AS/SC/KINE 4520 3.0 Advanced Seminar in Sport Psychology. The course provides an in-depth examination of selected topics in sport psychology: motivation, imagery, self-regulation and attention. The emphasis is on the application of mental training skills in sport settings. Three lecture hours per week. One term.

Prerequisite: AS/SC/KINE 3090 3.0 or permission of the course director.

AS/KINE 4530 3.0 Sport Administration Fieldwork Placement. Students spend a minimum of 40 hours working in an administrative setting related directly to the area of sport administration. The practical experience is supported by lectures, seminars, reports and readings. Three hours per week. One term.

Prerequisites: AS/KINE 3490 3.0; students must be in the Sport Administration Certificate Program.

AS/SC/KINE 4545 6.0 Sport Administration Applied Research Perspectives. This course provides students with an overview of selected current issues facing organizations in the sport industry as well as a grounding in social research methods. Students conduct applied research addressing problems faced by sport organizations. Three lecture hours per week. Two terms.

Prerequisites: AS/SC/KINE 2050 3.0 or equivalent; AS/KINE 2380 3.0; AS/KINE 3240 3.0; AS/KINE 3490 3.0; AS/KINE 3510 3.0.

AS/SC/KINE 4550 6.0 Coaching Field Experience. The student works with a mentor coach for a complete sport season and submits a comprehensive log book. The field experience includes physiological testing, videotape analysis and three other coaching tasks. Three hours per week. Two terms.

Prerequisites or corequisites: AS/SC/KINE 4610 3.0. Open only to students in the Coaching Certificate Program.

AS/KINE 4560 3.0 Physical Activity and Children: Pedagogy. This course examines teaching methods available for people working in a physical activity setting with children. Emphasis is placed on the core program components of dance, games and gymnastics. Curriculum and lesson planning for school based physical education is included. Two lecture hours and two laboratory hours per week. One term.

Prerequisite: AS/SC/KINE 3340 3.0.

Degree credit exclusion: AS/KINE 3520 6.0.

AS/SC/KINE 4570 3.0 Sports Injury Assessment. An advanced course in the recognition and assessment of common athletic injuries. The course emphasizes a detailed understanding of surface anatomy and landmarking, injury mechanics and assessment techniques, and the implications of injury to a body part. Two lecture hours and one laboratory session per week. One term.

Prerequisites: AS/SC/KINE 3450 3.0; AS/SC/KINE 3600 3.0; current CPR and first aid; clinical and field experience. Open only to students in the Athletic Therapy Certificate Stream.

Prerequisite or corequisite: AS/SC/KINE 3460 3.0.

AS/SC/KINE 4580 3.0 Treatment and Rehabilitation of Sports Injuries. An advanced course in the treatment and rehabilitation of common athletic injuries including generalized body reactions to injury, specific tissue responses to trauma, the immediate treatment of injuries, the long-term rehabilitation of injuries, and the use of modalities. Two lecture hours and two laboratory hours per week. One term.

Prerequisites: AS/SC/KINE 4570 3.0; current CPR and first aid; clinical and field experience. Open only to students in the Athletic Therapy Certificate Stream.

AS/SC/KINE 4590 6.0 Athletic Therapy Seminar. An advanced-level course in athletic therapy applying theoretical background to sport-related injuries and rehabilitation. Two seminar hours per week plus extra out-of-class hours. Two terms.

Prerequisites: AS/SC/KINE 3450 3.0; AS/SC/KINE 3460 3.0; AS/SC/KINE 3600 3.0; AS/SC/KINE 4570 3.0; AS/SC/KINE 4580 3.0. Open only to students in the Athletic Therapy Certificate Stream or with permission of the course director.

Prerequisite or corequisite: AS/SC/KINE 3585 3.0.

AS/SC/KINE 4595 3.0 Ethics for Kinesiology and Health. This course provides grounding in ethical theories and approaches, and applies ethical paradigms to issues in kinesiology and health science. Two lecture hours and one seminar hour per week. One term.

Prerequisite: AS/SC/KINE 1000 4.0.

AS/SC/KINE 4600 3.0 Coaching: Science and Methodology. The course focuses on coaching methodology and scientific principles applied to coaching. Methodology includes planning, conducting and evaluating training sessions, and time, stress and team management. Systems of training, scientific conditioning methods and other influences on conditioning and performance are included. Three lecture hours per week. One term.

Prerequisites: AS/SC/KINE2475 3.0; AS/SC/KINE 3610 3.0.

Note: Levels I, II and III Theory of the National Coaching Certification Program are granted with the successful completion of AS/SC/KINE 3610 3.0 and AS/SC/KINE 4600 3.0.

AS/SC/KINE 4610 3.0 Advanced Coaching Seminar. The course consists of selected topics in coaching. A review of the literature with an application to coaching is presented from the areas of psychology, physiology,

sociology, sports management etc. Guest lecturers and symposiums are featured. Three hours per week. One term.

Prerequisites: AS/SC/KINE 3610 3.0; AS/SC/KINE 4600 3.0.

AS/KINE 4620 3.0 Counselling Skills for Kinesiology and Health Science. This course provides a theoretical basis of behaviour, attitude change and motivation as it pertains to fields related to kinesiology and health science. Practice of the counselling skills with supervised auditory and visual feedback is provided. Two lecture hours and one tutorial hour per week. One term.

Prerequisite: AS/SC/PSYC 1010 6.0.

Degree credit exclusion: AS/PHED 4620 3.0.

AS/SC/KINE 4630 3.0 Olympic Movement and Its Influence On Canadian Sport. This course analyzes the historical origin and evolution of the world's largest sport spectacle. The Olympics have blended political games and secularized ideals with athletics. Students assess the consequences of its domination over Canadian high-performance sport. Three lecture hours per week. One term.

Prerequisites: AS/KINE 3430 3.0; AS/KINE 3440 3.0.

AS/SC/KINE 4640 3.0 Lifestyle and Current Health Issues. This course explores the relationship between health knowledge, health attitudes and health actions of individuals in modern society. Decision-making processes are investigated relative to levels of growth and development and the quality of interactions in a variety of environments. Three lecture hours per week. One term.

Prerequisite: AS/SC/KINE 2020 3.0.

AS/SC/KINE 4660 3.0 Exercise and Addictive Behaviours. This course examines a variety of topics in the area of exercise and health psychology with a particular emphasis on the adaptive and maladaptive aspects of exercise, as well as on issues concerning body image, food intake and eating disorders. Three lecture hours per week. One term.

Prerequisites: AS/SC/PSYC 1010 6.0; AS/SC/KINE 2020 3.0.

AS/SC/KINE 4710 3.0 Psychology of Health and Chronic Disease. This course explores the role of psychological variables in the development, progression and treatment of chronic diseases such as coronary heart disease, cancer and AIDS. Other critically reviewed topics include stress, substance abuse (smoking and alcohol), and injury and violence. Three lecture hours per week. One term.

Prerequisite: AS/SC/PSYC 1010 6.0.

Degree credit exclusions: AS/SC/KINE 4050D 3.0, AK/AS/SC/PSYC 3170 3.0, AK/AS/SC/PSYC 3440 3.0.

AS/SC/KINE 4800 3.0 Human Cadaver Dissection. (formerly AS/SC/KINE 4050B 3.0 — before Summer 2000) Human cadaver dissection is a laboratory course in which students dissect an anatomical region on a

human cadaver. Twenty hours of supervised instruction; 40 hours of self-directed dissection. One term.

Prerequisites: AS/SC/KINE 2031 3.0; AS/SC/ KINE 3460 3.0; AS/SC/KINE 3465 3.0.

Degree credit exclusion: AS/SC/KINE 4050B 3.0.

Note: This course is held off-campus. Consult the Kinesiology and Health Science Program for further details.

AS/SC/KINE 4900 3.0 Exercise Therapy for Chronic Diseases. An overview of the use of exercise and physical activity in the evaluation and treatment of a variety of chronic diseases and disabilities. Three lecture hours per week. One term.

Prerequisite: AS/SC/KINE 4010 3.0.

Degree credit exclusions: AS/SC/KINE 4050E 3.0 (Fall/Winter 2000-2001).

Kinesiology and Health Science Practicum Program

All students enrolled in Kinesiology and Health Science programs must complete the practicum core, which consists of two practicum credits in each of the following six areas: gymnastics/ dance, aquatics, team sports, individual and dual sports, track and field, and emergency care, for a total of 12 practicum credits. Students in the Health and Kinesiology Stream must complete an additional six credits for a total of 18 practicum credits. Students in the Applied Certificate Stream must complete an additional four credits for a total of 16 practicum credits. A detailed description of the course offerings and requirements is available from the School of Kinesiology and Health Science.

Practicum Course List

While practicum courses are required of all kinesiology and health science students in order to graduate, they are not applied towards the academic degree requirements in kinesiology and health science.

In the case of practicum courses, the first digit of the course number indicates the practicum area, not the level of the course. The number which follows the four-digit course number in this Calendar indicates the number of practicum credits in the course. One practicum credit represents a total of 12 contact hours of sports activity or equivalent.

Practicum courses provide professional preparation for kinesiology and health science students and as such may require vigorous physical activity. It is strongly recommended that every student in the practicum program have a medical examination prior to participating. Students with disabilities are considered on a case-by-case basis.

Practicum courses are open to both men and women unless otherwise specified.

