1001 3.0 Visual Language. The elements and principles of design comprising our visual language are examined and explored on the two-dimensional level through various exercises and projects. This operational form language is developed via tactile and computer application processes. Required course for design major.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply. Students should have basic computer literacy skills as defined by the Faculty of Fine Arts.

FA/YSDN 1002 3.0 Design and Image. The processes of creating representational, graphic and abstract images in the context of visual communication design is examined. Different methods of generating and manipulating images are investigated with consideration given to form and content of images as well as to their potential for the communication of ideas. Required course for design major.

Prerequisite: FA/YSDN 1001 3.0 or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply. Students should have basic computer literacy skills as defined by the Faculty of Fine Arts.

FA/YSDN 1003 3.0 3D Design. The elements and principles of three-dimensional design are examined and applied through various exercises and projects. Communication of three-dimensional concepts through two-dimensional representations and three-dimensional prototypes is introduced and developed.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply. Available to non-majors by permission of the Department of Design. Students should have basic computer literacy skills as defined by the Faculty of Fine Arts.

FA/YSDN 1004 3.0 Design and Colour. Colour perception, systems or classification and the nature of light, pigment and colour materials are studied through a series of tactile and computer exercises and projects. The creative use of colour using a variety of materials and processes and the use of colour in various periods is investigated.

Note: Available to non-majors by permission of the Department of Design. For students not in the BDes program, compulsory and voluntary supplemental fees apply. Students should have basic computer literacy skills as defined by the Faculty of Fine Arts.

FA/YSDN 1005 3.0 Typography 1. An introduction to the history and development of letters, letterforms and the typography system as practiced in contemporary print and electronic design. The typographic vocabulary, system of measurement, prioritization of information and issues of readability and legibility are introduced. Required course for design major.

Prerequisite: FA/YSDN 1001 3.0 or permission of the Department of Design.

Degree credit exclusion: FA/YSDN 2002 3.0.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 1009 3.0/1009 6.0 Design Options – Practicum. In any given year, one or more courses involving traditional and non-traditional approaches to the practice of design may be offered by the Department of Design. Information on selected topics is available in the Department of Design handbook.

Prerequisites: Specific course(s) as listed in the Department of Design handbook (if applicable) and/or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 1101 3.0 Critical Issues in Design. An introduction to the cultural, practical, technological and contextual issues facing designers today by examining works and readings from our day in the various fields of design. Required course for design major.

Note: Available to non-majors by permission of the Department of Design. For students not in the BDes program, compulsory and voluntary supplemental fees apply. Students should have basic computer literacy skills as defined by the Faculty of Fine Arts.

FA/YSDN 1109 3.0/1109 6.0 Design Options - Studies. In any given year, one or more courses involving theory and/or history of design may be offered by the Department of Design. Information on selected topics is available in the Department of Design handbook.

Prerequisites: Specific course(s) as listed in the handbook (if applicable) and/or permission of the Department of Design.

FA/YSDN 2001 3.0/2001 6.0 Design Options — Practicum. In any given year, one or more courses involving traditional and non-traditional approaches to the practice of design may be offered by the Department of Design. Information on selected topics is available in the Department of Design handbook.

Prerequisites: Specific course(s) as listed in the handbook (if applicable) and/or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 2003 3.0 Typography 2. A further investigation into the history, principles and application of contemporary typographic systems and issues of readability and legibility in print and electronic communication design. Required course for design major.

Prerequisite: FA/YSDN 1005 3.0 (formerly FA/YSDN 2002 3.0) or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 2004 3.0 Communication Design 1. This practicum course concentrates on building skills in two-dimensional visual communication design. Various communication and learning theories are integrated into the design process assisting students to develop a multi-disciplined approach to design. Required course for design major.

Prerequisites: FA/YSDN 1001 3.0, FA/YSDN 1002 3.0 and FA/YSDN 1005 3.0 or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 2005 3.0 Design and Systems 1. The introduction of a general system model to provide a theoretical foundation for systematic solving of design problems is developed. Research analysis, synthesis and evaluation processes with related methods are employed to develop electronic-based communications. Required course for design major.

Prerequisites: FA/YSDN 1001 3.0 and FA/YSDN 1002 3.0 or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 2006 3.0 Design and Perception. An examination of the perception of visual information and communication on three distinct levels: representational, symbolic and abstract. Visual concepts of proximity, similarity and figure/ground relationships are examined. Introduction to basic communication models, perception theories and symbiotics provide a theoretical foundation for the studio problems.

Prerequisites: FA/YSDN 1001 3.0 and FA/YSDN 1002 3.0 or permission of the course director.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 2007 3.0 Typography 3. A continued in-depth investigation into contemporary explorations and applications of typographic principles, information theories, history and various approaches to solving visual communication problems. Letterpress printing and digital processes are investigated. Required course for design major.

Prerequisites: FA/YSDN 1005 3.0 and FA/YSDN 2003 3.0 or permission of the Department of Design.

Degree credit exclusion: FA/YSDN 3002 3.0.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 2101 3.0 Design Options: Studies. In any given year, one or more courses involving the theory and/or history of design may be offered. Information on selected topics is available in the Department of Design handbook.

Prerequisites: Specific course(s) as listed in the Department of Design handbook (if applicable) and/or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 2102 6.0 History of Design. Functional objects, past and present, and their relationship to the process of design, conditions of the time, the problems met, important influences and the importance to our time are examined. The primary focus is from the industrial revolution to today with required reading and much critical looking at our own environment. Required course for design major.

Cross-listed to: FA/VISA 2910 6.0.

Prerequisite: FA/YSDN 1101 3.0 or FA/VISA 1000 3.0 or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 2103 3.0 Research in Design. An identification and examination of the various aspects of conducting original survey research in support of the problem-solving process utilized in contemporary visual communication design. Required course for design major.

Prerequisite: FA/YSDN 1101 3.0 or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 3001 3.0/3001 6.0 Design Options: Practicum. In any given year, one or more courses involving traditional and non-traditional approaches to the practice of design may be offered by the Department of Design. Information on selected topics is available in the Department of Design handbook.

Prerequisites: Specific course(s) as listed in the handbook (if applicable) and/or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 3003 3.0 Typography 4. This course furthers the student's knowledge of the typographic principles initiated in Typography 3. The investigation of typography in various media to communicate with impact on the audience is emphasized through font creation and type in motion. Required course for design major.

Prerequisite: FA/YSDN 2007 3.0 or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 3004 3.0 Communication Design 2. A continued investigation into two- and three-dimensional design problems. Various communication and learning theories are integrated into the design process assisting students to develop a multidisciplined approach to design.

Prerequisites: FA/YSDN 2004 3.0 and FA/YSDN 2007 3.0 or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 3005 3.0 Design and Systems 2. A continued investigation into complex problem solving which emphasizes the application of systemic design methods. Individual and team problem-solving techniques are utilized to identify and analyze problems, develop content, specify functions, evaluate solutions and produce prototypes at the system level.

Prerequisite: FA/YSDN 2005 3.0 or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 3006 3.0 Design and Information Architecture. Students broaden their knowledge and understanding of the conceptual principles of organizational structures and methodologies involved in the presentation of information in virtual environments. In a series of projects, students explore various types of data and structural organization models of information.

Prerequisites: FA/YSDN 2003 3.0, FA/YSDN 2005 3.0 and FA/YSDN 3005 3.0 or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 3007 3.0 Information Design 1. The relevant theories and methodologies which allow the designer to prioritize, simplify and creatively visualize a wide range of complex textural and visual information are examined and applied.

Prerequisite: FA/YSDN 2003 3.0 or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 3008 3.0 Information Design 2. A further and extended investigation into the relevant theories and methodologies which allow the designer to prioritize, simplify and creatively visualize a wide range of complex textual and visual information.

Prerequisite: FA/YSDN 3007 3.0 or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 3101 3.0/3101 6.0 Design Options — Studies. In any given year, one or more courses involving the theory and/or history of design may be offered. Information on selected topics is available in the Department of Design handbook.

Prerequisites: Specific course(s) as listed in the handbook (if applicable) and/or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 3102 3.0 Contemporary Problems in Design. An identification and examination of the various roles that design and designers play in the solving of visual and cultural problems in today's rapidly changing society. Required course for design major.

Prerequisite: FA/YSDN 2103 3.0 or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 3103 3.0 Professional Aspects of Design. A detailed investigation and critical examination of current professional practices and issues in the visual communication design field. The areas of copyright, intellectual property rights, business practices, accountability, presentation techniques, portfolio preparation etc. will be discussed in an involving and interactive seminar. Required course for design major.

Prerequisite: FA/YSDN 2103 3.0 or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 4001 3.0 Design Options – Practicum. In any given year, one or more courses involving traditional and non-traditional approaches to the practice of design may be offered. Information on selected topics is available in the Department of Design handbook.

Prerequisites: Specific course(s) as listed in the handbook (if applicable) and/or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 4002 3.0 Type Explorations. A continued in-depth investigation into contemporary explorations and applications of typographic principles, information theories, history and various approaches to solving visual communication problems. Print, digital and environmental/broadcast distribution processes are investigated.

Prerequisite: FA/YSDN 3003 3.0 or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 4003 3.0 Interactive System Design. An advanced investigation into systems — intuitive and learned — that support human activities via interactive communication and distribution networks. An understanding of these communication/distribution methods working in reciprocal fashion from users to the computer and back, is presented.

Prerequisites: FA/YSDN 3005 3.0 and FA/YSDN 3102 3.0 or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 4004 6.0/4004 9.0/4004 12.0 Design Workshop. Students develop a series of self-directed projects using a multidisciplined approach in solving two-dimensional, three-dimensional and interactive digital design problems. The final weighting of course credit is assigned through adjudication by a departmental committee, based on the student's project proposal. Required course for design major at a minimum of 6.0 credits.

Prerequisites: FA/YSDN 3102 3.0, FA/YSDN 3103 3.0 and all required practicum courses or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 4101 3.0/4101 6.0 Design Options — Studies. In any given year, one or more courses involving the theory and/or history of design may be offered by the Department of Design. Information on selected topics is available in the Department of Design handbook.

Prerequisites: Specific course(s) as listed in the handbook (if applicable) and/or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 4102 3.0 Design Management. This course examines the theories and practice of design management in contemporary organizations. Through case studies and presentations by visiting speakers, students learn to construct practical working models of management systems. Projects require students to demonstrate investigative, analytical, organizational and business-oriented communication skills.

Prerequisites: FA/YSDN 3102 3.0 and FA/YSDN 3103 3.0 or permission of the Department of Design.

Note: For students not in the BDes program, compulsory and voluntary supplementary fees apply.

FA/YSDN 4103 3.0 Design Internship. This course provides students with an opportunity to experience the work environment in the design profession and facilitates the transition of design students to the profession. Full time participation is required for three weeks at a design studio, design department of a corporation or agency approved by the Department of Design. Required course for design major.

Prerequisites: YSDN 3102 3.0 and YSDN 3103 3.0 or permission of the Department of Design.

FA/YSDN 4900 3.0/4900 6.0 Independent Studies: Design Practicum. An individualized study program for highly motivated students in their final year of study who wish to pursue specific and intensive independent practicum projects under the supervision of a faculty member on topics not available in other courses in the department. No more than one independent study course may be taken in any given year. Compulsory and voluntary supplementary fees may apply.

Prerequisites: A 4000-level studio practicum in the media area being proposed, an overall major average of 7.0 (B+) and permission of the department.

Note: Applications are available in the spring for the following academic session. Applications must include written support of faculty supervisor prior to submission to the department for approval.

FA/YSDN 4901 3.0/4901 6.0 Independent Studies: Design Studies. An individualized study program for highly motivated students in their final year of study who wish to pursue specific and intensive independent studies projects under the supervision of a faculty member on topics not available in other courses in the department. No more than one independent study course may be taken in any given year. Compulsory and voluntary supplementary fees may apply.

Prerequisites: Completion of at least 18 credits in design studies, an overall major average of 7.0 (B+) and permission of the department.

Note: Applications are available in the spring for the following academic session. Applications must include written support of faculty supervisor prior to submission to the department for approval.

Note: Courses taught at Sheridan College are open only to students in the BDes program.

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Earth and Atmospheric Science – Pure and Applied Science

Department Office:
101/102 Petrie, 416-736-5245
Chair of the Department:
G.T. Jarvis
Professors:
K.D. Aldridge, Q. Cheng, G.T. Jarvis, J.C. McConnell, I.C. McDade, J.R. Miller, P.A. Taylor
Professor Emeritus:
G.G. Shepherd, D.E. Smylie
Associate Professors:
M.A. Jenkins, GP. Klaassen, D.V. Michelangeli, S. Pagiatakis, A.M.K. Szeto
Adjunct Professor:
R. Stewart

The Department of Earth and Atmospheric Science offers interdisciplinary instruction in applied science areas dealing with the solid Earth and the atmosphere. Several distinct streams of instruction are offered.

In the Earth Science Stream, students obtain a strong background in the physics and chemistry of the solid Earth and the techniques of mineral and petroleum exploration. It is important for the earth science student planning a career in exploration to gain practical experience working in the area during summer periods prior to graduation.

In the Atmospheric Science Stream, students obtain solid grounding in the physics, chemistry and dynamics of the atmosphere.

The department offers a Specialized Honours Applied Science degree Stream in Space and Communication Sciences, developed to meet the needs of rapidly expanding technologies in these fields.

In cooperation with the Chemistry Department, the department offers an Honours Double Major Applied Science degree Stream in Atmospheric Chemistry that explores the interaction of chemistry and dynamics within the atmosphere and its impact on the global environment.

The course requirements of programs in Earth and Atmospheric Science are given in the Faculty of Pure and Applied Science Programs of Study section of this Calendar (for the Atmospheric Chemistry and Space and Communication Sciences streams, see separate entries in the Faculty of Pure and Applied Science Programs of Study section of this Calendar).

The department also offers certificates in Geographic Information Systems and Remote Sensing and in Meteorology, which are described in the Faculty of Pure and Applied Science Undergraduate Degree and Certificate Programs section of this Calendar.

Courses in Earth and Atmospheric Science

The prerequisites and corequisites stated indicate the standard of preparation with which admission is usually automatic. Admission to any course should otherwise be determined in consultation with a program adviser.

SC/EATS 1010 3.0 The Dynamic Earth and Space Geodesy . An overview of modern geophysics: origin of the Earth, impact cratering, internal structure and rheology, earthquakes, plate tectonics, geomagnetism. Space geodetic positioning techniques such as VLBI, SLR and GPS are introduced as means of detecting and monitoring tectonic movements. One term. Three credits.

Prerequisites: OAC calculus or AS/SC/MATH 1515 3.0 or OAC algebra and geometry; OAC chemistry or SC/CHEM 1500 4.0; OAC physics or SC/PHYS 1510 4.0.

Degree credit exclusion: SC/EATS 1010 6.0.

SC/EATS 1011 3.0 Introduction to Atmospheric Science. The origin, composition and vertical structure of the Earth's atmosphere and those of other planets. The present global atmospheric circulation. Weather systems, measurements and weather maps; atmospheric chemistry: the ozone layer and atmospheric pollution. Three lecture hours per week, five three-hour laboratory sessions. One term. Three credits.

Prerequisites: OAC calculus or AS/SC/MATH 1515 3.0 or OAC algebra and geometry; OAC chemistry or SC/CHEM 1500 4.0; OAC physics or SC/PHYS 1510 4.0.

Degree credit exclusion: SC/EATS 1010 6.0.

SC/EATS 2010 3.0 Introductory Meteorology. An introduction to atmospheric radiation and thermodynamics, clouds and precipitation. Vertical soundings and an introduction to the analysis and interpretation of tephigrams. Atmospheric motion on the global, synoptic, meso- and micro-scales. Two lecture hours and three laboratory hours, or three lecture hours per week; one tutorial hour in alternate weeks. One term. Three credits.

Prerequisites: AK/AS/SC/COSC 1540 3.0; AS/ SC/MATH 1013 3.0 and AS/SC/MATH 1014 3.0, or equivalents; SC/PHYS 1010 6.0 or SC/PHYS 1410 6.0.

SC/EATS 2030 3.0 Geophysics and Space Science. Seismic waves, earthquake fault plane solutions, tectonics on a sphere, geochronology, paleomagnetism, Earth's magnetic field, its origin and deformation by solar winds. VLBI measurements of fluctuations of Earth rotation, gravitational perturbations of satellite orbits, planetary exploration and communications issures. Three lecture hours and a one-hour computer laboratory. One term. Three credits.

Prerequisites: AS/SC/MATH 1014 3.0; SC/PHYS 1010 6.0, or a minimum grade of C in SC/PHYS 1410 6.0.

SC/EATS 2050 4.0 Mineralogy and Petrology. Introduction to the study of geology, minerals, rocks and structural geology. Physical and chemical properties of commonly occurring rock-forming minerals. Origin of commonly occurring igneous rocks. Interpretation of textures and geneses of these rocks. Three lecture hours and a laboratory session. One term. Four credits.

Prerequisites: OAC chemistry or SC/CHEM 1500 4.0, and OAC physics or SC/PHYS 1510 4.0; or AS/SC/GEOG 1400 6.0 or AK/GEOG 2510 6.0.

SC/EATS 2470 3.0 Introduction to the Mechanics of Fluids and Solids. (formerly SC/ EATS 2470 4.0 — before 2000-2001) Introductory tensor algebra and calculus. Stress and strain analysis. Symmetry of stress tensor, equilibrium conditions. Lagrangian and Eulerian descriptions of strain. Physical interpretation of stress, strain and strain rate tensors. Conservation laws in continua. Consistency and compatibility considerations. Constitutive relations. Two lecture hours and a tutorial or problems laboratory session. One term. Three credits.

Prerequisites: AK/AS/SC/COSC 1540 3.0; AS/ SC/MATH 1025 3.0; AS/SC/MATH 2015 3.0; SC/ PHYS 1010 6.0, or a minimum grade of C in SC/ PHYS 1410 6.0.

Degree credit exclusion: SC/EATS 2470 4.0.

SC/EATS 2610 3.0 Introductory Geomatics and Space Engineering. Introduction to geodesy and geomatics engineering: Surveying, geodesy, hydrography, space geodesy and geodynamics, photogrammetry and digital mapping. A survey of communications, remote sensing and geodetic satellites, their engineering characteristics, payloads, and use; features of Low Earth Orbiter (LEO) missions. One and one-half lecture hours per week, one and one-half laboratory hours per week. One term. Two credits.

Prerequisites: SC/EATS 1010 3.0; SC/PHYS 1010 6.0; or permission of the course instructor.

SC/EATS 2620 4.0 Fundamentals of Surveying. Coordinate systems, conventions and transformations. First and second geodetic problem: Trig sections, traverses, eccentricities, areas. Distance measurements, angular measurements, heights. Topographic mapping and property surveys. Route Surveying. Introduction to other surveys: alignment,

deformation surveys for buildings, bridges, dams, tunnels, pipelines. Three lecture hours per week and three laboratory hours per week. One term. Four credits.

Prerequisites: SC/EATS 1010 3.0; SC/MATH 1014 3.0; SC/MATH 1025 3.0; SC/EATS 2610 2.0 or permission of the course instructor.

SC/EATS 3001 1.0 Organization and Management Seminar in Space and Communication Sciences. A seminar course taught by guest speakers from industry, government and the University. Content changes from year to year, but includes such topics as professional ethics, communications regulations, space law, space science policy, project management, privacy and security issues in computing. One lecture hour in alternate weeks. Two terms. One credit.

Cross-listed to: SC/COSC 3001 1.0, SC/PHYS 3001 1.0.

Prerequisite: Eligibility to proceed in the Specialized Honours Stream in Space and Communication Sciences beyond the 2000-level requirements, or permission of the course director.

Degree credit exclusions: SC/COSC 3001 1.0, AS/SC/COSC 3002 1.0, SC/PHYS 3001 1.0.

SC/EATS 3010 2.0 Introductory Applied Geophysics. Students are introduced to the theory and operation of the instruments of applied geophysics. As well as the traditional applications to mineral and petroleum exploration, the use of geophysical instruments in engineering and environmental monitoring is described. Two lecture hours. Second term. Two credits.

Prerequisites: SC/EATS 2030 3.0; AK/AS/SC/ COSC 1540 3.0 or equivalent programming experience.

Corequisites: SC/EATS 3020 3.0; SC/EATS 3180 3.0.

SC/EATS 3011 1.0 Applied Geophysics Field School. A one-week field school is held on campus (usually in May) and includes instruction in field geology and mapping, orienteering and practical exercises in the in-field use of geophysical instruments. One credit.

Prerequisites: SC/EATS 3010 2.0; SC/EATS 3020 3.0; SC/EATS 3180 3.0.

SC/EATS 3020 3.0 Global Geophysics. Studies of isostatic equilibrium and glacial rebound; seismic tomography and spherical harmonic representation of gravity and the geoid; Earth rotation and geodesy; geothermal heat flow and mantle convection. Three lecture hours. One term. Three credits.

Prerequisites: SC/EATS 2030 3.0; SC/EATS 2470 4.0 or SC/EATS 2470 3.0 or SC/PHYS 2010 3.0; AS/SC/MATH 2015 3.0; AK/AS/SC/MATH 2270 3.0; SC/PHYS 2020 3.0.

SC/EATS 3030 3.0 Atmospheric Radiation and Thermodynamics. Applications of basic thermodynamic principles to dry and moist atmospheric situations. Solar (short wave) and terrestrial (long wave) radiation with respect to absorption and scattering processes involving atmospheric atoms, molecules, aerosol particles and clouds. Three lecture hours. One term. Three credits.

Cross-listed to: SC/PHYS 3080 3.0.

Prerequisites: AS/SC/MATH 2015 3.0; AK/AS/ SC/MATH 2270 3.0; SC/PHYS 1010 6.0, or a minimum grade of C in SC/PHYS 1410 6.0.

Degree credit exclusion: SC/PHYS 3080 3.0.

SC/EATS 3040 3.0 Atmospheric Dynamics I. Dynamics of large-scale weather systems. Development of the equations of motion, geostrophy, thermal wind, vorticity and divergence, Ekman layers and the quasi-geostrophic theory. Three lecture hours. One term. Three credits.

Prerequisites: SC/EATS 2010 3.0; SC/EATS 2470 4.0 or SC/EATS 2470 3.0 or SC/PHYS 2010 3.0; AS/SC/MATH 2015 3.0; AK/AS/SC/ MATH 2270 3.0.

SC/EATS 3130 3.0 Introductory Atmospheric Chemistry. An introductory course linking chemistry and atmospheric science. Topics include atmospheric evolution; biogeochemical cycles; sources, transformations and sinks of atmospheric species; human impacts such as acid rain, photochemical smog and depletion of the ozone layer. Three lecture hours. One term. Three credits.

Cross-listed to: SC/CHEM 3060 3.0.

Prerequisites: Both SC/CHEM 1000 3.0 and SC/CHEM 1001 3.0, or SC/CHEM 1000 6.0; one of AS/SC/MATH 1010 3.0, AS/SC/MATH 1014 3.0, AK/AS/SC/MATH 1310 3.0, AS/SC/ MATH 1505 6.0.

Degree credit exclusions: SC/CHEM 3060 3.0, SC/CHEM 3160 3.0.

SC/EATS 3140 4.0 Sedimentology and Structural Geology. Weathering, clastic rocks, diagenesis, mudrocks, carbonates, evaporites, orthographic construction, structural contours, stereographic projection, faults, folds, fabric analysis. Normally offered in alternate years. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisites: SC/EATS 2030 3.0; SC/EATS 2050 4.0.

SC/EATS 3180 3.0 Seismology. Theory and applications of the propagation of seismic waves in the Earth; laboratory and computer exercises where appropriate; practical exercises as required. Two lecture hours and a laboratory session. One term. Three credits.

Prerequisites: SC/EATS 2030 3.0; SC/EATS 2470 4.0 or SC/EATS 2470 3.0 or SC/PHYS 2010 3.0; AK/AS/SC/COSC 1540 3.0 or equivalent FORTRAN programming experience; AS/SC/MATH 2015 3.0; AK/AS/ SC/MATH 2270 3.0.

SC/EATS 3280 3.0 Physics of the Space Environment. An introduction to the physical processes of the upper atmosphere, the ionosphere, the magnetosphere and the heliosphere, and the interactions that occur with space vehicles that traverse these regions of space. Three lecture hours. One term. Three credits.

Cross-listed to: SC/PHYS 3280 3.0.

Prerequisites: SC/PHYS 2020 3.0; SC/PHYS 2040 3.0.

Degree credit exclusion: SC/PHYS 3280 3.0.

SC/EATS 3300 3.0 Geographical Information Systems (GIS) and Spatial Analysis of the Physical Environment. The fundamental concepts and techniques of GIS are presented along with detailed discussion of computer implementation. The emphases include database management and map analysis/spatial modeling. PC ArcView with Spatial Analyst extension GIS programs are used for hands-on exercises. Normally offered in alternate years. Two lecture hours, three laboratory hours. One term. Three credits.

Prerequisites: AK/AS/SC/COSC 1540 3.0 or AK/AS/SC/COSC 1030 3.0 or AK/AS/SC/ COSC 1520 3.0; AK/AS/SC/MATH 2560 3.0 or AS/SC/GEOG 2420 3.0 or AK/AS/SC/MATH 1131 3.0; AS/SC/MATH 1025 3.0 or AS/SC/ MATH 1013 3.0; both SC/EATS 1010 3.0 and SC/EATS 1011 3.0, or SC/EATS 1010 6.0, or SC/EATS 2030 3.0, or AS/SC/GEOG 1400 6.0, or AK/GEOG 2510 6.0, or permission of the instructor.

SC/EATS 4000 3.0/4000 6.0 Research Project. A major written report or thesis on field measurements, laboratory research or computer modelling in the Earth or atmospheric sciences. Work is supervised by a faculty member. Open to exceptional students. Two terms. Six credits. One term. Three credits.

Prerequisite: Written permission of the department Chair.

SC/EATS 4001 6.0 Space and Communication Sciences Workshop. This course is intended to allow the student to carry out the development of a specific space project, under the supervision of a faculty member, a government scientist or an industrial associate. The equivalent of nine laboratory hours per week for two terms. Six credits.

Cross-listed to: SC/COSC 4001 6.0, SC/PHYS 4001 6.0.

Prerequisite: Satisfactory completion of the 3000-level courses in the space and communication sciences core.