Dance/Gymnastics Courses

AS/SC/PKIN 1000 2.0 Basic Gymnastics.
AS/SC/PKIN 1001 2.0 Gymnastics I.
AS/SC/PKIN 1010 2.0 Gymnastics II.
AS/SC/PKIN 1040 2.0 Rhythmic Gymnastics I. (Women)
AS/SC/PKIN 5070 2.0 Ballroom Dance I.
AS/SC/PKIN 5075 2.0 Ballroom Dance II.
AS/SC/PKIN 5080 2.0 Folk and Social Dance.
AS/SC/PKIN 5085 2.0 Country Dance.
AS/SC/PKIN 5090 2.0 Jazz Dance I.
AS/SC/PKIN 5110 2.0 Modern Dance I.
AS/SC/PKIN 5200 2.0 African and Caribbean Dance.
AS/SC/PKIN 5900 2.0/5900 3.0/5900 4.0/5900 6.0 Special Topics: Dance.

Aquatics Courses

AS/SC/PKIN 2000 2.0 Swimming I.
AS/SC/PKIN 2010 2.0 Swimming II.
AS/SC/PKIN 2040 2.0 Lifesaving I.
AS/SC/PKIN 2050 2.0 Lifesaving II: Advanced Lifesaving.
AS/SC/PKIN 2060 4.0 Lifeguarding.
AS/SC/PKIN 2070 2.0 Skin and Scuba Diving.
AS/SC/PKIN 2080 2.0 Synchronized Swimming I. (Women)
AS/SC/PKIN 2090 4.0 Aquatic Instructor.
AS/SC/PKIN 2120 2.0 Water Polo I
AS/SC/PKIN 2900 2.0/2900 3.0/2900 4.0/2900 6.0 Special Topics: Aquatics.

Team Sports Courses

AS/SC/PKIN 3000 2.0 Basketball I.
AS/SC/PKIN 3010 2.0 Basketball II.
AS/SC/PKIN 3040 2.0 Field Hockey I.
AS/SC/PKIN 3050 2.0 Field Hockey II.
AS/SC/PKIN 3080 2.0 Football I.
AS/SC/PKIN 3090 2.0 Football II.
AS/SC/PKIN 3120 2.0 Hockey I.
AS/SC/PKIN 3130 2.0 Hockey II.
AS/SC/PKIN 3240 2.0 Rugby I.
AS/SC/PKIN 3280 2.0 Soccer I.
AS/SC/PKIN 3290 2.0 Soccer II: Coaching.
AS/SC/PKIN 3320 2.0 Volleyball I.
AS/SC/PKIN 3330 2.0 Volleyball II.
AS/SC/PKIN 3360 2.0 Beach Volleyball I.
AS/SC/PKIN 3400 2.0 Softball.
AS/SC/PKIN 3500 2.0 Team Handball I.
AS/SC/PKIN 3900 2.0/3900 3.0/3900 4.0/3900 6.0 Special Topics: Team Sports.

Individual and Dual Sports Courses

AS/SC/PKIN 4000 2.0 Tai Chi I.
AS/SC/PKIN 4010 2.0 Tai Chi II.
AS/SC/PKIN 4020 2.0 Yoga I.
AS/SC/PKIN 4030 2.0 Karate-Do I.
AS/SC/PKIN 4040 2.0 Aikido Yoshinkan.
AS/SC/PKIN 4100 2.0 Golf I.
AS/SC/PKIN 4110 2.0 Golf II.
AS/SC/PKIN 4150 2.0 Court Games.
AS/SC/PKIN 4210 2.0 Squash II.
AS/SC/PKIN 4350 2.0 Tennis I.
AS/SC/PKIN 4360 2.0 Tennis II.
AS/SC/PKIN 4370 2.0 Badminton I.
AS/SC/PKIN 4380 2.0 Badminton II.
AS/SC/PKIN 4500 2.0 Alpine Skiing I (Downhill).
AS/SC/PKIN 4510 2.0 Alpine Skiing II (Downhill).
AS/SC/PKIN 4520 2.0 Cross-Country Skiing I.
AS/SC/PKIN 4530 2.0 Cross-Country Skiing II: Skating Technique.
AS/SC/PKIN 4550 2.0 Mountain Biking.
AS/SC/PKIN 4600 2.0 Strength Training
AS/SC/PKIN 4900 2.0/4900 3.0/4900 4.0/4900 6.0 Special Topics: Individual Sports.

Track and Field Courses

AS/SC/PKIN 6000 2.0 Track and Field I.
AS/SC/PKIN 6010 2.0 Track and Field II.
AS/SC/PKIN 6900 2.0/6900 3.0/6900 4.0/6900 6.0 Special Topics: Track and Field.

Independent Studies Course

AS/SC/PKIN 7000 2.0 Independent Studies.

Emergency Care Courses

AS/SC/PKIN 7500 2.0 Emergency Care I.
AS/SC/PKIN 7600 2.0 Emergency Care II.

Additional Courses

AS/SC/PKIN 8040 2.0 Elementary and Recreational Games.
AS/SC/PKIN 8060 4.0 Personal Training.
AS/SC/PKIN 8140 4.0 Outdoor Pursuits: Camping I.
AS/SC/PKIN 8900 2.0/8900 3.0/8900 4.0/8900 6.0 Special Topics.

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Labour Studies – Arts

Program Office (Division of Social Science):
  S751 Ross 416-736-5054, ext. 20454
Coordinator of the Program:
  J. Kainer, Social Science

Labour studies explores the world of work and workers. Labour studies graduates go on to further education and employment in the trade union movement, private industry, government service, journalism, social work, law, teaching, and many other settings. After graduation, students may go on to postgraduate work in labour studies, industrial relations or human resource management, or to professional training in law and other fields.

Labour studies courses are offered through the Division of Social Science, as well as through various departments and divisions in the University. The following labour studies degree options are available: Honours BA, Honours Double Major BA, Honours Major/Minor BA, Honours Minor BA, and BA programs. All labour studies majors are strongly encouraged to enrol in the Labour Studies Work Placement (AS/SOSC 4240 6.0) in their final year. This six-credit course offers mentoring and experiential learning in a trade union or other field related setting.

Students majoring in labour studies should meet with the program coordinator each year to arrange their course selection. Students who do not attend advising appointments during the March/April advising period cannot be assured places in labour studies courses.

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

Courses in Labour 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 labour 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 labour studies.

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

Core Course:

AS/SOSC 2210 9.0 Labour Relations in Canada: An Introduction.

Optional Labour Studies Courses:

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 3210 6.0 The Working Class in Canadian Society (cross-listed to: AS/HIST 3531 6.0).
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 3380 6.0 Law, Labour and the State.
AS/SOSC 3990C 3.0 Strategies of Social Science Research.
AS/SOSC 3990Q 3.0 Unions, Workers and Democracy.
AS/SOSC 3990R 3.0 Diversity Issues at the Workplace.
AS/SOSC 3990T 3.0 Jobs, Unemployment and Canadian Labour Market Policy.
AS/SOSC 4210 6.0 Collective Bargaining Simulation.
AS/SOSC 4240 6.0 Labour Studies Work Placement.

Optional Related Courses:

Faculty of Arts

AS/ECON 3200 3.0 Industrial Organization.
AS/ECON 3240 3.0 Labour Economics: Theory.
AS/ECON 3250 3.0 Labour Economics: Institutions.
AS/HIST 4050C 6.0 Family, Work, and Community: Canadian Society in the 19th and 20th Centuries.
AS/HIST 4505 6.0 Canadian Labour and Immigration History (cross-listed to GL/HIST 4220 6.0).
AS/POLS 3140 3.0 Political Economy of Labour in Canada.
AS/POLS 4091 6.0 Contemporary Marxist Theory.
AS/POLS 4470 3.0 Working Class Politics in Capitalist Democracies (formerly AS/POLS 4710 3.0).
AS/PSYC 3570 3.0 Organizational Psychology.
AS/SOSC 3164 6.0 Occupational and Environmental Health.
AS/SOCI 3600 3.0 Sociology of Work and Industry.
AS/SOCI 3610 3.0 Sociology of Occupations and Professions.

AS/SOCI 4620 3.0 Issues in the Sociology of Work and Labour.
AS/WMST 3520 3.0 Women and the Professions.

Atkinson

AK/ADMS 2600 3.0 (various sections) Human Resource Management.
AK/ADMS 3400 3.0 Occupational Health and Safety.
AK/ECON 3610 3.0 Labour Economics.
AK/ECON 4160 3.0 Theory and Practice of Arbitration.
AK/SOSC 3410 6.0 Work and the Workplace (cross-listed to: AK/SOCI 3390A 6.0).

Schulich School of Business

Any undergraduate industrial relations course (permission required).

Students are advised to check departmental and divisional calendars for up-to-date listings, descriptions and prerequisites, and to discuss current course offerings and program requirements with the Labour Studies Program coordinator annually.

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Languages, Literatures and Linguistics – Arts

Department Office:
  S561 Ross, 416-736-5016
Web Address:
  http://dlll.yorku.ca/languages.html
Chair of the Department:
  N. Elson
Professors:
  M.B. Brown, S. Ehrlich, S. Embleton, G. Guy, R. King, D. Mendelsohn, R.W.F. Pope
Associate Professors:
  W.P. Ahrens, E. Anderson, D. Armborst, P. Avery, R. Bahry, M. Buccheri, E. Costa, J. Dingley, R. Fink, K.J. Golby, M .Lockshin, M. Magnotta, R.B. Marcus, B. Miller, J. Picchione, A. Shulman, R. Sinyor, I. Smith, A. Testaferri, J. Vizmuller-Zocco, M.J. Webber
Assistant Professors:
  P. Giordan, M. Jokiniemi, R. Scott, V.G. Stephens
Associate Lecturers:
  G. Colussi-Arthur, N. Elson, M. Frescura, L. Karumanchiri, I. Klein, N. Ota, L. Pietropaolo
Sessional Assistant Professor:
  M. Noonan, J. Walker
Faculty Members Emeriti:
  R. Belladonna, D. Holoch, M.L. Kay, L. Peña, H. Schueler, S.-Y. Tsau, P. Valle-Garay

The Department of Languages, Literatures and Linguistics offers courses in linguistics leading to an Honours BA or BA degree in linguistics. For course listings in linguistics, please see the Linguistics section. For specific requirements of these programs, please consult the Faculty of Arts Programs of Study section of this Calendar.