Degree credit exclusions: SC/COSC 4001 6.0, SC/PHYS 4001 6.0.

SC/EATS 4010 6.0 Applications of Geophysics and Interpretation Theory. Seismic, gravity and electromagnetic methods in applied geophysics and their interpretation. Mining and petroleum exploration, engineering, hydrological and environmental applications of geophysics are included. The laboratory involves instrumental surveys on campus and reduction and interpretation of previous field school measurements. Normally

offered in alternate years. Two lecture hours and a laboratory session. Two terms. Six credits.

Prerequisites: SC/EATS 3010 2.0; SC/EATS 3011 1.0; SC/EATS 3020 3.0; SC/EATS 3180 3.0.

SC/EATS 4020 3.0 Time Series and Spectral Analysis. Treatment of discrete sampled data by linear optimum Wiener filtering, minimum error energy deconvolution, autocorrelation and spectral density estimation, discrete Fourier transforms and frequency domain filtering and the Fast Fourier Transform algorithm. Three lecture hours. One term. Three credits.

Cross-listed to: AS/SC/MATH 4830 3.0, SC/PHYS 4060 3.0.

Prerequisites: AK/AS/SC/COSC 1540 3.0 or equivalent FORTRAN programming experience; AS/SC/MATH 2015 3.0; AK/AS/SC/MATH 2270 3.0.

Degree credit exclusions: AK/AS/SC/COSC 4242 3.0, AK/AS/SC/COSC 4451 3.0, AS/SC/MATH 4130B 3.0, AS/SC/MATH 4830 3.0, AS/SC/MATH 4930C 3.0, SC/PHYS 4060 3.0.

SC/EATS 4040 3.0 Economic Geology and Ore Genesis. Deposits studied include gold, pegmatite, chromite, nickel/copper sulfide, platinum group elements, porphyry copper, Mississippi Valley type lead-zinc, stratiform sedimentary and volcanogenic massive sulfide deposits. Normally offered in alternate years. Three lecture hours. One term. Three credits.

Prerequisite: SC/EATS 3140 4.0.

SC/EATS 4050 3.0 Synoptic Meteorology I. Analysis of mid-latitude synoptic scale weather systems: an introduction to storm tracks, fronts and air masses, and diagnostic methods. Analysis and interpretation of surface weather maps and upper-air charts. Two lecture hours, three laboratory hours. Fall term. Three credits.

Prerequisite or corequisite: SC/EATS 3040 3.0.

Degree credit exclusion: SC/EATS 4050 6.0.

SC/EATS 4051 3.0 Synoptic Meteorology II. (formerly second half of SC/EATS 4050 6.0 — before Winter 2001) Synoptic and mesoscale weather systems with emphasis on prediction: focus on forecasting with emphasis on the interpretation of numerical weather prediction models such as the GEM, MC2 and SEF models. Satellite and radar image interpretation for nowcasting. Two lecture hours, three laboratory hours. Winter term. Three credits.

Prerequisite: SC/EATS 4050 3.0.

Degree credit exclusion: SC/EATS 4050 6.0.

SC/EATS 4120 3.0 Cloud Physics and Radar Meteorology. Thermodynamics of cloud processes. Buoyancy and convection. Weather radar. Storms and associated precipitation. Cloud droplet formation and growth of ice crystals. Snow, graupel and hail.

Microphysical processes and climate. Normally offered in alternate years. Three lecture hours. One term. Three credits.

Prerequisite or corequisite: SC/EATS 3030 3.0.

SC/EATS 4130 3.0 Atmospheric Dynamics II. The theory and behaviour of Rossby, baroclinic and internal gravity waves in the atmosphere, including their origin, structure and propagation. Barotropic and baroclinic instability and the global circulation of the atmosphere. Normally offered in alternate years. Three lecture hours. One term. Three credits.

Prerequisite: SC/EATS 3040 3.0.

SC/EATS 4140 3.0 Numerical Weather Prediction. The development of computational techniques for the solution of problems in atmospheric dynamics. The construction of numerical models for the prediction of weather. Three lecture hours per week, eight three-hour laboratory sessions. One term. Three credits.

Prerequisites: SC/EATS 3040 3.0; AK/AS/SC/COSC 1540 3.0 or equivalent FORTRAN programming experience.

Prerequisite or corequisite: SC/EATS 4130 3.0 strongly recommended.

SC/EATS 4150 3.0 Turbulence and Diffusion in the Atmospheric Boundary Layer. Laminar and turbulent flows, hydrodynamic stability and transition. Wind and temperature profiles in the atmospheric boundary-layer, Monin-Obukhov and planetary boundary-layer similarity theories. Turbulence spectra, local isotropy, the inertial subrange and Kolmogoroff hypotheses. Turbulent diffusion from atmospheric sources. Normally offered in alternate years. Three lecture hours. One term. Three credits.

Prerequisite or corequisite: SC/EATS 3040 3.0 or SC/PHYS 4120 3.0.

SC/EATS 4160 3.0 Climate and Climate Change. The Earth's climate and the general circulation of the atmosphere. Climate models. Long-term stability of the Earth's climate. Anthropogenic impact on the climate, carbon dioxide and other climate change issues. Normally offered in alternate years. Three lecture hours. One term. Three credits.

Prerequisite: SC/EATS 2010 3.0 or SC/EATS 3040 3.0 or permission of the instructor.

SC/EATS 4170 4.0 Transport and Chemistry of Atmospheric Trace Gases. A study of the processes that affect the composition of the atmosphere and the methods used to include these in numerical models. Included are sources, transport, deposition, photochemistry, biogeochemical cycles, one-dimensional computer models and analysis of atmospheric data sets. Three lecture hours, two computer laboratory hours. One term. Four credits.

Cross-listed to: SC/CHEM 4061 4.0.

Prerequisites: SC/EATS 3130 3.0 or SC/CHEM 3060 3.0; AK/AS/SC/COSC 1540 3.0; AK/AS/SC/MATH 2270 3.0.

Degree credit exclusion: SC/CHEM 4061 4.0.

SC/EATS 4220 3.0 Remote Sensing of the Earth's Surface. Principles used in extracting physical information about the Earth's surface using remote sensing. Remote sensing in the visible, short-wave infrared, thermal infrared and microwave regions is discussed in terms of potential applicability to forestry, agriculture, water resources and geology. Two lecture hours, three laboratory hours. One term. Three credits.

Prerequisite(s): SC/PHYS 2020 3.0, or SC/PHYS 2060 3.0, or both SC/PHYS 2211 1.0 and SC/PHYS 2212 1.0.

SC/EATS 4230 3.0 Remote Sensing of the Atmosphere. An introduction to and summary of the area of remote sensing of the atmosphere from space platforms and from the ground. Topics include atmospheric radiation, atmospheric spectroscopy, inversion theory, instrumentation, satellites, space platforms and future technology. Three lecture hours per week, occasional laboratory sessions. One term. Three credits.

Prerequisites: SC/EATS 2010 3.0 or SC/PHYS 2060 3.0; AS/SC/MATH 1025 3.0; AS/SC/MATH 2015 3.0; AK/AS/SC/MATH 2270 3.0.

Prerequisite or corequisite: SC/EATS 3030 3.0 or permission of the course director.

SC/EATS 4240 3.0 Storms and Weather Systems. The study of mesoscale circulations and precipitating storm systems. Basic governing equations and instabilities. Nature and evolution of isolated convection, thunderstorms, mesoscale convective systems, precipitation bands, extratropical cyclones, fronts and frontogenesis, hurricanes, blizzards, polar lows and orographic storms. Normally offered in alternate years. Three lecture hours. One term. Three credits.

Prerequisites or corequisites: SC/EATS 3040 3.0; SC/EATS 4120 3.0.

SC/EATS 4250 3.0 Space Geodynamics. The dynamical behaviour of the Earth from space measurements. Included are the external gravity field of the Earth, orbital dynamics of artificial satellites, satellite geoid, internal figure of the Earth, rotation of the Earth and its measurement by space techniques. Normally offered in alternate years. Three lecture hours. One term. Three credits.

Cross-listed to: SC/PHYS 4410 3.0.

Prerequisites or corequisites: SC/EATS 3020 3.0; AS/SC/MATH 3241 3.0 or AK/AS/SC/COSC 3121 3.0; AS/SC/MATH 3271 3.0.

Degree credit exclusion: SC/PHYS 4410 3.0.

SC/EATS 4300 3.0/4300 6.0 Special Topics. A series of lectures and supervised study on special topics not ordinarily included in other courses in earth and atmospheric science. Three lecture hours. Two terms. Six credits. One term. Three credits.

SC/EATS 4400 3.0 Geographical Information Systems (GIS) and Data Integration. Project-oriented geomatics course using GIS systems (Arc/Info and S-PLus or SPSS for UNIX) and various techniques (map algebraic, statistical, fuzzy logic, AI, neural network and fractal/multifractal) for integrating diverse dataset (geological, geophysical, geochemical, remote sensing and GPS). Normally offered in alternate years. Two lecture hours, two laboratory hours. One term. Three credits.

Prerequisite: One of SC/EATS 3300 3.0, AS/SC/ GEOG 3180 3.0, AS/SC/GEOG 4340 3.0, ES/ ENVS 3520 3.0, ES/ENVS 4520 3.0, or permission of the instructor.

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East Asian Studies – Arts

Program Office and Resource Centre:
  030C Founders College, 416-736-5148
Coordinator of the Program:
  Pietro Giordan
Professors:
  T. Goossen, Humanities; C.J. McMillan, Administrative Studies; J.A. Nagata, Anthropology; B.T. Wakabayashi, History
Professors Emeriti:
  J. Ch'en, History; D. Daly, Administrative Studies (Atkinson); S. Endicott, History (Atkinson); M.B. Frolic, Political Science; D. Holoch, Languages; G. Jordan, History; T. Sekine, Economics; D. Willmott, Sociology (Glendon)
Associate Professors:
  A. Acharya, Political Science; B.N. Cham, Political Science (Glendon); M. Gewurtz, History/Humanities; D. Holoch, Languages, Literatures and Linguistics;T .Hyun, Humanities; B. Luk, History; D.P. Lumsden, Anthropology; J.D. Paper, Humanities; R. Perry, Visual Arts (Fine Arts); A. Schlosser, Theatre (Fine Arts); P. Van Esterik, Anthropology
Associate Professors Emeriti:
  P.M. Mitchell, History; S.Y. Tsau, Languages, Literatures and Linguistics
Assistant Professors:
  P. Giordan, Languages, Literatures and Linguistics; S. Henders, Political Science; P. Kelly, Geography; J. Kim, History; S .Otto, Music (Fine Arts); A. Schrauwers, Anthropology; J. Van Esterik, Social Science
Associate Lecturer:
  N. Ota, Languages, Literatures and Linguistics
Sessional Assistant Lecturer:
  M. Handa, Languages, Literatures and Linguistics

The East Asian Studies Program offers a broadly based approach to the study of the peoples and civilizations of East Asia. It is a rich and flexible program of study that brings together courses from the academic disciplines of the humanities, social sciences, languages and literature and fine arts. Most of the existing courses focus on Chinese and Japanese societies past and present, but new courses are being developed that deal with Korea and with those parts of Southeast Asia that sustain close cultural ties with East Asia. The East Asian Studies Program offers a number of undergraduate degree

program choices: within the general guidelines and requirements of each, a student can choose from a rich array of course offerings every year to create a combination which best serves her/his academic interests and career aspirations. Students should consult the coordinator when designing their programs of study.

Note: For the several programs of study available in East Asian studies, please consult the Faculty of Arts Programs of Study section of this Calendar.

Courses in East Asian Studies

For course descriptions, please refer to the appropriate departmental/divisional listings in this Calendar or the relevant departmental/divisional supplemental calendar. Not all of the courses listed below will necessarily be offered in any given year. For details of courses to be offered, please consult the East Asian studies supplemental calendar.

Subject to degree credit exclusion and in-Faculty regulations, and with the approval of the program coordinator, students may take courses at the Faculties of Atkinson, Fine Arts or Glendon for major or minor credit in East Asian studies.

Note: For purposes of meeting program requirements, all foundations courses will count as six credits towards the major or minor.

Anthropology

AS/ANTH 1110 6.0 Introduction To Social Anthropology.
AS/ANTH 3320 6.0 Religious Ritual and Symbolism.
AS/ANTH 4250 6.0 Religious Movements in Global Perspective (degree credit exclusion: AS/ANTH 4200J 6.0 Fall/Winter 1997-1999, Fall/Winter 2000-2002).

Chinese

AS/CH 1000 6.0 Elementary Modern Standard Chinese.
AS/CH 2000 6.0 Intermediate Modern Standard Chinese.
AS/CH 2010 6.0 Chinese for Beginners With Background.
AS/CH 2700 6.0 Introduction to Chinese Literature.
AS/CH 3000 6.0 Advanced Modern Standard Chinese.
AS/CH 3010 6.0 Modern Standard Chinese for Speakers of Cantonese or other Dialects.
AS/CH 3600 6.0 Lu Xun: Representative Works.
AS/CH 3710 6.0 Women Writers in Modern China.
AS/CH 3790 6.0 Contemporary Chinese Culture Through LiteraryTexts and Film.

Film

FA/FILM 3710 6.0 Japanese Culture, Literature and Film (cross-listed to: AS/HUMA 3420 6.0 and AS/JP 3720 6.0).

Geography

AS/GEOG 4390K 3.0 Asia-Pacific Development: Geographical Perspectives.

History

AS/HIST 1030 6.0 Imperialism and Nationalism in Modern Asia.
AS/HIST 2710 6.0 East Asia: Tradition and Defiance.
AS/HIST 3760 6.0 Modern Japan.
AS/HIST 3770 6.0 Modern China.
AS/HIST 3775 3.0 History of Hong Kong.
AS/HIST 3780 6.0 Asian Crossroads: Southeast Asia Since the 17th Century (cross-listed to: AK/HIST 3109B 6.0).
AS/HIST 3785 6.0 Science, Technology and Society in Chinese History.
AS/HIST 3930B 6.0 History of Singapore.
AS/HIST 4050H 6.0 Education and Society in Modern China.
AS/HIST 4740 6.0 Chinese Rural Society.
AS/HIST 4760 6.0 War and Peace in East Asia: The Second World War.
AS/HIST 4930B 6.0 Migrations and Diasporas: The Modern Chinese Experience.

Humanities

AS/HUMA 1400 9.0 Culture and Society in East Asia.
AS/HUMA 2410 6.0 Chinese Art, Poetry and Religion (formerly AS/HUMA 2000J 6.0).
AS/HUMA 2420 9.0 Introduction to Korean Culture.
AS/HUMA 2430 9.0 The Asian Canadian Experience (formerly AS/HUMA 2000B 6.0).
AS/HUMA 3000D 6.0 Religion, Gender and Korean Culture.
AS/HUMA 3420 6.0 Japanese Culture, Literature and Film (cross-listed to: AS/JP 3720 6.0, FA/FILM 3710 6.0).
AS/HUMA 3940 6.0 The Feminine in Chinese Culture: Ideal and Reality.
AS/HUMA 4000D 6.0 Changing Narratives of Family in Modern Korea.
AS/HUMA 4000G 6.0 Advanced Topics In East Asian Cultural History: Contemporary Japanese Literature, Film And Comics.
AS/HUMA 4400A 6.0 Asian Art: Zen Painting and Poetry (cross-listed to: FA/VISA 4340A 6.0).
AS/HUMA 4740 6.0 The Sacred and the Arts.

Japanese

AS/JP 1000 6.0 Elementary Modern Standard Japanese.
AS/JP 2000 6.0 Intermediate Modern Standard Japanese.
AS/JP 2800A 6.0 Special Topics: Contemporary Japanese Culture and Society.
AS/JP 3000 6.0 Advanced Modern Standard Japanese.
AS/JP 3720 6.0 Japanese Culture, Literature and Film (cross-listed to: AS/HUMA 3420 6.0, FA/FILM 3710 6.0).
AS/JP 4000 6.0 Advanced Reading in Contemporary Japanese.
AS/JP 4100 6.0 Teaching of Japanese as a Foreign/Second Language.
AS/JP 4800A 6.0 Special Topics: Translation: Japanese-English; English-Japanese.
AS/JP 4800B 6.0 Special Topics: Classical Japanese.

Political Science

AS/POLS 3220 3.0 Comparative Foreign Policy Analysis.

AS/POLS 3230 3.0 Global Issues in Foreign Policy.

GL/POLS 3230 6.0 Government and Politics in the US.

AS/POLS 3515 3.0 China and the World.

AS/POLS 3590 3.0 Japan and the World Order.

AS/POLS 4595 3.0 Southeast Asia in the New Global Order.

AS/POLS 4700 3.0 Topics in International Political Economy of Eastern Asia.

AS/POLS 4705 3.0 Human Rights and Democracy in Asia.

AS/POLS 4735 3.0 After the Fall: International Relations of Collapsed Socialism.

Social Science

AS/SOSC 2430 6.0 Peoples and Cultures of Southeast Asia.

Theatre (Fine Arts)

FA/THEA 4220 6.0 Non-European Theatre.

Visual Arts (Fine Arts)

FA/VISA 1340 6.0 The Art of Asia.

Note: Additionally, there are available within the departments of History and Political Science and the divisions of Humanities and Social Science, 4000-level thesis or independent reading courses open to East Asian studies majors on an individual basis.

Registration in Atkinson and Faculty of Fine Arts courses requires the approval of the instructor. Students are subject to Faculty of Arts regulations governing out-of-Faculty courses.

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Economics – Arts

Department Office:
  1124 Vari Hall, 416-736-5083
Undergraduate Office:
  1144 Vari Hall, 416-736-5322
Chair of the Department:
  E. Appelbaum
Professors:
  E. Appelbaum, L. Danziger, S. Donnenfeld, J. Landa, C. Plourde, J. Smithin
Professors Emeriti:
  J.A. Buttrick, G.V. Doxey, H. Flakierski, F. Lefeber, P. Medow, J. Ridpath, A.J. Robinson, H. Schwartz, T. Sekine, R. Thakkar
Associate Professors:
  M. Anam, J. Beare, K. Carpenter, S.H. Chiang, A.J. Cohen, M.D.G. Copeland, G. Fallis, R. Grinspun, A. Haug, W.M. Ho, J. Jasiak, N. Jazairi, J. Landa, R. Latham, F. Lazar, K.C. Lo, A. Mansoorian, G.H. McKechnie, P. Rilstone, A.A. Shapiro, J.B. Smith
Assistant Professors:
  A. Akyol, S. Alan, R.K. House, K. MacKinnon

Undergraduate training in economics is intended to familiarize students with the discipline of economic thinking, and so equip them for intelligent appraisal of contemporary economic problems. It is also intended to make students aware of the nature of economic science and of directions in which economic theory is currently moving. The discipline of economic thinking has three related parts: identifying specifically economic problems; developing and applying economic theory to improve our understanding and ability to solve the problems; evaluating the adequacy of our theoretical understanding through the use of data and empirical testing.

Specifically, economic problems arise out of the conflict between apparently limitless human demand for goods and services and a limited supply of resources for satisfying those demands. Courses in economics expose students both to the wide range of individual and social problems that arise from this conflict and to the distinctive economic approach to their solution. Economic theory provides students with the analytical framework necessary for understanding and solving economic problems. Empirical work provides a basis for improving existing theories and for distinguishing between competing theories.

An undergraduate degree in economics prepares students for careers in business and government, for graduate training in economics and for professional training in business, law, public administration and other disciplines.

Note: For specific requirements and course restrictions of programs offered by this department, please consult the Faculty of Arts Programs of Study section of this Calendar.

Note: Detailed Economics and Business Program information is announced in the Faculty of Arts Programs of Study section, obtainable in the Economics Undergraduate Records Office. A list of economics and business courses follows the economics courses below.

Courses in Economics

1. Students planning to major or minor in economics must successfully complete AS/ECON 1000 3.0 and AS/ECON 1010 3.0 as well as the mathematics requirement with AS/ECON 1530 3.0 and AS/ECON 1540 3.0. Students who fail to satisfy the introductory economics and the mathematics (calculus/algebra) requirements may not be permitted to take AS/ECON 2300 3.0 and AS/ECON 2350 3.0 or AS/ECON 2400 3.0 and AS/ECON 2450 3.0, not even as electives. Admission to most 2000-, 3000- and 4000-level courses in economics is conditional upon satisfactory completion of the Introduction to Microeconomics and the Introduction to Macroeconomics courses, AS/ECON 1000 3.0 and AS/ECON 1010 3.0.

2. In limited enrolment courses, preference will be given to students with applicable majors.

3. Graduate courses: With the permission of the director of the Graduate Program in Economics, students in an Honours BA program may take 5000-level courses in lieu of 4000-level courses.

4. Courses in economics normally have three class hours a week.

Not all of the courses listed below will necessarily be offered in any given year. For details of courses to be offered, please consult the economics supplemental calendar.

Subject to degree credit exclusion and in-Faculty regulations, and with the approval of the program coordinator, students may take courses at the Faculties of Atkinson, Fine Arts or Glendon for major or minor credit in economics.

AS/ECON 1000 3.0 Introduction to Microeconomics. An introduction to the principles and methods of economics, with emphasis on microeconomic theory. Topics include the theory of markets, price determination and the theory of the firm.

Degree credit exclusions: AK/ECON 1000 3.0, AS/ECON 1900 3.0.

Note: Successful completion of this course, together with AS/ECON 1010 3.0, is required for all students who intend to pursue additional courses in economics at the 2000, 3000 and 4000 level and in order to pursue degree studies in economics.

AS/ECON 1010 3.0 Introduction to Macroeconomics. An introduction to the principles and methods of economics with emphasis on macroeconomic theory. Topics include the theory of money and banking, the theory of international trade and finance, and the economic analysis of such selected topics as unemployment, inflation and government budget policy.

Degree credit exclusions: AK/ECON 1010 3.0, AS/ECON 1900 3.0.

Note: Successful completion of this course, together with AS/ECON 1000 3.0, is required for all students who intend to pursue additional courses in economics at the 2000, 3000 and 4000 level and in order to pursue degree studies in economics.

AS/ECON 1530 3.0 Introductory Mathematics for Economists I. This course introduces and develops topics in differential calculus, integral calculus and their applications in economics. This course is required for all economics majors and minors; it also satisfies the mathematics requirement for the Schulich School of Business.

Cross-listed to: AS/MATH 1530 3.0.

Corequisite or prerequisite: AS/ECON 1000 3.0 or AS/ECON 1010 3.0 or equivalents.

Degree credit exclusions: AS/SC/MATH 1000 3.0, AK/AS/SC/MATH 1300 3.0, AK/MATH 1410 6.0, AK/AS/MATH 1550 6.0, AS/SC/MATH 1013 3.0, AS/SC MATH 1505 6.0 or equivalent.

AS/ECON 1540 3.0 Introductory Mathematics for Economists II. This course introduces and develops topics including matrix algebra, optimization, comparative statics of general function models and their applications in economics. This course is required for all economics majors and minors; it also satisfies the mathematics requirements for the Schulich School of Business.

Cross-listed to: AS/MATH 1540 3.0.

Prerequisite: One of AS/ECON/MATH 1530 3.0 or AK/AS/SC/MATH 1300 3.0 or equivalents.

Prerequisite or corequisite: AS/ECON 1000 3.0 or AS/ECON 1010 3.0 or equivalents.

Degree credit exclusions: AK/AS/MATH 1550 6.0, AS/SC/MATH 1505 6.0.

Note: May not be taken by students who have taken or are taking AK/AS/SC/MATH 1021 3.0, AS/SC/MATH 1025 3.0, AS/SC/MATH 2021 3.0, AK/AS/SC/MATH 2221 3.0, AK/AS/SC/MATH 2222 3.0 or equivalent.

Note: Admission to 2000-, 3000- and 4000-level courses in economics is conditional upon satisfactory completion of AS/ECON 1000 3.0 and AS/ECON 1010 3.0 and the additional prerequisites for each course. (Exception: AS/ECON 1900 3.0, which is a degree credit exclusion with AS/ECON 1000 3.0 and AS/ECON 1010 3.0).

AS/ECON 1900 3.0 Introduction to Economics For Non-Majors. A one-semester introduction to both microeconomic and macroeconomic concepts, applied to public policy issues. Intended for students in other disciplines, the course provides concise fundamentals without the mathematical details of AS/ECON 1000 3.0 and AS/ECON 1010 3.0. This course serves as prerequisite for some 3000-level economics courses.

Degree credit exclusions: AS/ECON 1000 3.0 and AS/ECON 1010 3.0 or equivalents.

Note: Not open to economics majors or students in coordinated business. Students who enrol in a degree Program in Economics will not receive credit for this course toward their economics requirements.

AS/ECON 2300 3.0 Intermediate Microeconomic Theory I. Theory of the consumer, uncertainty, theory of the firm, competitive equilibrium.

Prerequisites: AS/ECON 1000 3.0 and AS/ECON 1010 3.0 and AS/ECON 1530 3.0 and AS/ECON 1540 3.0 or equivalents.

Degree credit exclusion: AS/ECON 2300 6.0.

AS/ECON 2350 3.0 Intermediate Microeconomic Theory II. Monopoly, factor markets, oligopoly, game theory, general equilibrium, welfare economics.

Prerequisite: AS/ECON 2300 3.0 or equivalent.

Degree credit exclusion: AS/ECON 2300 6.0.

AS/ECON 2400 3.0 Intermediate Macroeconomic Theory I. Preliminary development of models of the determination of national income in the short run and the long run, in closed and open economies. Keynsian and New Classical models are studied.

Prerequisites: AS/ECON 1000 3.0 and AS/ECON 1010 3.0 and AS/ECON 1530 3.0 and AS/ECON 1540 3.0 or equivalents.

Degree credit exclusion: AS/ECON 2400 6.0.

AS/ECON 2450 3.0 Intermediate Macroeconomic Theory II. Completion of the material studied in AS/ECON 2400 3.0.

Prerequisite: AS/ECON 2400 3.0 or equivalent.

Degree credit exclusion: AS/ECON 2400 6.0.

AS/ECON 2500 3.0 Introductory Statistics for Economists. This course provides an introduction to statistical techniques. Topics covered include: descriptive statistics, index numbers, frequency distributions, random variables, sampling distributions, introduction to probability theory, the normal distribution, correlation and the design and interpretation of hypothesis tests.