Courses in Language, Literature and Culture

Note: For specific requirements of degree programs in Chinese, German studies, Italian, Russian and Spanish, please consult the Faculty of Arts Programs of Study section of this Calendar.

Note: For specific requirements of certificate programs in Chinese, German, Hebrew and Judaic Studies, Italian, Japanese, Modern Greek, Portuguese, Russian, Spanish, and Teaching English to Speakers of Other Languages (TESOL), please consult the Faculty of Arts Programs of Study section of this Calendar or the departmental supplemental calendar.

General Regulations

1. Entry to Language Courses

Any student may enrol in a language course at any level, subject to the conditions enumerated below.

a)   Admission to a student's first course in a language at York is by placement questionnaire and/or interview, or departmental authorization slip.

b)   In most cases, students who have completed a 1000-level language course with a grade of at least C are automatically admissible to a course at the next level in the same language, but may be pre-tested for purposes of course or section placement.

c)   Registration in any language course may be limited at the discretion of the department.

d)   Students intending to major or minor in German, Italian, Russian, or Spanish are encouraged to begin study of the relevant language in their first year.

2. Credit for Language Courses

A language course may be taken for credit in any year of any undergraduate program. Credit is given for a course if a grade of D or better is achieved. However, to advance from one level to another level, a student must achieve at least a grade of C.

3. Entry to departmental literature and culture courses, and to the degree programs in Greek and Latin literature

a)   In literature and culture courses of the department, instruction is normally given in the relevant language, and entry to courses and programs depends upon the student's ability to function in that language. The department may require a student to demonstrate language competence before granting admission to a course. For details, please consult the department's supplemental calendar.

b)   For regulations concerning entry to courses in classical Greek or Latin literature, consult a member of the Program in Classical Studies.

Note: Not all courses will necessarily be offered in any given year; consult the department's supplemental calendar for details of courses to be offered.

Note: For a list of Atkinson courses which are degree credit exclusions, students should consult the degree credit exclusion/equivalent tables in

the Lecture Schedule or the departmental/ divisional supplemental calendars.

I. American Sign Language

AS/ASL 1000 6.0 American Sign Language, Level I: Introduction to Sign Language Studies. American Sign Language (ASL) is a language with its own linguistic attributes and roots in the deaf community. Activities focus on using hands, face and other body parts to represent lexical and grammatical aspects of ASL, and on comprehension skills in elementary ASL-based conversation.

Degree credit exclusion: AS/ASL 1800A 6.0.

Note: This course is offered in cooperation with the Deaf Education Program in the Faculty of Education.

AS/ASL 2000 6.0 American Sign Language, Level II. Activities include lessons on ASL II vocabulary, advanced sentence structures, manual and non-manual grammar, conversation strategies, development of viewing and signing skills and familiarization with genres of ASL literature. By year-end, students will be able to discuss basic information in ASL.

Prerequisite: AS/ASL 1000 6.0 or equivalent, or permission of the course director.

Degree credit exclusion: AS/ASL 2800A 6.0.

Note: This course is offered in cooperation with the Deaf Education Program in the Faculty of Education.

II. Chinese

AS/CH 1000 6.0 Elementary Modern Standard Chinese. Presents three aspects of Modern Standard Chinese — pronunciation, grammar, writing system — using lectures, drills, audio tapes and interactive computer programs. Pinyin (Chinese romanization) is used in teaching. Students learn approximately 500 characters by the end of the course.

Prerequisite: Permission of the department.

Language of instruction: Chinese.

AS/CH 2000 6.0 Intermediate Modern Standard Chinese. Continues the work of AS/ CH 1000 6.0 so that students can hold discussions on contemporary China and can read and write approximately 1100 characters.

Prerequisite: AS/CH 1000 6.0 or permission of the department.

Language of instruction: Chinese.

AS/CH 2010 6.0 Chinese for Beginners With Background. Students learn standard (Mandarin) pronunciation and the pinyin romanization system. They study basic conversational Chinese and learn to read and write enough Chinese characters to equip them for the third-year level.

Prerequisite: Permission of the instructor. Not open to those with no Chinese-speaking experience or Chinese students with formal education in Chinese.

Language of instruction: Chinese.

AS/CH 2700 6.0 Introduction to Chinese Literature. Surveys the many genres of Chinese literature from its origins to the present to show the evolution of the literary tradition and its interplay with history, philosophy and politics. Focus is on major works and how to discover their meaning.

Prerequisite: None.

Language of instruction: Chinese/English.

AS/CH 2730 6.0 Modern Chinese Fiction. A brief survey of popular traditional narrative and an examination of 20th-century stories and novels from the end of the Qing dynasty through the Republican era. This includes the beginning and the end of bourgeois fiction in China as well as the continuation of more popular traditions. Readings, discussions and term work are in English.

Prerequisite: None.

Language of instruction: English.

AS/CH 3000 6.0 Advanced Modern Standard Chinese. Reading, writing, discussion, use of dictionaries and translation practice. The student should, with the aid of dictionaries, be able to read and translate newspaper articles from the People's Republic, modern fiction and non-specialist articles.

Prerequisite: AS/CH 2000 6.0 or AS/CH 2010 6.0 or permission of the department.

Language of instruction: Chinese.

AS/CH 3010 6.0 Modern Standard Chinese for Speakers of Cantonese or other Dialects. Training in the standard pronunciation, phonetic system and simplified script, and discussions of the debate on language reform and style, as embodied in the classics of modern vernacular literature.

Prerequisite: Permission of the department; not open to speakers of Mandarin.

Language of instruction: Chinese.

AS/CH 3600 6.0 Lu Xun: Representative Works. This course deals with the creative works of Lu Xun, China's leading 20th-century writer. It focuses on textual analysis of his short stories, prose poems and selected satirical essays. Modern Standard Chinese (Mandarin) is used in class.

Prerequisites: AS/CH 3010 6.0 or AS/CH 3000 6.0 plus any of the 2000-level literature courses or permission of the department.

Language of instruction: Chinese.

AS/CH 3710 6.0 Women Writers in Modern China. A study of the fiction of the major women writers from the literary revolution of the early 1920s to the present; the development of themes, forms and styles seen in the context of modern Chinese literature and against the background of China's patriarchal tradition.

Prerequisite: Any 2000-level Chinese literature course or AS/HUMA 2930 6.0-AS/SOSC 2180 6.0.

Language of instruction: English.

AS/CH 3750 6.0 Order and Chaos in China and the West: Great Ideas of Two Civilizations. Contrasting concepts — of the origin of civilization, of the forces of history, of humankind and nature, and of the relation between individual and state — are revealed by comparing texts of history, literature, science and philosophy basic to each world.

Cross-listed to: AS/HUMA 3990G 6.0.

Prerequisite: None.

Language of instruction: English.

AS/CH 3790 6.0 Contemporary Chinese Culture Through Literary Texts and Film. Primarily concentrating on representative "new wave" written works and films, this course explores the relationship between ideology and art in postmodern China and stresses new literary/cinematic sensibilities in contemporary Chinese culture.

Prerequisite: None.

Language of instruction: English.

AS/CH 4010 6.0 Translation: English-Chinese/Chinese-English. The course emphasizes the development of written translation skills by considering English and Chinese texts in a range of topics and styles. Training in translation strategies enables the production of a text equivalent to the original meaning and style.

Prerequisite: AS/CH 3000 6.0 or AS/CH 3010 6.0 or permission of the department.

Language of instruction: Chinese.

III. English as a Second Language

AS/ESL 1000 9.0 Canadian Language and Culture. This course develops the linguistic/ academic skills of students from English as a second language backgrounds, using themes, such as language and communication, culture and identity, the immigrant/refugee experience, multiculturalism, Canada's aboriginal peoples and Quebec. Course activities focus on developing English proficiency while exploring these themes. (This course is affiliated with Stong College.)

Cross-listed to: AS/HUMA 1220 9.0.

Degree credit exclusions: AS/ESL 1000 6.0, AS/HUMA 1220 6.0.

Note: This course is normally open only to students in their first academic session.

AS/ESL 2000 6.0 English in Use. This course provides opportunities for students to develop their English language skills while learning more about the varieties of written and spoken English. Students learn to analyze both spoken and written texts as connected discourse and become familiar with some of the ways in which literary and non-literary texts can be examined.

Prerequisite: AS/ESL 1000 9.0 or permission of the department.

IV. German Studies

Students interested in pursuing a degree in German studies may choose from one of two streams: German language, literature and culture, or; German culture and society. For specific program requirements please consult the Faculty of Arts Programs of Study section of this Calendar.

AS/GER 1000 6.0 Elementary German. In this course students acquire basic functional competence in oral and written German. This course also introduces students to aspects of contemporary German culture. No previous knowledge of German is assumed.

Language of instruction: German.

AS/GER 1020 6.0 Elementary German for Reading Knowledge. A study of German grammar with the aim of developing a reading knowledge of the language. Translation practice from German into English of texts drawn from a variety of disciplines. No previous knowledge of German is assumed.

Language of instruction: English.

Note: This course does not qualify as a prerequisite for AS/GER 1050 6.0.

AS/GER 2000 6.0 Intermediate German. This course continues the communicative approach used in AS/GER 1000 6.0 and helps students acquire a level of competence in oral and written German which enables them to function comfortably in a German-speaking environment. The cultural component of the course is designed to broaden students' understanding of contemporary German society.

Prerequisite: AS/GER 1000 6.0 or OAC German (or equivalent, with appropriate score on departmental placement test).

Degree credit exclusion: AS/GER 1050 6.0.

Language of instruction: German.

Note: May be taken in conjunction with AS/GER 2200 6.0.

AS/GER 2200 6.0 Introduction to German Literature and Culture. An introduction to German literary texts in their cultural context. The course provides the basis for further work in German literature and the broader field of German studies.

Prerequisite: AS/GER 1000 6.0 with a minimum grade of B and concurrent registration in AS/GER 1050 6.0; or AS/GER 1050 6.0 or permission of the department.

Degree credit exclusion: AS/GER 2201 6.0.

Language of Instruction: German.

Note: AS/GER 2201 6.0 will not count for major or minor credit towards a degree in German studies (German Language, Literature and Culture Stream).

Note: Students have the option to write essays, assignments and tests in either English or German; however, students are required to write several assignments as well as respond to several test questions in German.

AS/GER 2201 6.0 Introduction to German Literature and Culture (in translation). An introduction to German literary texts in their cultural context. The course provides the basis for further work in German literature and the broader field of German studies.

Prerequisite: No knowledge of German is necessary.

Degree credit exclusion: AS/GER 2200 6.0.

Language of Instruction: English.

Note: AS/GER 2201 6.0 will not count for major or minor credit towards a degree in German studies (German Language, Literature and Culture Stream).

AS/GER 2790 6.0 Germany Through the Ages: Culture and Society. This course introduces students to the culture of Germany and the German-speaking countries from a North American perspective. The course takes an intercultural and interdisciplinary approach to key aspects of the literary, artistic, political, and social history of these countries. (This course is affiliated with Calumet College.)

Cross-listed to: AS/HUMA 2190 9.0.

Degree credit exclusion: AS/HUMA 2190 6.0.

AS/GER 3000 6.0 Advanced German, Level I. This course aims to develop further the student's ability to write and speak correct and idiomatic German. Through reading and discussion, in German, of materials on current affairs, the student is also given an understanding of the cultural context of modern German.

Prerequisite: AS/GER 1050 6.0 or permission of the department.

Degree credit exclusion: AS/GER 2040 6.0.

Language of instruction: German.

AS/GER 3100 3.0 German Regional Linguistic Varieties. Different German regional linguistic varieties or dialects are examined and their similarities to and differences from modern standard German are analyzed. The course also gives an overview of the historical development of the German dialects.

Prerequisite/corequisite: AS/GER 2040 6.0 or equivalent, or permission of the department.

Degree credit exclusion: AS/GER 4100 3.0.

Language of instruction: German.

AS/GER 3110 3.0 Syntactic Structure of Modern German. Analysis of the linguistic structure of modern German, especially in contrast to the structure of English. Models used for analysis will be the Transformational and Case Grammar models.

Prerequisite: AS/GER 2040 6.0 or equivalent, or permission of the department.

Degree credit exclusion: AS/GER 4110 3.0.

Language of instruction: German.

AS/GER 3130 3.0 Words and Meaning in German and English. This course deals with the elements of meaning: how they are combined into word-level structures in German and English and how words are structured as entries in bilingual dictionaries.

Prerequisite/corequisite: AS/GER 2040 6.0 or equivalent, or permission of the department.

Language of instruction: German.

AS/GER 3310 3.0 A Survey of German Literature From 1400-1700. The literature of German Humanism, from the Reformation period and from the time of the Thirty Years' War. Representative authors, such as Luther, Sachs, Gryphius, Lohenstein and Grimmelshausen, will be studied.

Prerequisite: AS/GER 2200 6.0 or permission of the department.

Degree credit exclusion: AS/GER 4310 3.0.

Language of instruction: German.

AS/GER 3580 6.0 German Prose and Poetry in the 19th and 20th Centuries. Studies in the development of German prose and poetry from Hoffman to Günter Grass, including the works of such authors as Kleist, Heine, Thomas Mann, Hesse, Kafka and Rilke.

Prerequisite: AS/GER 2200 6.0 or permission of the department.

Language of instruction: German.

AS/GER 3590 3.0 The German Drama in the Late 18th and the 19th Century. A study of selected major dramas from Lessing to Hauptman, with attention to the development of the drama as a genre, and to the relation of the works to their historical background.

Prerequisite: AS/GER 2200 6.0 or the permission of the department.

Language of instruction: German.

AS/GER 3600 3.0 Berlin in German Literature and Culture. This course highlights the following periods in the story of modern Berlin: "Golden Twenties"; 1945 and the end of Hitler's Reich; 1949-1989, when as a divided city, Berlin was caught in the tug-of-war between East and West; and the present "post-wall" period in which it is the capital of a united Germany.

Cross-listed to: AS/HUMA 3600 3.0.

Prerequisite: AS/GER 2200 6.0 or permission of the department.

Degree credit exclusion: AS/GER 4600 3.0.

Language of instruction: English.

AS/GER 3610 3.0 The German Drama in the 20th Century. A study of major dramas from Wedekind to Brecht, with attention to the development of the drama as a genre, and to the relation of the works to their historical background.

Prerequisite: AS/GER 2200 6.0 or permission of the department.

Degree credit exclusion: AS/GER 4610 3.0.

Language of instruction: German.

AS/GER 3790 6.0 Germany in Film: Literary and Historical Perspectives. This course examines major films of contemporary German cinema, including screen adaptations of works of German literature and films that address central concerns of recent German history

Cross-listed to: AS/HUMA 3990K 6.0.

Prerequisite: None.

Language of instruction: English.

AS/GER 4001 3.0 Advanced German, Level IIA. Review of aspects of grammar and idiomatic expressions; introduction to the principles and practice of essay writing; oral reports on assigned readings on current affairs, with an emphasis of vocabulary building.

Prerequisite: AS/GER 3000 6.0 or AS/GER 2040 6.0 or permission of the department.

Degree credit exclusions: AS/GER 3040 6.0, AS/GER 3043 3.0.

Language of instruction: German.

AS/GER 4002 3.0 Advanced German, Level IIB. Further review of aspects of grammar and idiomatic expressions; translation; class discussions on topics of general interest and current affairs, with an emphasis on vocabulary building.

Prerequisite: AS/GER 3043 3.0 or AS/GER 4001 3.0 permission of the department.

Degree credit exclusions: AS/GER 3040 6.0, AS/GER 3045 3.0.

Language of instruction: German.

AS/GER 4100 3.0 German Regional Linguistic Varieties. Different German regional linguistic varieties or dialects are examined and their similarities to and differences from modern standard German are analyzed. The course also gives an overview of the historical development of the German dialects.

Prerequisites/corequisites: AS/GER 3043 3.0 and AS/GER 3045 3.0 or equivalent, or permission of the department.

Degree credit exclusion: AS/GER 3100 3.0.

Language of instruction: German.

AS/GER 4110 3.0 Syntactic Structure of Modern German. Analysis of the linguistic structure of modern German, especially in contrast to the structure of English. Models used for analysis are the Transformational and Case Grammar models.

Prerequisites: AS/GER 3043 3.0 and AS/GER 3045 3.0 or equivalent, or permission of the department.

Degree credit exclusion: AS/GER 3110 3.0.

Language of instruction: German.

AS/GER 4120 3.0 Theory and Practice of Translation: German-English, English-German. The course concerns itself with the theory and practice of translation, more especially, from German to English and English to German, with texts for translation drawn from general interest fields. Detailed knowledge of syntactic differences between German and English, modern German usage, stylistics, and semantics are applied to practical translation experience.

Prerequisites/corequisites: AS/GER 3043 3.0 and AS/GER 3045 3.0, or equivalent, or permission of the department.

Language of instruction: German.

AS/GER 4300 3.0 Medieval German Literature. An introduction to the Middle High German language. Reading of representative works of the period, such as the Nibelungenlied and the poetry of Walther von der Vogelweide.

Prerequisite: AS/GER 2040 6.0 or permission of the department.

Language of instruction: German.

AS/GER 4310 3.0 A Survey of German Literature from 1400 to 1700. The literature of German Humanism, from the Reformation period and from the time of the Thirty Years' War. Representative authors, such as Luther, Sachs, Gryphius, Lohenstein and Grimmelshausen, are studied.

Prerequisite: AS/GER 2200 6.0 or permission of the department.

Degree credit exclusion: AS/GER 3310 3.0.

Language of instruction: German.

AS/GER 4510 3.0 Goethe's Faust. Close textual analysis of Goethe's Faust. The relation of the work to its historical background. Introduction to the Faust legend and the varied history of the Faust theme in German literature.

Prerequisite: AS/GER 2200 6.0 or permission of the department.

Language of instruction: German.

AS/GER 4600 3.0 Berlin in German Literature and Culture. Berlin's unique position at the crossroads of East and West makes it politically and socially the most interesting city in the German-speaking countries today. This course examines the presentation of Berlin in German literature from imperial capital to divided city.

Prerequisite: AS/GER 2200 6.0 or permission of the department.

Degree credit exclusions: AS/GER 3600 3.0, AS/HUMA 3600 3.0.

Language of instruction: German.

AS/GER 4610 3.0 The German Drama in the 20th Century. A study of major dramas from Wedekind to Brecht, with attention to the development of the drama as a genre, and to the relation of the works to their historical background.

Prerequisite: AS/GER 2200 6.0 or permission of the department.

Degree credit exclusion: AS/GER 3610 3.0.

Language of instruction: German.

AS/GER 4620 3.0 Bertolt Brecht: Literature, Culture and Politics (in translation). Using an interdisciplinary approach, the course examines Brecht's understanding of the interplay of literature, culture and politics, as shown in his dramatic, poetical and theoretical works.

Cross-listed to: AS/HUMA 4881 3.0.

Language of instruction: English.

AS/GER 4700 3.0 The Works of Franz Kafka (in translation). Through an extensive and intensive study of Kafka's novels, stories, diaries and letters, as well as a consideration of relevant works by other authors (e.g. Buber, Dostoevsky, Nietzsche), the course seeks to arrive at a balanced and coherent understanding of Kafka's work.