Degree credit exclusions: AK/ECON 3470 3.0, ES/ENVS 2010 6.0, AS/SC/GEOG 2420 3.0, AS/SC/GEOG 3421 3.0, AK/AS/SC/MATH 1131 3.0, AK/AS/SC/MATH 2560 3.0, AS/KINE 2050 3.0, AS/POLS 3300 6.0, AK/AS/SC/PSYC 2020 6.0, AK/AS/SC/PSYC 2021 3.0, AS/SOCI 3030 6.0.

AS/ECON 3069 3.0 Canadian Economic Development Until the 1870s. Selected topics in the development of the Canadian economy to Confederation and the establishment of the National Policy.

Prerequisite: AS/ECON 1000 3.0 or AS/ECON 1010 3.0 or AS/ECON 1900 3.0 or equivalents.

Degree credit exclusions: AS/HIST 3560 3.0, AK/ECON 3670 3.0 and AS/ECON 3680 3.0.

AS/ECON 3079 3.0 Canadian Economic Development After 1870. The changing structure of the Canadian economy after 1870. Emphasis is placed on competing explanations of the process of economic development in Canada.

Prerequisite: AS/ECON 1000 3.0 or AS/ECON 1010 3.0 or AS/ECON 1900 3.0 or equivalents.

Degree credit exclusions: AS/HIST 3561 3.0, AK/ECON 3670 3.0 and AS/ECON 3680 3.0, AK/ECON 3690 3.0.

AS/ECON 3089 3.0 Economic History of the United States I 1640-1860. In analyzing the 1640-1860 period, this course illustrates both the role of economic theory in the interpretation of US history and the contribution of the study of US history to the development and evaluation of economic theory.

Prerequisite: AS/ECON 1000 3.0 or AS/ECON 1010 3.0 or AS/ECON 1900 3.0, or equivalents.

Degree credit exclusion: AS/HIST 3660 3.0.

AS/ECON 3099 3.0 Economic History of the United States II: 1860-1940. In analyzing the 1860-1940 period, this course illustrates both the role of economic theory in the interpretation of US history and the contribution of the study of US history to the development and evaluation of economic theory.

Prerequisite: AS/ECON 1000 3.0 or AS/ECON 1010 3.0 or AS/ECON 1900 3.0 or equivalents.

Degree credit exclusion: AS/HIST 3670 3.0.

AS/ECON 3120 3.0 or 3129 3.0 Economic Development in Europe before the Industrial Revolution. Selected topics in the economic development of Europe from the Black Death through the early-modern period. The emphasis is on the application of basic economic concepts to explain economic events and to evaluate economic policies of the period.

Prerequisite: AS/ECON 1000 3.0 or AS/ECON 1010 3.0 or AS/ECON 1900 3.0 or equivalents.

Degree credit exclusion: AK/ECON 3710 6.0.

AS/ECON 3130 3.0 or 3139 3.0 Economic Development in Europe from the Industrial Revolution to the Present. Selected topics in the development of the European economy ranging from the causes of the Industrial Revolution in Britain to the consequences of the European Economic Community.

Prerequisite: AS/ECON 1000 3.0 or AS/ECON 1010 3.0 or AS/ECON 1900 3.0 or equivalents.

Degree credit exclusion: AK/ECON 3710 6.0.

AS/ECON 3140 3.0 Monetary Economics. The demand for money, the money supply and the banking system, Canadian financial institutions, and the theory and practice of monetary policy.

Prerequisite: AS/ECON 1010 3.0 or equivalent.

Degree credit exclusion: AK/ECON 3430 3.0.

AS/ECON 3150 3.0 International Trade I. International trade theories and policies; international flows of capital, labour and technology; economic growth and development in the international economy; international institutions.

Prerequisite: AS/ECON 1000 3.0 or equivalent.

Degree credit exclusion: AK/ECON 3570 3.0.

AS/ECON 3200 3.0 Industrial Organization. Industrial organization; structure of modern industry; industrial policies; anti-restrictive practices and policies; control of industry; public utilities; government enterprise.

Prerequisite: AS/ECON 1000 3.0 or equivalent.

Degree credit exclusion: AK/ECON 3750 3.0.

AS/ECON 3210 3.0 Use of Economic Data. This course introduces the theory and practice of empirical analysis of economic models. Linear regression analysis is developed and applied in the course. Use is made of Canadian data sets and statistical software packages for micro and/or mainframe computers.

Prerequisite: AS/ECON 2500 3.0 or equivalent.

Degree credit exclusion: Not open to students who are taking or have taken AS/ECON 4210 3.0, AS/SC/MATH 3330 3.0, AK/AS/SC/MATH 3033 3.0 or equivalent.

AS/ECON 3230 3.0 Urban Economics. The urban area as an economic system. Topics include determinants of the demand for urban land, the economics of urban transportation, externalities and public policy, municipal public finance.

Prerequisite: AS/ECON 1000 3.0 or equivalent.

Degree credit exclusions: AK/URST 3540 3.0, AK/ECON 3640 3.0.

AS/ECON 3240 3.0 or 3249 3.0 Labour Economics – Theory. Theory of labour supply and demand, wages, and employment.

Prerequisite: AS/ECON 1000 3.0 or equivalent.

Degree credit exclusions: AK/ECON 3610 3.0, AK/ECON 3620 3.0.

AS/ECON 3250 3.0 or 3259 3.0 Labour Economics – Institutions. The economic impact of trade unions, labour legislation and industrial organization of the market for labour.

Prerequisite: AS/ECON 1000 3.0, AS/ECON 3240 3.0 or equivalents.

Degree credit exclusion: AK/ECON 3600 6.0, AK/ECON 4080E 3.0.

AS/ECON 3289 3.0 Economics of Federal-Provincial Relations. The economic theory of federalism. The assignment of economic functions among governments, in theory and in practice; the principles underlying redistribution of revenues by intergovernmental grants; differential effects of federal policies on provincial economies; proposals for improving coordination of federal and provincial financial policies.

Prerequisite: AS/ECON 1000 3.0 and AS/ECON 1010 3.0.

AS/ECON 3310 3.0 Development Economics I. Studies the basic causes of economic retardation in the Third World. Covers: characteristics of economic underdevelopment; poverty, income and wealth distribution; rural *versus* urban development; population growth, unemployment and migration; the role of capital, labour and technology in development.

Prerequisite: AS/ECON 1000 3.0 or AS/ECON 1010 3.0 or AS/ECON 1900 3.0 or equivalents.

Degree credit exclusion: AK/ECON 3550 3.0.

AS/ECON 3320 3.0 Development Economics II. Studies the policies and institutions for overcoming economic retardation in the Third World. Covers strategies of growth and development; government intervention, planning and private enterprise; fiscal and monetary policies; domestic market *versus* export orientation; domestic *versus* foreign investment; international trade and indebtedness.

Prerequisite: AS/ECON 1000 3.0 or AS/ECON 1010 3.0 or AS/ECON 1900 3.0, AS/ECON 3310 3.0 or equivalents.

Degree credit exclusion: AK/ECON 3560 3.0.

AS/ECON 3350 3.0 Economic Theories of Entrepreneurship. This course covers materials on various economic theories of entrepreneurship, as well as sociological, psychological and cultural theories. Also included are case studies of entrepreneurship in various countries, including Asia Pacific countries, as well as Socialist economies in transition.

Prerequisite: AS/ECON 1000 3.0 or AS/ECON 1010 3.0 or AS/ECON 1900 3.0 or permission of the course director.

AS/ECON 3500 3.0 Introductory Mathematical Statistics for Economists. This course provides an introduction to mathematical statistical analysis. Includes distributions of random variables, conditional probability, independence, special distributions, distributions of functions of random variables, moment generating functions, the central limit theorem, estimation and hypothesis testing.

Prerequisites: AS/ECON 1530 3.0 and AS/ECON 1540 3.0, AS/ECON 2500 3.0 or equivalents.

Degree credit exclusion: AK/AS/SC/MATH 2030 3.0.

AS/ECON 3530 3.0 Intermediate Mathematics for Economists I. This course develops and demonstrates the mathematics commonly used in the analysis of static economic models. Topics range from concavity and convexity to constrained optimization and comparative static analysis including the implicit function and envelope theorems.

Prerequisites: AS/ECON 1530 3.0 and AS/ECON 1540 3.0 or equivalents.

AS/ECON 3580 3.0 Introductory Financial Accounting for Economists. An introduction to financial accounting. Focus on financial accounting concepts, principles and practices, with emphasis on questions of asset valuation, income measurement and other issues of particular concern to economists.

Prerequisites: AS/ECON 1000 3.0 and AS/ECON 1010 3.0 or equivalents; OAC accounting recommended.

Degree credit exclusions: SB/ACTG 2010 3.0, SB/ACTG 2011 3.0, AK/ADMS 2500 3.0, SB/BFND 3200 3.0.

AS/ECON 3590 3.0 Introductory Managerial Accounting for Economists. An introduction to managerial accounting. Focus on managerial accounting concepts, principles and practices, with emphasis on behavioural aspects of accounting control, performance appraisal and other issues of particular concern to economists.

Prerequisite: AS/ECON 3580 3.0.

Degree credit exclusions: SB/ACTG 3020 3.0, AK/ADMS 2510 3.0, SB/BFND 3200 3.0.

AS/ECON 4000 3.0 Advanced Microeconomic Analysis. An examination of important contributions to economic literature.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 and AS/ECON 2400 3.0 and AS/ECON 2450 3.0, AS/ECON 3530 3.0 or equivalents or permission of the instructor.

Degree credit exclusion: AK/ECON 4010 3.0.

AS/ECON 4010 3.0 Advanced Macroeconomic Analysis. An examination of important contributions to economic literature.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 and AS/ECON 2400 3.0 and AS/ECON 2450 3.0 or equivalents or permission of the instructor.

Prerequisite/corequisite: AS/ECON 3530 3.0.

Degree credit exclusion: AK/ECON 4020 3.0.

AS/ECON 4059 3.0 History of Economic Thought I. After brief attention to the methodology of economic theory, the course focuses on the theoretical development of classical political economy up to 1870 in the works of the Physiocrats, Smith, Ricardo and Marx. Emphasis on the contrasts and similarities between classical and neoclassical theories.

Prerequisites or corequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 and AS/ECON 2400 3.0 and AS/ECON 2450 3.0 or equivalents or permission of the course director.

Degree credit exclusion: AK/ECON 4050 3.0.

AS/ECON 4069 3.0 History of Economic Thought II. Primary focus on major developments in economic theory since 1870; the emergence of neoclassical general equilibrium theory (especially in the works of Jevons, Menger and Walras) and the development of Keynesian economics as a distinctive theory.

Prerequisite: AS/ECON 4059 3.0 or permission of the instructor.

Degree credit exclusion: AK/ECON 4060 3.0.

AS/ECON 4070 3.0 Public Finance I. Public finance in Canada; the objectives of economic policy; theories of taxation; economic effects of taxation, with special reference to the Canadian economy.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 and AS/ECON 2400 3.0 and AS/ECON 2450 3.0 or equivalents or permission of the course instructor.

Degree credit exclusions: AK/ECON 3450 3.0/ 3460 3.0.

AS/ECON 4080 3.0 Public Finance II. Public finance in Canada theories of public expenditure; public expenditure policies in Canada; problems of multi-level governments including federal-provincial financial relations.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 and AS/ECON 2400 3.0 and AS/ECON 2450 3.0 or equivalents or permission of the course instructor.

Degree credit exclusions: AK/ECON 3450 3.0/ 3460 3.0, AK/ECON 3630 3.0 and AS/ECON 4089 3.0.

AS/ECON 4110 3.0 Regional Economics. An examination of the regional dimensions of economic activity; location theory, income determination theory, growth theory and their application to regional economic policy.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 and AS/ECON 2400 3.0 and AS/ECON 2450 3.0 or equivalents or permission of the course instructor.

AS/ECON 4129 3.0 International Trade Policy and Economic Integration. The course deals with current policy issues in international trade and economic integration, focusing on specific institutional settings such as NAFTA, the European Union, the World Trade Organization, "new" policy areas such as trade and the environment, trade, and labour rights.

Prerequisite: AS/ECON 3150 3.0 or equivalent.

AS/ECON 4130 3.0 Introduction to Game Theory in Economics. The course covers the idea of a game, of a solution, the extensive form, the concept of an equilibrium, games of incomplete information, backward and forward induction, repeated games, signaling and principal-agent models, and bargaining models.

Prerequisite: AS/ECON 1530 3.0 and AS/ECON 1540 3.0 or permission of the course director.

AS/ECON 4190 3.0 International Trade II. This course covers, at the advanced level, the theories of international trade specialization, gains from trade, commercial policies, and new approaches to trade theory.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 and AS/ECON 2400 3.0 and AS/ECON 2450 3.0 or equivalents and AS/ECON 3150 3.0 or equivalents or permission of the instructor.

AS/ECON 4200 3.0 International Monetary Economics. International monetary economics including exchange rates, balance of payments accounts, theories of the balance of payments, monetary policy under fixed and flexible exchange rates, international monetary problems and possible solutions.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 and AS/ECON 2400 3.0 and AS/ECON 2450 3.0 or equivalents or permission of the course instructor.

Degree credit exclusion: AK/ECON 3580 3.0.