Cross-listed to: AS/HUMA 4880D 3.0.

Degree credit exclusions: AS/GER 4700 6.0, AS/VC 4040 6.0, AS/HUMA 4880D 6.0.

Language of instruction: English.

Note: As the course is taught in translation, no knowledge of the German language is required. Students taking the course for major or minor degree credit in German will be required to do some work in German. For these students AS/GER 2200 6.0 is a prerequisite.

Additional Courses in German 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 German 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 German studies.

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

AS/HIST 2220 6.0 Medieval and Early Modern Europe.
AS/HIST 2300 6.0 Modern Europe.
AS/HIST 3320 6.0 Modern Germany: 1871 to the Present.
AS/HIST 3365 3.0 European Fascism: 1890-1945.
AS/HIST 3820 3.0 Welfare States in Comparative Perspective.
AS/HIST 4330 6.0 Issues in the History of Modern Germany.
AS/HIST 4350 6.0 European Thought in the Early 20th Century.
AS/HUMA 2160 9.0 Romanticism and Its Legacy.
AS/HUMA 2190 9.0 Germany Through the Ages: Culture and Society (cross-listed to: AS/GER 2790 9.0).
AS/HUMA 2170 6.0 Modern Art: 1750 to the Present (cross-listed to: FA/VISA 2620 6.0).
AS/HUMA 3120L 3.0 Heinrich Heine: Romantic Poet.

AS/HUMA 3600 3.0 Berlin in German Literature and Culture (cross-listed to: AS/GER 3600 3.0).

AS/HUMA 3990K 6.0 Germany in Film: Literary And Historical Perspectives (in translation) (cross-listed to: AS/GER 3790 6.0).

AS/HUMA 4880D 3.0 The Works of Franz Kafka (in translation) (cross-listed to: AS/GER 4700 3.0).

AS/HUMA 4881 3.0 Bertolt Brecht: Literature, Culture, and Politics (in translation) (cross-listed to: AS/GER 4620 3.0).

AS/PHIL 3640 3.0 German Philosophy.

AS/POLS 3530 3.0 West European Politics.

AS/POLS 4205 3.0 The New German Politics and European Integration.

AS/POLS 4445 3.0 European Union.

V. Classical and Modern Greek

AS/GK 1000 6.0 Elementary Classical Greek. This course is an introduction to classical Greek. No knowledge of the language is assumed.

Language of instruction: English.

Note: Further courses in Greek literature are listed under classical studies.

AS/GKM 1000 6.0 Introductory Modern Greek. This course teaches the fundamentals of modern Greek: the writing system, pronunciation, basic forms and syntax, with some practice in simple conversation, reading and writing.

Degree credit exclusion: AS/GK 1410 6.0, AK/GK 1410 6.0.

Language of instruction: Modern Greek/English.

Note: Not open to students who obtained their high school "apolytirion" (Grade 12) from a Greek high school, nor to students with an OAC in modern Greek.

AS/GKM 2000 6.0 Intermediate Modern Greek. This course is designed to improve the student's oral and written command of the modern Greek language. Short texts relevant to modern Greek culture will be read and analyzed for their content and style.

Degree credit exclusions: AS/GK 2430 6.0, AK/GK 2430 6.0.

Prerequisite: AS/GKM 1000 6.0 or AK/GK 1410 6.0, OAC in modern Greek or, for students with equivalent preparation, permission of the Department of Languages, Literatures and Linguistics.

Language of instruction: Modern Greek.

AS/GKM 3600 6.0 Modern Greek Literature and Culture After Independence. A general survey of the development of Greek literature and culture from the early 19th century to the present.

Prerequisite: AS/GKM 2000 6.0 or AK/GK 2430 6.0 or permission of the Department of Languages, Literatures and Linguistics. Fluency in Greek is essential.

Degree credit exclusions: AK/GK 3450 6.0, AS/GK 3450 6.0.

Language of instruction: Modern Greek.

AS/GKM 4600 6.0 Topics in Modern Greek Culture: Literature, Cinema and Theatre. Reading of selected modern Greek short stories, novels and dramas from the 20th century. This course focuses on the interrelationship between Greek cinema and literature.

Prerequisite: AS/GKM 2000 6.0 or AS//GK 3600 6.0 or permission of the department.

Language of instruction: Modern Greek.

VI. Hebrew

Entry to Hebrew courses: Students will be placed in classes at a level that suits their previous experience. No student may take both AS/HEB 1000 6.0 and AS/HEB 1010 6.0.

AS/HEB 1000 6.0 Elementary Modern Hebrew, Level I. A course in beginning Hebrew, teaching elementary speaking and writing skills, emphasizing oral production and comprehension. This course is not open to anyone who has studied Hebrew before, either formally or informally.

Language of instruction: Hebrew.

AS/HEB 1030 3.0 Elementary Biblical Hebrew, Level I. This course introduces students to the basic vocabulary, grammar and syntax of biblical Hebrew. The class also reads simple narrative prose from the Bible, such as segments from the Joseph story in Genesis.

Prerequisite: None.

Language of instruction: English.

AS/HEB 1040 3.0 Elementary Biblical Hebrew, Level II. This course builds on the skills that the students acquired in HEB 1030 3.0. More advanced issues of grammar and syntax are addressed and students acquire a much larger vocabulary thus allowing more extensive readings of biblical texts.

Prerequisite: AS/HEB 1030 3.0 or equivalent.

Language of instruction: English.

AS/HEB 2010 6.0 Intermediate Modern Hebrew. Review and consolidation of grammar topics to achieve a balance in the students' competence in written and oral skills. Further development in speaking, reading and writing. Course material deals with everyday situations, Jewish history, culture and aspects of life in Israel.

Prerequisite: AS/HEB 1000 6.0 or AS/HEB 1010 6.0, or equivalent; not normally open to students with more than seven years of elementary school level Hebrew or equivalent.

Language of instruction: Hebrew.

AS/HEB 3000 6.0 Advanced Modern Hebrew. A course in modern Hebrew, emphasizing the study of contemporary Israeli language as seen in a wide variety of writings (education, business, military and religious literature, as well as newspapers, periodicals and some *belles lettres*). This course includes practice in writing and composition.

Prerequisite: AS/HEB 2010 6.0 or equivalent. Not normally open to students with two or more years of high school level Hebrew, nor to native speakers.

Language of instruction: Hebrew.

AS/HEB 3210 3.0 Selections from Hebrew Legal-Religious Texts: Reading and Analysis. This course presents the structure of the core texts of the Jewish legal and religious traditions, using selections from major Hebrew legal codes, responsa literature and exegetical texts.

Prerequisite: AS/HEB 3000 6.0 or permission of the department.

Language of instruction: Hebrew.

AS/HEB 3220 3.0 Hebrew Liturgical Texts: Origins, Contexts and Analysis. This course introduces a specialized genre of Hebrew literature: liturgical texts. The texts analyzed include a variety of ancient, medieval and modern Jewish liturgies.

Prerequisite: AS/HEB 3000 6.0 or permission of the department.

Language of instruction: Hebrew.

AS/HEB 3230 3.0 The Literature of Celebration and Commemoration. This course analyzes a variety of texts, classical and modern, in which aspects of major Jewish festivals and memorial days are explored.

Prerequisite: AS/HEB 3000 6.0 or permission of the department.

Language of instruction: Hebrew.

AS/HEB 3320 3.0 Exodus: Text and Classical Interpretation. A close textual analysis of the book of Exodus in the original Hebrew and of interpretations of the book written in Hebrew throughout the ages.

Prerequisite: AS/HEB 3000 6.0 or equivalent.

Language of instruction and readings: Hebrew.

AS/HEB 3330 3.0 Deuteronomy: Text and Classical Interpretation. A close textual analysis of the book of Deuteronomy and of interpretations of the book written in Hebrew throughout the ages.

Prerequisite: AS/HEB 3000 6.0 or equivalent.

Language of instruction and readings: Hebrew.

AS/HEB 3360 3.0 Prophetic Literature: Text and Classical Interpretation. A close textual analysis of selected passages from the biblical literary prophets and of interpretations of these passages written in Hebrew throughout the ages.

Prerequisite: AS/HEB 3000 6.0 or equivalent.

Language of instruction and readings: Hebrew.

AS/HEB 3370 3.0 The Hagiographical Literature: Text and Classical Interpretation. A close textual analysis of selected passages from the later books of the Bible — Esther, Lamentations and Ecclesiastes — and interpretations of these books written in Hebrew throughout the ages.

Prerequisite: AS/HEB 3000 6.0 or equivalent.

Language of instruction and readings: Hebrew.

AS/HEB 3500 6.0 The Hebrew Revival: Language and Literature. Readings and discussion of the language and literature of the Hebrew revival of the 18th and 19th centuries. Readings and discussions are in Hebrew.

Prerequisite: AS/HEB 3000 6.0 or equivalent.

Language of instruction: Hebrew.

AS/HEB 3600 6.0 Themes in Modern Israeli Literature and Society. An examination of some major intellectual questions and literary currents of modern Israel Canaanism; the cult of the strong; the kibbutz; the Holocaust; the clash of East and West. Included is a study of literary, historical, philosophical and sociological writings.

Prerequisite: AS/HEB 3000 6.0 or equivalent.

Language of instruction: Hebrew.

AS/HEB 3710 3.0 Diaspora, Home, Nostalgia: Modern Jewish Women's Literature. What is "Jewish" and "modern" about "Modern Jewish Women's Literature," and how does it reflect the experiences and perceptions of women? Examining a variety of literary genres, the course compares Israeli women's literature in translation with contemporary writing by other Jewish women.

Language of Instruction: English.