AS/ECON 4210 3.0 Econometrics. This first course in econometrics develops the inner regression model. Least squares and maximum likelihood estimators are derived for classical and generalized cases. Hypothesis testing is simultaneously examined. The course stresses theorem proving, diagnostic analysis and careful applied work.

Prerequisites: AS/ECON 2500 3.0 and AS/ECON 3500 3.0 or equivalents or permission of the course director.

Degree credit exclusions: AK/AS/SC/MATH 3033 3.0, AS/SC/MATH 3330 3.0, AK/ECON 3490 3.0.

AS/ECON 4220 3.0 Econometric Theory. This course in econometrics examines multiple and simultaneous linear equations models. Time series analysis and other special topics are also considered. The course stresses theorem proving, diagnostic analysis and careful applied work.

Prerequisites: AS/ECON 4210 3.0 or equivalent or permission of the course director.

Degree credit exclusions: AS/SC/MATH 3034 3.0, AK/ECON 3500 3.0.

AS/ECON 4239 3.0 Comparative Economic Systems. Comparative analysis of economic systems in terms of economic goals, organization of production and distribution, and economic performance.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 and AS/ECON 2400 3.0 and AS/ECON 2450 3.0 or equivalents or permission of the course instructor.

Degree credit exclusion: AK/ECON 4100 3.0.

AS/ECON 4240 3.0 Advanced Topics in Labour Economics. Trade unions and employers' organizations in the Canadian labour market; design and function of the institutions; worker and employer participation; the processes of conflict and agreement, the regulatory role of the state, the nature of collective agreements and their effect on the labour market and processes of production.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0, AS/ECON 2400 3.0 and AS/ECON 2450 3.0, AS/ECON 3240 3.0 (or AS/ECON 3249 3.0) or equivalents, or permission of the instructor.

AS/ECON 4259 3.0 Health Economics. Addresses major issues regarding the cost and quality of health care, using theoretical and quantitative techniques drawn from welfare economics, project evaluation, microeconomics and financial analysis.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0, AS/ECON 2400 3.0 and AS/ECON 2450 3.0, AS/ECON 2500 3.0 and AS/ECON 3500 3.0.

Degree credit exclusions: AS/ECON 4960A 3.0, AK/ECON 3240 3.0, AK/ECON 3520 3.0.

AS/ECON 4279 3.0 Housing Economics. The course examines housing markets and housing policy. Models of demand, supply and housing market equilibrium are developed emphasizing the special characteristics of housing. Welfare economics is used to study the design of optimal policies.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 or equivalents or permission of the instructor.

AS/ECON 4309 3.0 Law and Economics. This is a course in the interrelationship of law and economics emphasizing the institutional setting of the economic system and the concepts of property rights and transaction costs.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 or equivalents or permission of the instructor.

Degree credit exclusion: AK/ECON 3800 3.0.

AS/ECON 4350 3.0 Advanced Topics in Industrial Organization. This course examines theories pertaining to industrial organization, and covers oligopoly, entry, vertical integration, product differentiation, advertising, innovation and market structure, and industrial organization in an open economy. Public policy is discussed where appropriate.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 or equivalents or permission of the course director.

AS/ECON 4379 3.0 Regulatory Economics. This course is an introduction to regulatory economics. While it uses problems common to Canadian public utilities for illustrative purposes, it is primarily theoretical in nature. Major areas of concentration are: determination of rate base; determination of rate of return; optimal tariff structure and problems of peak load-pricing.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 or equivalents or permission of the course director.

AS/ECON 4380 3.0 Public Choice Theory: The Economics of Politics. Public choice theory (the economics of politics) applies basic tools of microeconomics to answer questions central to political science. Special emphasis will be given to analyzing public choice in a direct democracy and in a representative democracy.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 or equivalents or permission of the instructor.

AS/ECON 4399 3.0 Topics in Law and Economics. Explores in detail such topics as damages *versus* specific performance, liquidation damages *versus* penalty clauses, the choice between strict liability and negligence in tort law, the different way different societies have solved the problem of law and order.

Prerequisite: AS/ECON 4309 3.0 or permission of the instructor.

AS/ECON 4400 3.0 Corporate Finance I. This course provides an introduction to the principles of finance and an examination of the financing and investment decisions of a business firm. Major topics are net present value, capital budgeting, efficiency of capital markets, treatment of risk, valuation of debt, dividend policy, short-term financing and financial strategy.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 or equivalents or permission of the course director.

Prerequisite or corequisite: AS/ECON 3580 3.0.

Degree credit exclusions: AK/ADMS 3530 3.0, AK/ADMS 4540 3.0 and AK/ECON 4080C 3.0.

AS/ECON 4410 3.0 Corporate Finance II. A continuation of AS/ECON 4400 3.0, this course examines topics like dividend policy; capital structure; the valuation corporate debt, other corporate liabilities (including leases) and options; merges, international finance and financial planning.

Prerequisite: AS/ECON 4400 3.0 or equivalent.

AS/ECON 4420 3.0 Topics in Corporate Finance. Selected topics in the economic analysis of financial markets, including choice-theoretic and statistical aspects of financial models. Possible topics include: intertemporal choice, economics of uncertainty, equilibrium models of money and risky assets, corporate financial policy, and the effects of inflation and taxation.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 or equivalents or permission of the instructor.

Recommended prior completions: AS/ECON 4400 3.0 and AS/ECON 3500 3.0 or equivalents.

AS/ECON 4500 3.0 Canadian Business Law I. An introduction to business law for economics students.

Prerequisites: AS/ECON 1000 3.0 and AS/ECON 1010 3.0 or equivalents.

Recommended prior completion: AS/ECON 4400 3.0.

Degree credit exclusions: AS/POLS 3165 6.0, AS/SOSC 3165 6.0, AK/ADMS 3610 3.0.

AS/ECON 4510 3.0 Canadian Business Law II. Advanced Canadian business law for economics students.

Prerequisite: AS/ECON 4500 3.0 or permission of the course director.

Degree credit exclusions: AS/POLS 3165 6.0, AS/SOSC 3165 6.0, AK/ADMS 3620 3.0.

AS/ECON 4619 3.0 Economic Planning and Development in India. Examines India's economic development under national planning since the fifties. The treatment is historical and analytical in terms of the underlying planning models and methodologies, sectoral goals, strategies and performance. Economic issues are explored in the larger socio-political context.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0, AS/ECON 2400 3.0 and AS/ECON 2450 3.0, AS/ECON 3310 3.0 and AS/ECON 3320 3.0 or equivalents or instructor's permission.

AS/ECON 4629 3.0 Distribution and Growth in an Evolving Socialist Economy. Effective demand in socialist economy is analyzed in conjunction with systemic difficulties. Acceleration of growth and the low efficiency of factors of production an obstacle to maximization of consumption. Technical progress, its difficulties and constraints. Inflations in socialism, its systemic causes.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0 or equivalent.

AS/ECON 4960 3.0 or 4969 3.0 Selected Topics in Economics I. In any given year, additional courses may be offered. Information concerning these will be available at the departmental office in March of the preceding year.

AS/ECON 4970 3.0 Selected Topics in Economics II. In any given year additional courses may be offered. Information concerning these will be available at the departmental office in March of the preceding year.

AS/ECON 4980 3.0 or 4989 3.0 Guided Research I. This course permits students to undertake special programs of private studies under the guidance of any instructor.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0, AS/ECON 2400 3.0 and AS/ECON 2450 3.0 or equivalents.

Note: Consult the Faculty of Arts Academic Advising and Student Responsibility section for regulations on independent reading courses.

AS/ECON 4990 3.0 or 4999 3.0 Guided Research II. This course permits students to undertake special programs of private studies under the guidance of any instructor.

Prerequisites: AS/ECON 2300 3.0 and AS/ECON 2350 3.0, AS/ECON 2400 3.0 and AS/ECON 2450 3.0, or equivalents.

Note: Consult the Faculty of Arts Academic Advising and Student Responsibility section for regulations on independent reading courses.

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Economics and Business – Arts

Program Office:
(Department of Economics)
1144 Vari Hall, 416-736-5322
Director of the Program:
TBA
Professors:
E. Appelbaum, L. Danziger, S. Donnenfeld, J. Landa, C. Plourde, J. Smithin
Professors Emeriti:
J.A. Buttrick, G.V. Doxey, H. Flakierski, F. Lefeber, P. Medow, J. Ridpath, A.J. Robinson, H. Schwartz, T. Sekine, R. Thakkar
Associate Professors:
M. Anam, J. Beare, S. Bucovetsky, K. Carpenter, M.D.G. Copeland, S.H. Chiang, A. Cohen, G. Fallis, R. Grinspun, A. Haug, W.M. Ho, J. Jasiak, N. Jazairi, R. Latham, F. Lazar, K.C. Lo, A. Mansoorian, G.H .McKechnie, P. Rilstone, A.A. Shapiro, J.B. Smith
Assistant Professors:
A. Akyol, S. Alan, R.K. House, K. MacKinnon

Note: For specific requirements of this program, consult the Faculty of Arts Programs of Study section of this Calendar.

Courses in Economics and Business

Not all of the courses listed below will necessarily be offered in any given year. For details of courses to be offered, please consult the economics and business supplemental calendar.

Subject to degree credit exclusion and in-Faculty regulations, and with the approval of the program coordinator, students may take courses at the Faculties of Atkinson, Fine Arts or Glendon for major credit in economics and business.

Prerequisite Courses

AS/ECON 1000 3.0 Introduction to Microeconomics, or equivalent.
AS/ECON 1010 3.0 Introduction to Macroeconomics, or equivalent.
AS/ECON 1530 3.0 Introductory Mathematics for Economists I, or equivalent.
AS/ECON 1540 3.0 Introductory Mathematics for Economists II, or equivalent.

Core Courses

AK/AS/SC/COSC 1520 3.0 Introduction to Computer Use I.
AK/AS/SC/COSC 1530 3.0 Introduction to Computer Use II.

or

AK/AS/SC/COSC 1020 3.0 Introduction to Computer Science I.
AK/AS/SC/COSC 1030 3.0 Introduction to Computer Science II.
AS/ECON 3580 3.0 Introductory Financial Accounting for Economists.
AS/ECON 3590 3.0 Introductory Managerial Accounting for Economists.
AS/ECON 2300 3.0 Intermediate Microeconomics Theory I.
AS/ECON 2350 3.0 Intermediate Microeconomics Theory II.
AS/ECON 2400 3.0 Intermediate Macroeconomics Theory I.
AS/ECON 2450 3.0 Intermediate Macroeconomics Theory II.
AS/ECON 2500 3.0 Introductory Statistics for Economists (or approved equivalent courses).
AS/ECON 3500 3.0 Introductory Mathematical Statistics for Economists (or approved equivalent courses).
AS/ECON 3140 3.0 Monetary Economics.
AS/ECON 4200 3.0 International Monetary Economics.
AS/ECON 4400 3.0 Corporate Finance I.
AS/ECON 4500 3.0 Canadian Business Law I.
AS/MATH 2580 6.0 Mathematics of Investment and Actuarial Science.

Areas of Concentration

Students will select at least 18 credits from one of the following areas of concentration:

1. Business Mathematics

Computer Science Option

The general prerequisites for AK/AS/SC/COSC 2001 3.0, AK/AS/SC/COSC 2011 3.0 and AK/AS/SC/COSC 2021 3.0 are: AK/AS/SC/COSC 1020 3.0 and AK/AS/SC/COSC 1030 3.0 or equivalent; AK/AS/SC/MATH 1090 3.0 or equivalent; and a cumulative grade point average of at least 4.5 on all completed computer science courses.

The general prerequisites for 3000-level COSC courses are: AK/AS/SC/COSC 2011 3.0 or equivalent; one of AK/AS/SC/COSC 2001 3.0, AK/AS/SC/COSC 2021 3.0 or AK/AS/SC/COSC 2031 3.0, or equivalent; AK/AS/SC/MATH 1300 3.0 and AK/AS/SC/MATH 1310 3.0 or equivalent; one of AK/AS/SC/MATH 2090 3.0, AK/AS/SC/

MATH 2221 3.0, AK/AS/SC/MATH 2320 3.0, AK/MATH 2442 3.0 or equivalent; and a cumulative grade point average of at least 4.5 on all completed computer science courses. For specific course prerequisites, please refer to the computer science listings in the Courses of Instruction section of this Calendar.

The general prerequisites for 4000-level COSC courses are: AK/AS/SC/COSC 2001 3.0 or equivalent; AK/AS/SC/COSC 2011 3.0 or equivalent; AK/AS/SC/COSC 2021 3.0 or AK/AS/SC/COSC 2031 3.0 or equivalent; at least 12 credits in computer science at the 3000 level; AK/AS/SC/MATH 2090 3.0 or equivalent; and a cumulative grade point average of at least 4.5 on all completed computer science courses. For specific course prerequisites, please refer to the computer science listings in the Courses of Instruction section of this Calendar.

Note: To satisfy the prerequisites for courses in Operations Research and Actuarial Mathematics students may, with the permission of the director of the program, substitute AK/AS/SC/MATH 1300 3.0 and AK/AS/SC/MATH 1310 3.0 plus AK/AS/SC/MATH 2221 3.0 for AS/ECON 1530 3.0 and AS/ECON 1540 3.0 as part of their program prerequisite course requirements.

AK/AS/SC/COSC 2001 3.0 Introduction to Theory of Computation.
AK/AS/SC/COSC 2011 3.0 Fundamentals of Data Structures.
AK/AS/SC/COSC 2021 3.0 Computer Organization.
AK/AS/SC/COSC 3101 3.0 Design and Analysis of Algorithms.
AK/AS/SC/COSC 3121 3.0 Introduction to Numerical Computations I.
AK/AS/SC/COSC 3122 3.0 Introduction to Numerical Computations II.
AK/AS/SC/COSC 3211 3.0 Data Communication.
AK/AS/SC/COSC 3212 3.0 Computer Networks.
AK/AS/SC/COSC 3311 3.0 Software Design.
AK/AS/SC/COSC 3331 3.0 Object-Oriented Programming and Design.
AK/AS/SC/COSC 3341 3.0 Introduction to Program Verification.
AK/AS/SC/COSC 3402 3.0 Introduction to Concepts of Artificial Intelligence.
AK/AS/SC/COSC 3408 3.0 Simulation of Discrete Systems.
AK/AS/SC/COSC 3418 3.0 Simulation of Continuous Systems.
AK/AS/SC/COSC 3421 3.0 Introduction to Database Systems.
AK/AS/SC/COSC 4111 3.0 Automata and Computability.
AK/AS/SC/COSC 4401 3.0 Artificial Intelligence.
AK/AS/SC/COSC 4411 3.0 Database Management Systems.
AK/AS/SC/COSC 4431 3.0 Computer Graphics.
AK/AS/SC/COSC 4441 3.0 Human-Computer Interaction.

Econometrics/Mathematics Option

AS/ECON 4210 3.0 Econometrics.
AS/ECON 4220 3.0 Econometric Theory.
AK/AS/SC/MATH 3170 6.0 Operations Research I.
AS/SC/MATH 3280 6.0 Actuarial Mathematics.
AS/SC/MATH 4170 6.0 Operations Research II.

2. Financial Analysis

AS/ECON 3200 3.0 Industrial Organization.
AS/ECON 3240 3.0 or 3249 3.0 Labour Economics — Theory.
AS/ECON 3250 3.0 or 3259 3.0 Labour Economics — Institutions.
AS/ECON 4070 3.0 Public Finance I.
AS/ECON 4080 3.0 Public Finance II.
AS/ECON 4210 3.0 Econometrics.
AS/ECON 4410 3.0 Corporate Finance II.
AS/ECON 4420 3.0 Topics in Corporate Finance.
AS/ECON 4510 3.0 Canadian Business Law II.

Notes concerning Atkinson administrative studies courses: The prerequisite for most Atkinson administrative studies courses listed below (AK/ADMS) is AK/ADMS 2000 6.0 or AK/ADMS 1000 3.0 or AK/ADMS 2000 3.0.

AK/ADMS 3510 3.0 Managerial Cost Accounting and Analysis.
AK/ADMS 3585 3.0 Intermediate Financial Accounting I.
AK/ADMS 3595 3.0 Intermediate Financial Accounting II.
AK/ADMS 4500 3.0 Investment Analysis and Portfolio Management.
AK/ADMS 4510 3.0 Contemporary Issues in Accounting.
AK/ADMS 4520 3.0 Advanced Financial Accounting I.
AK/ADMS 4530 3.0 Advanced Financial Accounting II.
AK/ADMS 4551 3.0 The Audit Process.
AK/ADMS 4552 3.0 Information Systems Audit.
AK/ADMS 4553 3.0 Auditing: Advanced Topics.
AK/ADMS 4561 3.0 Taxation of Personal Income in Canada.
AK/ADMS 4562 3.0 Corporate Income Taxation in Canada.
AK/ADMS 4570 3.0 Management Planning and Control Systems.

3. International Economics and Business

AS/ECON 3310 3.0 Development Economics I.
AS/ECON 3320 3.0 Development Economics II.
AS/ECON 3089 3.0 Economic History of the US: 1640-1860.
AS/ECON 3099 3.0 Economic History of the US: 1860-1940.
AS/ECON 3150 3.0 International Trade I.
AS/ECON 4190 3.0 International Trade II.
AS/ECON 4210 3.0 Econometrics.
AS/ECON 4239 3.0 Comparative Economic Systems.
AS/ECON 4619 3.0 Economic Planning and Development in India.
AS/ECON 4629 3.0 Distribution and Growth in an Evolving Socialist Economy.
AS/POLS 2210 6.0 Introduction to International Relations.
AS/POLS 3270 3.0 Global Political Economy I.
AS/POLS 3275 3.0 Global Political Economy II.
AS/POLS 4290 3.0 Topics in International Political Economy.
AS/POLS 4291 3.0 Capital and Power in Global Political Economy.

Language Option: six credits above the 1000 level in French studies or in languages, literatures and linguistics from an approved list published each year by the program.

History Option: six credits above the 2000 level in modern history from an approved list published each year by the program.

4. Labour Relations

AS/ECON 3240 3.0 or 3249 3.0 Labour Economics - Theory.
AS/ECON 3250 3.0 or 3259 3.0 Labour Economics - Institutions.
AS/ECON 4210 3.0 Econometrics.
AS/ECON 4240 3.0 Advanced Topics in Labour Economics.
AS/HIST 3531 6.0 Working Class in Canadian Society (cross-listed to: AS/SOSC 3210 6.0).
AS/HIST 4505 6.0 Canadian Labour and Immigration History.
AS/SOSC 2210 9.0 Labour Relations in Canada.
AS/SOSC 3130 6.0 Women and Work: Production and Reproduction (cross-listed to: AK/AS/GL/WMST 3510 6.0, AK/SOSC 3380 6.0).
AS/SOSC 3311 6.0 Communication in Organizations.
AS/SOSC 3380 6.0 Law, Labour and the State.
AS/SOSC 4210 6.0 Collective Bargaining Simulation.
AS/SOCI 3600 3.0 The Sociology of Work and Industry.
AS/SOCI 3610 3.0 Sociology of Occupations and Professions.
AS/SOCI 3620 6.0 Formal Organizations.

5. Public Policy

AS/ECON 3069 3.0 Canadian Economic Development Until the 1870s.

Degree credit exclusions: AS/HIST 3560 3.0, AK/ECON 3670 6.0.

AS/ECON 3079 3.0 Canadian Economic Development After 1870.

Degree credit exclusions: AS/HIST 3561 3.0, AK/ECON 3670 6.0.

AS/ECON 3200 3.0 Industrial Organization.
AS/ECON 3230 3.0 Urban Economics.
AS/ECON 4070 3.0 Public Finance I.
AS/ECON 4080 3.0 Public Finance II.
AS/ECON 4110 3.0 Regional Economics.
AS/ECON 4210 3.0 Econometrics.
AS/ECON 4220 3.0 Econometric Theory.
AS/ECON 4259 3.0 Health Economics.
AS/ECON 4279 3.0 Housing Economics.
AS/ECON 4309 3.0 Law and Economics.
AS/ECON 4350 3.0 Advanced Topics in Industrial Organization.
AS/ECON 4380 3.0 Public Choice Theory: The Economics of Politics.
AS/ECON 4399 3.0 Topics in Law and Economics.
AS/ECON 4510 3.0 Canadian Business Law II.
AS/HIST 3510 6.0 Canada: The Making of a Nation.
AS/HIST 3561 3.0 Business and Government in Canada since Confederation.

Degree credit exclusions: AS/ECON 3069 3.0 and AS/ECON 3079 3.0.

AS/HIST 3591 6.0 Politics, Law and the Constitution in Modern Canada.
AS/HIST 4520 6.0 The Persistence of Nationalism in Quebec.
AS/HIST 4550 6.0 Ontario in the 20th Century.
AS/HIST 4530 6.0 The Development of Toronto.
AS/POLS 2610 6.0 Public Policy and Administration.
AS/POLS 3110 3.0 Process of Urban Politics I.
AS/POLS 3115 3.0 Process of Urban Politics II.
AS/POLS 3140 3.0 Political Economy of Labour in Canada.
AS/POLS 3175 3.0 Provincial Politics.
AS/POLS 4120 3.0 Ontario and Quebec.
AS/POLS 4290 3.0 Topics in International Political Economy.
AS/POLS 4291 3.0 Capital and Power in Global Political Economy.

With the approval of the coordinator of the program, students may design their own area of concentration; such courses may be drawn from the offerings of any of the undergraduate Faculties.

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Education

Faculty Office:
  S835 Ross, 416-736-5001
Administrative Officers:
  P. Axelrod, Dean; A. Pitt, Associate Dean (Pre-service); S. Alsop, Associate Dean (Field Development); C. Haig-Brown, Director, Graduate Program in Education; B. Denman, Coordinator, Education of Deaf and Hard of Hearing Students; M. Perry, Director of Student Programs
Professors:
  P. Axelrod, J. Bell, D. Britzman, G. Bunch, C. Ewoldt, L. Heshusius, R. Owston, S. Shapson
Professors Emeriti:
  M. McCarthy, S. Robbins
Associate Professors:
  S. Alsop, D. Cook, W. Crichlow, D. Dippo, E. Fine, A. Griffith, C. Haig-Brown, M. Hughes, N. Israelite, C. James, D. Khayatt, H. Lotherington, J. Mannette, M. Morbey, S. Murphy, N. Norquay, G. Orpwood, A. Pitt, A. Pomson, R. Sanaoui, S. Schecter, H. Smaller, P. Solomon, K. Stanworth, C.A. Wien, D. Yon
Associate Professor Emeritus:
  S. Eden
Assistant Professors:
  S. Dion, R. Dunlop, G. Frempong, S. Gaetz, J. Jenson, I. Killoran, M. Marcuzzi, D. Mason, J. Sheridan, M. Sinclair, S. Todd

Host School Boards

  Dufferin-Peel Catholic District School Board
  Durham District School Board
  Durham Catholic District School Board
  Halton District School Board
  Halton Catholic District School Board
  Peel District School Board
  Simcoe District School Board
  Simcoe Muskoka Catholic District School Board

  Toronto Catholic District School Board
  Toronto District School Board
  York Region District School Board
  York Catholic District School Board
  Board of Jewish Education

Course Numbering

Letter prefixes are used in each course to identify the Faculty of Education (ED) and the subject area of the course (PRJM – primary/junior math; VISA – visual arts). A typical course number reads as follows ED/PRJM 3030 3.0 – Teaching Mathematics in the Primary/Junior Divisions.

The majority of courses offered by the Faculty of Education are practicum/seminars. They involve teaching experience in schools as well as a weekly seminar on campus. For all practicum/seminars, the third digit of the course number denotes the school division level of the practicum:

  3020 - junior and intermediate divisions
  3030 - primary and junior divisions
  3040 - intermediate division
  3050 - senior division

All courses are numbered at the 3000 level other than the education I common year courses and ED/HEB 2030 3.0.

Note: The Faculty reserves the right not to offer courses in particular sessions without advance notice.

Course Descriptions

ED/BIOL 3040 3.0 Teaching Biology in the Intermediate Division. A theoretical and practical introduction to instruction in intermediate division biology including a consideration of methods and materials in a laboratory or field setting.

ED/BIOL 3050 3.0 Teaching Biology in the Senior Division. A theoretical and practical introduction to instruction in senior division biology including a consideration of methods and materials in a laboratory or field setting.

ED/CHEM 3040 3.0 Teaching Chemistry in the Intermediate Division. Methods and materials suited to the teaching of science in the intermediate division are emphasized.

ED/CHEM 3050 3.0 Teaching Chemistry in the Senior Division. Methods and materials suited to the teaching of science in the senior division are emphasized.

ED/CMYR 2000 6.0 Common Year Practicum/Seminar. This practicum/seminar, an introduction to education, gives an overview of school curricula with particular emphasis on the integration of various subjects. Investigation and observation of child development and teaching and learning styles are integral components. The practicum provides opportunities for candidates to apply and experience teaching techniques in classroom situations. Seminars include opportunities for discussion and application of both educational theory and practice.

ED/CMYR 2400 3.0 Communication and the Education Process. This course focuses on the nature of communication in pluralistic societies, that is, in societal contexts characterized by linguistic and cultural diversity. Emphasis is on the social uses of speaking and writing and interpreting what is being communicated in school and classroom settings. Course content and organization are premised on a developmental and sociolinguistic viewpoint toward communication that recognizes the interdependence of language with cultural and social structures. Issues of bilingual and multilingual learners will be addressed.

ED/CMYR 2500 3.0 Socialization and Human Development. This course reviews modern theories of child development and developmentalism more generally as an approach to understanding thinking, learning and identity formation. Curricular and pedagogical implications for students and teachers as learners are explored. Issues in special education will be addressed. Complementary and/or alternative perspectives and critiques of developmentalism including those originating in sociology, feminism, indigenous and ecological world views, psychoanalysis and postmodernism may also be considered.

ED/COST 3040 3.0 Teaching Computer Studies in the Intermediate Division. An examination of the computer studies curriculum of the intermediate division and of the methods, hardware and software used to teach it. Course design and evaluation are also considered.

ED/COST 3050 3.0 Teaching Computer Studies in the Senior Division. Building upon the knowledge and experience gained in ED/COST 3040 3.0 and the Intermediate practicum, this course examines methods and materials suitable for teaching computer studies in the senior division.

ED/DANC 3040 3.0 Teaching Dance in the Intermediate Division. The philosophy, methods and materials associated with teaching dance in the intermediate division with a focus on lesson and unit planning and evaluation.