AS/HEB 3770 3.0 Inventing Israel: Culture, Crisis and Continuity in Israeli Literature. Modern Hebrew writers faced the challenge of reinventing a language and culture during a century of upheaval and change. Examining fiction, poetry, memoirs and film (in translation), this course addresses such issues as personal and collective identities, and relationships with the past.

Language of instruction: English.

AS/HEB 4000 6.0 Advanced Modern Hebrew, Level II. An intensive course designed to acquaint students with advanced aspects of Hebrew grammar, to improve their reading skills and their ability to express themselves fluently in conversation and in written form.

Prerequisite: AS/HEB 3000 6.0 or equivalent. Not open to native speakers who have completed Grade 8 in Israel.

Language of instruction: Hebrew.

VII. Italian

AS/IT 1000 6.0 Elementary Italian. This course is designed for students with no previous formal training in standard Italian. This course teaches speaking and writing skills through the study of elementary grammar, the practice of vocabulary, intonation and pronunciation.

Degree credit exclusions: AS/IT 1010 6.0, AK/IT 0200 6.0.

Language of instruction: Italian/English.

AS/IT 2000 6.0 Intermediate Italian. This course is intended for students with background knowledge of Italian. Emphasis is placed on oral competence and writing skills.

Prerequisite: OAC in Italian (or equivalent) or AS/IT 1000 6.0 (with a minimum grade of C) or equivalent.

Degree credit exclusions: AS/IT 1040 6.0, AS/IT 1050 6.0, AS/IT 1060 6.0, AK/IT 1200 6.0.

Language of instruction: Italian.

AS/IT 2030 6.0 Intermediate Italian Language and Culture in Italy: Examining Bologna, a City at the Crossroads of Italy and Europe. An intensive intermediate Italian language and culture course taught at York University, followed by a stay at the University of Bologna, covering language structures, vocabulary, language functions, and Italian culture and civilization. Excursions complement lectures on cultural topics.

Prerequisite: AS/IT 1000 6.0.

Degree credit exclusion: AS/IT 2000 6.0.

Language of Instruction: Italian.

AS/IT 2200 6.0 Introduction to Italian Literature. General historical and thematic survey from the medieval period to the present. The basic tools of literary analysis are emphasized. The languages of instruction are Italian and English.

Prerequisite: AS/IT 2000 6.0 or equivalent, or permission of the department.

Corequisite: With permission of the department, students who have successfully completed AS/IT 1000 6.0, or equivalent, may enrol in AS/IT 2200 6.0 only if they are concurrently enrolled in AS/IT 2000 6.0.

Language of instruction: Italian/English.

AS/IT 2751 9.0 Aspects of Italian Culture. This course aims to present and analyze some of the most interesting themes underlying the development of Italian intellectual life from the 14th century to the 19th century. (This course is affiliated with Founders College.)

Cross-listed to: AS/HUMA 2990A 9.0.

Degree credit exclusions: AS/IT 2751 6.0, AS/HUMA 2990A 6.0.

Language of instruction: English.

Note: No knowledge of Italian is required. Students taking Italian as their major or minor subject may take this course, but it does not count towards a major or minor in Italian, nor does it fulfill the Faculty of Arts elective requirements of students in Italian.

AS/IT 2761 9.0 Italian Cinema, Literature and Society. The course focuses on 12 of the most significant films since the Second World War in the context of the radical changes that have taken place in Italy from the fall of Fascism to the present, and as critical statements on the phenomena connected with the rapid transformation of Italian society: industrialization and the "economic miracle", urbanization, the crisis of traditional values and postmodern fragmentation. (This course is affiliated with Founders College.)

Cross-listed to: AS/HUMA 2761 9.0.

Language of instruction: English.

AS/IT 2791 9.0 Italian: A Minority Culture and Language in North American Society. This course investigates the effects North American culture and language have on the lives of Italian immigrants and their descendants. (This course is affiliated with Stong College.)

Cross-listed to: AS/SOSC 2960 9.0.

Degree credit exclusions: AS/SOSC 2990C 6.0, AS/IT 2791 6.0, AS/IT 2790 6.0.

Language of instruction: English.

AS/IT 3000 6.0, Advanced Italian, Level I. This course develops the students' command of Italian through the further study of difficult areas of morphology and syntax. Readings from contemporary sources expose students to Italian cultural trends and provide a basis for discussions and short essays.

Prerequisite: AS/IT 2000 6.0 (or equivalent), or permission of the department.

Degree credit exclusions: AS/IT 2040 6.0, AS/IT 2060 6.0.

Language of instruction: Italian.

AS/IT 3030 6.0 Advanced Italian Language and Culture in Italy: Examining Bologna, a City at the Crossroads of Italy and Europe. An intensive advanced Italian language and culture course taught at York University, followed by a stay at the University of Bologna, covering language structures, vocabulary, language functions, and Italian culture and civilization. Excursions complement lectures on cultural topics.

Prerequisite: AS/IT 2000 6.0.

Degree credit exclusion: AS/IT 3000 6.0.

Language of instruction: Italian.

AS/IT 3050 6.0 A Sociocultural Approach to Italian in the Business Environment. The course provides a foundation in social and cultural concepts relevant to the business world in Italy. Reading of articles and essays on contemporary Italy, as well as short stories. Students gain communicative and grammatical skills – appropriate for an Italian-speaking commercial environment.

Prerequisite: AS/IT 2000 6.0 or permission of the department.

Degree credit exclusion: AS/IT 2800A 6.0 (Fall/Winter 1999-2000 to Fall/Winter 2001-2002).

Language of instruction: Italian.

Note: This course requires Internet access.

AS/IT 3130 3.0 Linguistic Structures in Italian and English. The aim of this course is to describe and analyze those aspects of linguistic structure of Italian which differ from English. This is not a translation course: students analyze differences between structures of the two languages.

Prerequisite: AS/IT 3000 6.0 or equivalent, or permission of the department.

Language of instruction: Italian.

AS/IT 3150 3.0 Italian Regional Linguistic Varieties. This course deals with the complex linguistic situation of Italy. The different languages or dialects are analyzed and classified with respect to their similarities to and differences from the standard language.

Prerequisite: AS/IT 3000 6.0 or permission of the department.

Language of instruction: Italian.

AS/IT 3200 6.0 Italian Opera from Monteverdi to Puccini. This course studies selected librettos by the most celebrated Italian dramatic poets from the early Baroque to the early 20th century, in the context of the theatrical and aesthetic developments in Europe, and against the background of the cultural and political history of the chief centres of theatrical life.

Language of instruction: English.

AS/IT 3201 6.0 Italian Philosophical and Political Thought: From Pre-Humanism to Postmodernism. An exploration of Italian philosophical and political thought from the medieval to the contemporary period. Topics include humanism, cosmology, philosophy of history, Marxism, existentialism, phenomenology and postmodernism.

Language of instruction: English.

AS/IT 3350 6.0 The Literature of the Italian Renaissance. Study of main authors and literary trends from the age of Lorenzo de' Medici to the death of Tasso. This may include the revolutionary political concepts elaborated by Machiavelli and Guicciardini, as well as new approaches to literary theory and practice.

Prerequisite: AS/IT 2200 6.0 or permission of the department.

Language of instruction: Italian.

AS/IT 3360 6.0 Petrarch: Love, Women and Power in the Middle Ages. An exploration of Petrarch's *Canzoniere* and its influence on European poetry. This course analyzes the way the life of women at the end of the Middle Ages is represented by Petrarch and by the different traditions of European poetry.

Prerequisite: AS/IT 2200 6.0 or permission of the department.

Degree credit exclusions: AS/IT 3360 3.0, AS/IT 3361 6.0.

Language of instruction: English/Italian.

Note: This course counts for Italian major/minor credit.

AS/IT 3361 6.0 Petrarch: Love, Women and Power in the Middle Ages (in translation). An exploration of Petrarch's *Canzoniere* and its influence on European poetry. This course analyzes the way the life of women at the end of the Middle Ages is represented by Petrarch and by the different traditions of European poetry.

Degree credit exclusions: AS/IT 3360 3.0, AS/IT 3360 6.0.

Language of instruction: English/Italian.

Note: This course does not count for Italian major/minor credit.

AS/IT 3370 6.0 The Italian Short-Story from Boccaccio to Basile. This course examines the development of the Italian novella from the Middle Ages to the Baroque period. Among the authors studied are: Boccaccio, Bandello and Basile.

Prerequisite: AS/IT 2200 6.0 or permission of the department.

Degree credit exclusions: AS/IT 3371 6.0, AS/IT 3370 3.0.

Language of instruction: English/Italian.

Note: This course counts for Italian major/minor credit.

AS/IT 3371 6.0 The Italian Short-Story from Boccaccio to Basile (in translation). This course examines the development of the Italian novella from the Middle Ages to the Baroque period. Among the authors studied are: Boccaccio, Bandello and Basile.

Degree credit exclusions: AS/IT 3370 3.0, AS/IT 3370 6.0.

Language of instruction: English/Italian.

Note: This course does not count for Italian major/minor credit.

AS/IT 3550 6.0 19th-Century Italian Literature. The main trends in Italian literature of the 19th century from the Pre-Romantics to Verismo. Works by major authors, such as Foscolo, Leopardi, Manzoni, Carducci and Verga, are studied in depth.

Prerequisite: AS/IT 2200 6.0 or permission of the department.

Language of instruction: Italian.

AS/IT 3721 6.0 Mapping the Italian Experience in Canada: The Literary and Cultural Perspective. The study of the Italian experience in Canada as expressed in representative works from various genres: narrative, poetry, theatre and film. The significance of these works is examined in the social and political context.

Cross-listed to: AS/EN 3721 6.0.

Language of instruction: English.

AS/IT 3750 6.0 Modern Italian Culture. This course introduces students to cultural, social and political issues which form the fabric of Italian civilization from unification to the present.