ED/DANC 3050 3.0 Teaching Dance in the Senior Division. The philosophy, methods and materials associated with teaching dance to the adolescent. The course focuses on developing skills in teaching technique in several dance forms.

ED/DEVO 2500 3.0 Human Development through Fine Arts. The stages of human development are explained with respect to multiple intelligences, with emphasis on imaginal development through the fine arts. This course is a theoretical and practical study of how precepts and concepts of self and other are developed in adolescence through poetry, drama, dance, music and the visual arts. Required of all, and open only to, students in the Consecutive Program in Fine Arts Education (J/I).

ED/DRAM 3040 3.0 Teaching Dramatic Arts in the Intermediate Division. This course provides a theoretical/practical approach to the teaching of dramatic arts and the use of dramatic arts as a cross-curricular tool at the intermediate level.

ED/DRAM 3050 3.0 Teaching Dramatic Arts in the Senior Division. This course builds upon the theory and practice gained in ED/DRAM 3040 3.0. The course emphasizes the teaching and use of drama in the classroom at the senior level.

ED/EDUC 3000 3.0 Teaching Religious Education in the Catholic Schools. Using a combination of theology and appropriate teaching processes, this course prepares candidates in the elementary and secondary levels to teach religious education in the Catholic schools. Candidates study and reflect theologically on the basic phenomenon of religion as a human search for the absolute and for meaning in life. An examination of Catholicism as revelation in history which replies to, challenges, criticizes and deepens one's own basic search involves candidates in a study of the core content of the Christian mystery which they are to teach in the classroom. Confluent educational methods and curriculum programs are examined and practised in seminars.

Note: No tuition fees for those candidates for whom this course constitutes an education credit beyond the 30 credit minimum requirement. EDUC 3000 3.0 is a requirement for employment with the Toronto Catholic District School Board. Please check whether this is a requirement for other Catholic boards where employment is being sought.

ED/EDUC 3310 3.0 The Adolescent and the Teacher. This course addresses a range of issues related to teaching and learning in a secondary school environment. Theories of adolescent development, identity formation, social and cultural production and reproduction are examined with specific reference to high school curriculum and pedagogy. Of particular interest are contemporary perspectives on the relationship between identity formation and popular culture and the implications of these perspectives for high school teachers. Issues in special education will be addressed.

ED/EDUC 3400 3.0 Models of Education. This interdisciplinary course explores the interrelationships among theories of knowledge, theories of learning, conceptions of curriculum and approaches to pedagogy in the context of a broad inquiry into the aims and purposes of schooling. Emphasis is placed on the analysis and critique of fundamental commitments and underlying assumptions of various approaches to education.

ED/ENGL 3040 3.0 Teaching English in the Intermediate Division. The emphasis in this course includes methods and techniques for the improvement of reading, writing, listening and speaking skills and the teaching of literature, creative writing, theatre arts and grammar. Candidates also study the evaluation of student writing at the intermediate level.

ED/ENGL 3050 3.0 Teaching English in the Senior Division. This course continues in more depth genre studies outlined in ED/ENGL 3040 3.0, focusing on poetry, fiction, drama and expressive writing. There is further emphasis on pedagogic techniques especially suitable for teaching literature. Candidates also consider methods of teaching grammar and composition, the evaluation of student writing at the secondary school level and the design of aspects of curriculum.

ED/FINA 3330 6.0 Social Foundations of Fine Arts Education. An historical, philosophical, sociological and comparative context for understanding the theory and practice of fine arts education at the elementary and secondary levels. Emphasized are concepts and principles relevant to the fine arts within the current Ontario system as well as classroom practice of education in the fine arts: in particular, issues of equity in education, the role of the arts in broadening conceptions of culture relevant to student, teacher and community. Requisite materials on Ontario school law and administration as well as rights and responsibilities are included.

ED/FINA 2400 3.0 The Arts and Ideas in Education. The course will provide an approach to Communication and the Education Process, ED/CMYR 2400 3.0, with a special focus on the fine arts. It will build on each student's individual experiences in a particular area of fine arts education (dance, drama, music, or visual arts) as developed in his/her practicum seminar amplifying these experiences to comprise the other arts.

ED/FNDS 3330 3.0 Aspects of the Foundations of Education. This interdisciplinary course examines the social, historical and political context of education in general with specific reference to the development of systems of compulsory public schooling in Canada. The relationships among formal education, economic inequality and social reform are explored. Requisite materials on Ontario school law, school organization and administration, professional rights and responsibilities, and the role of teachers' federations are included.

ED/FREN 3040 3.0 Teaching French in the Intermediate Division. A theoretical and practical introduction to second language pedagogy with special emphasis on the methods and materials used to teach and test the four language skills. Performance and application are stressed through micro-teaching and instructional materials preparation.

ED/FREN 3050 3.0 Teaching French in the Senior Division. Theoretical and practical work in second language pedagogy at the secondary school level, with special emphasis on testing, evaluation and the integration of culture into the language program. Familiarization with ministry-approved texts.

ED/GEOG 3040 3.0 Teaching Geography in the Intermediate Division. Methods and materials suited to the teaching of geography at the intermediate level are examined along with study topics such as lesson and unit planning, evaluation and field trips.

ED/GEOG 3050 3.0 Teaching Geography in the Senior Division. Building upon ED/GEOG 3040 3.0 and the intermediate practicum, this course examines methods and materials suitable for senior division geography.

ED/HEB 2030 3.0 Teaching Hebrew and Jewish Studies I. An introduction to the Jewish community of Canada and its school system, as well as to methods of teaching Hebrew as a second language, Hebrew reading, customs and ceremonies.

Note: Open to candidates in Judaic studies option.

ED/HEB 3030 3.0 Teaching Hebrew and Jewish Studies II. A seminar in the teaching of Hebrew as a second language, Hebrew literature, Bible and Biblical Hebrew, and prayers in the Jewish schools and in individualizing of instruction and small group activities.

Note: Open to candidates in the Judaic studies option.

ED/HIST 3040 3.0 Teaching History in the Intermediate Division. Candidates analyze the history curriculum of the intermediate division and study the resources and methods needed to implement it imaginatively in units and in individual lessons.

ED/HIST 3050 3.0 Teaching History in the Senior Division. An examination of the history curriculum of the senior division and of the methods and materials that could be used to teach it. Curriculum design and evaluation are also considered.

ED/IMST 3040 6.0 Teaching Mathematics, Science and Technology in the Intermediate Division. This course provides a practical and conceptual introduction to the teaching of mathematics, science and technology to students in Grades 7 through 10. It is designed to assist teacher candidates to develop their knowledge and skills as reflective teachers, as well as familiarize them with issues of equity.

ED/INDS 3900 3.0/3900 6.0 Independent Study. This course provides supervised study for candidates with a special interest. The course should be arranged with one's adviser and an appropriate course director, and is subject to the approval of the Curriculum Committee of the Faculty. Submissions of independent study course approval requests must be made to the Curriculum Committee by February 28 of the academic year preceding the intended year of enrolment.

ED/INLE 2200 3.0 Inquiries into Learning. Drawing on several fields of study, this course explores two questions: What theories of learning influence pedagogical structures? How have theories of learning affected understandings of ourselves and others, thinking about conditions for learning, and the imperatives of institutions and communities.

Note: This course should be taken in ED I.

ED/INSL 2300 3.0 Inquiries into Schooling. Forms of schooling across a range of historical and contemporary contexts are introduced. Central considerations include what counts as school knowledge, the assumptions undergirding schooling conventions, and the ways these conventions are instantiated.

Note: This course should be taken in ED II.

ED/INSO 3040 3.0 Teaching Individual and Society in the Intermediate Division. Methods and materials suited to teaching individual and society at the intermediate division level are examined along with the study of lesson and unit planning and evaluation.

ED/INSO 3050 3.0 Teaching Individual and Society in the Senior Division. Methods and materials suited to teaching individual and society at the senior division level are examined along with the study of lesson and unit planning and evaluation.

ED/INTG 3020 3.0 Integration Through the Arts in the Junior/Intermediate Divisions. This course provides a study of the pedagogy, theory and practice related to the teaching of integrated fine arts in the classroom. Candidates will study and apply in their practicum settings the teaching of a range of core subjects at the Grades 4 to 8 level, with special emphasis on the role of arts as a resource for integrating and teaching a range of subject matter.

ED/ITAL 3040 3.0 Teaching Italian in the Intermediate Division. This course deals with the teaching of the four language skills at a beginner's level, with emphasis on developing communicative competence. Different theoretical and practical aspects of second language pedagogy are covered: various methods of language teaching, preparation of diversified teaching material, classroom techniques, integration of culture into the language program, testing and evaluation. Special attention is given to the problem of teaching standard Italian to dialect speakers. Candidates become familiar with ministry-approved texts.

ED/ITAL 3050 3.0 Teaching Italian in the Senior Division. This course builds upon and extends knowledge and experience gained in ED/ITAL 3040 3.0.

ED/JICO 3020 3.0 Teaching and Curriculum in the Junior/Intermediate Divisions. Candidates study and apply in their practicum settings the teaching of a range of core subjects at the Grades 4 to 8 level, with special emphasis on Grades 7 and 8. Attention is given to the highlights of curriculum and pedagogy in various subject areas, with emphasis on the integration of subjects within the intermediate curriculum. Attention is also given to socio-emotional and cognitive issues in early adolescence.

ED/JILA 3020 3.0 Teaching Language in the Junior/Intermediate Divisions. This course is intended to develop an understanding of how students in the junior and intermediate divisions gain facility in reading, writing, speaking and listening. The focus is on exploring current thinking about the language processes and the implications of these insights for instructional practice.

ED/JIMA 3020 3.0 Teaching Mathematics in the Junior/Intermediate Divisions. A study of methods for teaching mathematics in the junior and intermediate divisions. Emphasis is placed on the use of materials, relating mathematics to the rest of the curriculum and developmental stages of students.

ED/JMST 3020 3.0 Teaching Mathematics, Science and Technology in the Junior Division. This course provides a practical and conceptual introduction to the teaching of mathematics, science and technology to students in Grades 4 through 6. Emphasis is placed on the importance of students' mathematical and scientific understanding.

ED/MATH 3040 3.0 Teaching Mathematics in the Intermediate Division. The practicum is concerned with assessing students' needs, creating and implementing projects to satisfy these needs, and evaluating their success. The seminar supplements the practicum by discussing materials, resources and methods suited to mathematics teaching.

ED/MATH 3050 3.0 Teaching Mathematics in the Senior Division. This course builds upon and extends knowledge and experience gained in ED/MATH 3040 3.0. In addition, various themes (e.g. applications, cultural aspects of mathematics) and their relation to the classroom experience may be discussed.

ED/MUSI 3040 3.0 Teaching Music in the Intermediate Division. This course examines the philosophy and methods of music education in relation to students in the intermediate division.

ED/MUSI 3050 3.0 Teaching Music in the Senior Division. Building upon ED/MUSI 3040 3.0 and the intermediate practicum, this course examines methods suitable for senior division music.

ED/PHED 3040 3.0 Teaching Physical Education in the Intermediate Division. This course develops a point of view about the teaching of physical education by considering ways in which children learn, and stages in their growth and development. It relates these to the intermediate division curriculum and to program content and lesson planning.

ED/PHED 3050 3.0 Teaching Physical Education in the Senior Division. This course extends the philosophy developed in the intermediate practicum to the senior division. In addition, it emphasizes psychological aspects of learning, the teaching of health, administration of classes and the use of a variety of teaching styles.

ED/PHYS 3040 3.0 Teaching Physics in the Intermediate Division. A survey of modern physics curriculum, selection of teaching aids, materials and resources in physics instruction, design of modern physics laboratory program, and discussion of current research in teaching high school physics.

ED/PHYS 3050 3.0 Teaching Physics in the Senior Division. This course builds upon and extends knowledge and experience gained in ED/PHYS 3040 3.0.

ED/PJEP 3400 6.0 Teaching as Reflective Practice: Research Project. This course provides an opportunity for candidates with early childhood education diplomas within the Faculty of Education to generate a research project focused on teaching and learning. Using qualitative methods, the project will promote close examination of classroom practices as well as address issues of equity in the classroom as a route to expanding understanding and performance in teaching.

ED/PJFA 3500 3.0 Integrated Fine Arts. This course is designed to provide teacher candidates with a basic understanding of, and appreciation for, the components of an integrated fine arts program, that is, visual art, music, drama and dance. The main focus will be integration of the arts into the curriculum as a central and essential element of education for all children and will include issues of equity. Candidates will have the opportunity to develop personal as well as professional skills in fine arts.

ED/PJIE 3500 3.0 Inclusive Education in the Primary/Junior Divisions. An introduction to the policy and practice of inclusive education as it is presented in Ontario schools will be provided in this course. Candidates will have an opportunity to select a focus for inquiry and work directly with students to explore inclusive education in a broad sense.

ED/PJLC 3500 3.0 Literacy and Culture. This course investigates how children become literate and addresses issues of second language learning and culture in literacy development. It will pursue successful practices for literacy development while exploring issues of diversity.

ED/PJMS 3500 3.0 Mathematics, Science and Technology. This course will examine how to incorporate mathematics, science and technology as basic dimensions of a balanced, equitable curriculum. The relationship of these disciplines to ecological literacy will be a major emphasis throughout the course.