Prerequisite: No knowledge of Italian necessary.

Language of instruction: English.

Note: Students who are taking Italian as a major or minor subject are required to do the readings and assignments for this course in Italian. Students may take only one of the following courses for credit towards a degree in Italian: AS/IT 3750 6.0 or AS/IT 3790 6.0 or the combination of AS/IT 3760 3.0 and AS/IT 3770 3.0.

AS/IT 3760 3.0 Italian Medieval and Renaissance Civilization. The main elements of Italian civilization from the age of the republican city-states to the end of the Renaissance: the arts, literature and society; changing concepts of the state; the papacy, the Reformation and Counter-Reformation.

Degree credit exclusion: AS/IT 3761 3.0.

Language of instruction: English.

Note: Students who are taking Italian as a major or minor subject are required to do the readings and assignments in Italian. Students may take only one of the following courses for credit towards a degree in Italian: AS/IT 3750 6.0 or AS/IT 3790 6.0 or the combination of AS/IT 3760 3.0 and AS/IT 3770 3.0.

AS/IT 3761 3.0 Italian Medieval and Renaissance Civilization (In Translation). The main elements of Italian civilization from the age of the republican city-states to the end of the Renaissance. The arts, literature and society; changing concepts of the state; the papacy, the Reformation and Counter-Reformation.

Degree credit exclusion: AS/IT 3760 3.0.

Language of instruction: English.

Note: Knowledge of Italian not necessary. Students who are taking Italian as a major or minor subject are required to do the readings and assignments in Italian. Students may take only one of the following courses for credit towards a degree in Italian: AS/IT 3750 6.0 or AS/IT 3790 6.0 or the combination of AS/IT 3760 3.0 and AS/IT 3770 3.0.

AS/IT 3770 3.0 Modern and Contemporary Italian Culture. Key issues in contemporary Italian society are studied in their historical development, with the focus on the following: unification and its aftermath; regionalism; Fascism and the Resistance; political parties and intellectuals; the Church; art and literature.

Degree credit exclusions: AS/IT 3750 6.0, AS/IT 3771 3.0.

Language of instruction: English.

Note: Students who are taking Italian as a major or minor subject are required to do the readings and assignments for this course in Italian. Students may take only one of the following courses for credit towards a degree in Italian: AS/IT 3750 6.0 or AS/IT 3790 6.0 or the combination of AS/IT 3760 3.0 and AS/IT 3770 3.0.

AS/IT 3771 3.0 Modern and Contemporary Italian Culture (In Translation). Key issues in contemporary Italian society are studied in their historical development, with the focus on the following: unification and its aftermath; regionalism; Fascism and the Resistance; political parties and intellectuals; the Church; art and literature.

Degree credit exclusions: AS/IT 3750 6.0, AS/IT 3770 3.0.

Language of instruction: English.

Note: Knowledge of Italian not necessary.

AS/IT 4000 6.0 Advanced Italian, Level II. This course concentrates on the study of vocabulary and style. Different levels of language use (academic, formal, colloquial, slang) and different "specialized languages" are explored through readings from contemporary sources. Advanced training in composition. Extensive use of videos and feature films.

Prerequisite: AS/IT 3000 6.0 (or equivalent), or permission of the department.

Degree credit exclusion: AS/IT 3040 6.0.

Language of instruction: Italian.

AS/IT 4120 6.0 Written Translation, Italian-English/English-Italian. Translation from and into Italian of non-literary texts on a variety of topics (politics, economics, arts, music, psychology, travel).

Prerequisite: AS/IT 3000 6.0 (or equivalent), or permission of the department.

Degree credit exclusion: AS/IT 3120 6.0.

Language of instruction: Italian.

AS/IT 4140 3.0 Sociopragmatic Competence in Italian. This course deals, both at the theoretical and applied level, with some important aspects of sociolinguistic interaction in Italian. Students learn about rules of speaking, speech acts, the notion of "face," pragmatic transfer, and pragmatic failure as they apply to the Italian language.

Prerequisite: AS/IT 3000 6.0 or equivalent, or permission of the department.

Language of instruction: Italian.

AS/IT 4150 3.0 The Study of the Italian Lexicon: A Course in Applied Semantics. The course examines the Italian lexicon using the concepts and analytical tools of modern semantics.

Prerequisite: AS/IT 4000 6.0 or AS/IT 4120 6.0 or equivalent, or permission of the department.

Language of instruction: Italian.

AS/IT 4180 3.0 Selected Topics in Italian Linguistics. The purpose of this course is to acquaint students with a selected number of topics in Italian linguistics. Topics may include selected areas of phonetics, phonology, morphology, syntax, English-Italian contrastive grammar and pragmatics.

Prerequisite: AS/IT 3000 6.0 or equivalent, or permission of the department.

Language of instruction: Italian.

AS/IT 4190 3.0 History of the Italian Language. This course traces the history of the Italian language from its Indo-European roots to the present. Topics analyzed include, among others, linguistic aspects of pre-Roman Italy, the transformation of Latin, the 16th-century linguistic controversy ("la questione della lingua"), borrowings from other languages, the standardization of modern Italian.

Prerequisite: AS/IT 2200 6.0 or permission of the department.

Note: Not open to students who have completed AS/IT 3180 3.0.

Language of instruction: Italian.

AS/IT 4210 3.0 Renaissance Theatre. A study of the major works of Italian Renaissance theatre in its development from classical forms; tragedy, comedy and the theoretical discussions related to them; the pastoral drama and Tasso's *Aminta*.

Prerequisite: AS/IT 2200 6.0 or permission of the department.

Language of instruction: Italian.

AS/IT 4330 6.0 Dante and Medieval Italian Literature. This course centres on the *Divine Comedy*, its roots in the European literary and philosophical tradition, and the critical problems of the medieval mind. Key aspects of that tradition through selected readings. Some of Dante's minor works are also studied.

Prerequisite: AS/IT 2200 6.0 or permission of the department.

Language of instruction: Italian.

AS/IT 4350 3.0 Women Poets of the Italian Renaissance. In this course emphasis is placed on the self-awareness of 16th-century women writers in a predominately male world, and their intellectual and social self-understanding in relation to the Renaissance concept of the individual.

Language of instruction: English/Italian.

AS/IT 4550 3.0 17th-Century Italian Literature. The poetry and prose of the 17th century, focusing on Marino and the "marinisti;" selections from the theoretical texts of the period; the links, where appropriate, with the visual arts.

Prerequisite: AS/IT 2200 6.0 or permission of the department.

Language of instruction: Italian.

AS/IT 4620 6.0 20th-Century Italian Poetry. Modern Italian poetry from Pascoli to the present. Outstanding works of authors, such as D'Annunzio, Gozzano, Ungaretti, Montale, Quasimodo, Pasolini, Sanguineti, Zanzotto, Rosselli, Niccolai and others.

Prerequisite: AS/IT 2200 6.0 or permission of the department.

Degree credit exclusion: AS/IT 4620 3.0.

Language of instruction: Italian.

AS/IT 4650 6.0 20th-Century Italian Novel. The modern Italian novel from D'Annunzio to the neo-avant-garde. Outstanding works of authors, such as Svevo, Moravia, Vittorini, Pavese, Calvino and Pasolini.

Prerequisite: AS/IT 2200 6.0 or permission of the department.

Language of instruction: Italian.

VIII. Japanese

AS/JP 1000 6.0 Elementary Modern Standard Japanese. Basics of spoken Japanese, with strong emphasis on immediate practical usefulness in everyday situations, the two kana syllabaries, approximately 150 Kanji (Sino-Japanese characters) and elementary reading are covered. Simple sentence grammar is focused on. No previous knowledge of the language is assumed.

Language of instruction: Japanese.

AS/JP 2000 6.0 Intermediate Modern Standard Japanese. Further study of common grammatical forms and structures; items covered in AS/JP 1000 6.0 are reviewed and expanded. Situation and task oriented conversation, strategy-centered reading and structure-based writing are involved with emphasis on complex sentence grammar. Approximately 300 additional Kanji (Sino-Japanese characters) are introduced.

Prerequisite: AS/JP 1000 6.0 or equivalent.

Language of instruction: Japanese.

AS/JP 3000 6.0 Advanced Modern Standard Japanese. The course focuses on continuous texts; edited texts on various topics are read, summarized, translated and discussed with emphasis on discourse grammar. All Kanji (Sino-Japanese characters) in Education Characters (881) will be covered.

Prerequisite: AS/JP 2000 6.0 or equivalent.

Language of instruction: Japanese.

AS/JP 3720 6.0 Japanese Culture, Literature and Film. By comparing works by Japanese authors with related films, this course explores basic patterns and themes of Japanese culture.

Cross-listed to: AS/HUMA 3420 6.0, FA/FILM 3710 6.0.

Prerequisite: None.

Language of instruction: English.

AS/JP 4000 6.0 Advanced Reading in Contemporary Japanese. Readings in unannotated original essays and articles on current issues taken from periodicals; interpretation, translation, summarization and discussion of readings enable students to use a wide variety of Japanese materials independently. Recognition of characters for daily use (1,945).

Prerequisite: AS/JP 3000 6.0 or equivalent.

Language of instruction: Japanese.

AS/JP 4100 6.0 Teaching of Japanese as a Foreign/Second Language. This course offers comprehensive teacher education and training for the Japanese language. The main objective is to familiarize teachers with current theories, methodologies and their practical applications developed in the relevant areas, with strong focus on the communicative approach, and computer assisted language learning and teaching.

Prerequisites: AS/JP 4000 6.0 or equivalent (for non-native speakers of Japanese); TOEFL score: 580 or equivalent (for non-native speakers of English); BA or BA expected within a year (may be waived at the instructor's discretion); teaching experience preferred; AS/LING 3230 3.0 strongly recommended.

Language of instruction: Japanese.

A concentration in Japanese can fulfill the degree requirements for the East Asian Studies Program. Please consult the Faculty of Arts Programs of Study section of this Calendar.

IX. Latin

AS/LA 1000 6.0 Elementary Latin. This course is intended for students with no previous training in Latin.

Language of instruction: English.

Note: Further courses in Latin are listed in the Classical Studies section.

X. Linguistics

For a list of course offerings, see the Linguistics section.

XI. Portuguese

AS/POR 1000 6.0 Elementary Portuguese. This course introduces the Portuguese language within its cultural contexts. The four skills of listening, speaking, reading and writing are emphasized. Students will acquire a functional competence in elementary written and spoken Portuguese. No previous knowledge of Portuguese is assumed.

Degree credit exclusion: AS/POR 1010 6.0.

Language of instruction: Portuguese/English.

AS/POR 1010 6.0 Portuguese for Beginners with Background. This course is intended for students who have some understanding but no formal training in Portuguese. Development of reading, speaking, writing and grammar; oral and written exercises; written compositions; guidance in basic problems of interference from English.

Prerequisite: Some understanding of Portuguese or permission of the department.

Degree credit exclusion: AS/POR 1000 6.0.

Language of instruction: Portuguese.

AS/POR 2000 6.0 Intermediate Portuguese. This course is intended for students with some oral and written knowledge of Portuguese, who wish to improve their command of the formal language. Development of speaking, listening and reading and writing skills; further study of grammar; vocabulary building; translation into Portuguese.

Prerequisite: AS/POR 1000 6.0 or AS/POR 1010 6.0 or equivalent, or permission of the department.

Degree credit exclusion: AS/POR 1050 6.0.

Language of Instruction: Portuguese.

AS/POR 3000 6.0 Advanced Portuguese. This course gives students the skills to write and speak standard Portuguese, using reading and discussion of short texts from contemporary authors. Grammatical aspects of Portuguese are studied. Written assignments will reflect the topics and readings discussed in class.

Prerequisite: AS/POR 2000 6.0, AS/POR 1050 6.0 or permission of the department.

Degree credit exclusion: AS/POR 2040 6.0.

Language of instruction: Portuguese.

XII. Russian

Note: In AS/RU 2700 6.0, AS/RU 2750 6.0AS/RU 3720 3.0, AS/RU 3730 3.0, AS/RU 3740 6.0, AS/RU 3770 6.0, AS/RU 3780 3.0, AS/RU 3790 6.0, AS/RU 4740 6.0, AS/RU 4770 6.0 and AS/RU 4760 3.0, students majoring in Russian who are at the 3000-language level or above will be required to do a portion of the reading in Russian, the amount depending on their language level.

AS/RU 1000 6.0 Elementary Russian. Basic elements of Russian for beginners. Students receive training in the four skills of listening comprehension, speaking, reading and writing, by means of dialogues, drills and language laboratory sessions.

Language of instruction: Russian.

Note: Native and near-native speakers are ineligible for this course.

AS/RU 2000 6.0 Intermediate Russian. The aim of this course is to develop students' reading skills, oral comprehension and ability to express themselves in Russian both in written and in oral form. Special attention is devoted to a review and further study of grammar, vocabulary building, translation from and into Russian and conversation.

Prerequisite: AS/RU 1000 6.0, or OAC in Russian (or equivalent) with appropriate score on departmental placement test, or permission of the department.

Language of instruction: Russian.

Note: Native and near-native speakers are ineligible for this course.

AS/RU 2700 6.0 The Russian Novel in the 19th Century. A survey of Russian literature from its beginnings until 1880 with special emphasis on Pushkin, Lermontov, Gogol, Turgenev, Goncharov, Dostoevsky and Tolstoy. The relationship of Russian literature to other important European literatures of the 19th century is discussed.

Language of instruction: English.

Note: No knowledge of Russian required. Russian majors normally begin their literature studies with this course.

AS/RU 2750 6.0 Russian Culture: Continuity and Conflict (in translation). This course examines Russian culture in an historical and social context focusing on Kievan Rus', the rise of Muscovy, the expansion of the Russian Empire and its revolutionary mutation into the Soviet Union and the post-Soviet contemporary scene.

Language of instruction: English.

Prerequisite: No knowledge of Russian required. (Same as AS/HIST 2310 6.0 and AS/HUMA 2990D 6.0.)

AS/RU 3000 6.0 Advanced Russian, Level I. A systematic review of grammar and an introduction to prose composition and translation. Conversation and discussion will be based on reading materials presenting various aspects of Russian culture.

Prerequisite: AS/RU 2000 6.0 or equivalent.

Language of instruction: Russian.

Note: Native and near-native speakers are ineligible for this course.

AS/RU 3720 3.0 Tolstoy. Detailed examination of the major fiction of Tolstoy, with special stress on the novels *War and Peace* and *Anna Karenina*.

Language of instruction: English.

Note: No knowledge of Russian required.

AS/RU 3730 3.0 Dostoevsky. Detailed examination of the major fiction of Dostoevsky, with special stress on the novels *Crime and Punishment, The Idiot, The Possessed* and *The Brothers Karamazov.*

Language of instruction: English.

Note: No knowledge of Russian required.

AS/RU 3740 6.0 Chekhov and his Contemporaries: Russian Literature from 1880-1917. A survey of Russian literature of the Silver Age featuring Chekhov (stories and plays), Tolstoy, Gorky, Bunin and the great Russian symbolists, Sologub and Bely.

Degree credit exclusion: AS/RU 4740 6.0.

Language of instruction: English.

Note: No knowledge of Russian required.

AS/RU 3770 6.0 Russian Literature After 1917. A survey featuring such writers as Gorky, Mayakovsky, Zamiatin, Babel, Olesha, Bulgakov, Ilf and Petrov, Zoshchenko, Evtushenko, Voznesensky, and the Nobel prize winners Sholokhov, Pasternak, and Solzhenitsyn, plus five-year plan novels and works of socialist realism.

Degree credit exclusion: AS/RU 4770 6.0.

Language of instruction: English.

Note: No knowledge of Russian required.

AS/RU 3790 6.0 Russian and East Central European Film and Culture. A study of the film masterpieces of the countries of Eastern Europe and the former USSR from silent cinema to the present. The films are examined in their aesthetic and cultural context, thereby introducing students to the culture and society of this area.

Cross-listed to: AS/HUMA 3990H 6.0.

Language of instruction: English.

Note: All readings, lectures and written work are in English; English subtitles on films.

AS/RU 4000 6.0 Advanced Russian, Level II. Intensive review of the more difficult areas of morphology; further study of syntax; additional training in translation and free composition; an introduction to practical stylistics; and discussions based on assigned readings on a wide range of topics.

Prerequisite: AS/RU 3000 6.0 or equivalent.

Language of instruction: Russian.

Note: Native and near-native speakers are ineligible for this course. This course is reserved for Russian majors.

AS/RU 4550 3.0 Russian Prose of the 19th Century. A thematic and stylistic analysis of Russian prose works in the original, including selections from Pushkin, Lermontov, Gogol, Turgenev, Dostoevsky, Tolstoy and Chekhov.

Prerequisite (or corequisite with permission of the department): AS/RU 4000 6.0 with a minimum grade of C or equivalent.

Language of instruction: Russian.

AS/RU 4560 3.0 Russian Poetry of the 19th Century. A study of themes and techniques of Russian poetry in the original, including works by Pushkin, Lermontov, Tyutchev, Nekrasov, Fet and others.

Prerequisite (or corequisite with permission of the department): AS/RU 3000 6.0 with a minimum grade of C.

Language of instruction: Russian.

AS/RU 4650 3.0 Russian Prose of the 20th Century. A thematic and stylistic analysis of Russian prose works in the original, including selections from such authors as Bely, Sologub, Gorky, Andreev, Bunin, Zamyatim, Babel, Olesha, Leonov, Sholokhov, Bulgakov, Pasternak and Solzhenitsyn.

Prerequisite (or corequisite with permission of the department): AS/RU 4000 6.0 with a minimum grade of C or equivalent.

Language of instruction: Russian.

AS/RU 4660 3.0 Russian Poetry of the 20th Century. A study of themes and techniques of Russian poetry in the original, including works by Blok, Akhmatova, Mandel'shtam, Mayakovsky, Esenin, Tsvetaeva, Pasternak, Brodsky and others.

Prerequisite (or corequisite with permission of the department): AS/RU 4000 6.0 with a minimum grade of C or equivalent.

Language of instruction: Russian.

AS/RU 4740 6.0 Chekhov and his Contemporaries: Russian Literature from 1880-1917. A survey of Russian literature of the Silver Age featuring Chekhov (stories and plays), Tolstoy, Gorky, Bunin, and the great Russian symbolists, Sologub and Bely.

Degree credit exclusion: AS/RU 3740 6.0.

Language of instruction: English.

Note: No knowledge of Russian required.

AS/RU 4760 3.0 Solzhenitsyn. Detailed examination of the writings of one of the 20th-century's great Russian writers, including such works as *First Circle*, *Cancer Ward* and *Gulag Archipelago*.

Language of instruction: English.

Note: No knowledge of Russian required.

AS/RU 4770 6.0 Russian Literature After 1917. A survey featuring such writers as Gorky, Mayakovsky, Zamiatin, Babel, Olesha, Bulgakov, Ilf and Petrov, Zoshchenko, Evtushenko, Voznesensky, and the Nobel prize winners Sholokhov, Pasternak, and Solzhenitsyn, plus Five-year Plan novels and works of socialist realism.

Degree credit exclusion: AS/RU 3770 6.0.

Language of instruction: English.

Note: No knowledge of Russian required.

XIII. Spanish

AS/SP 1000 6.0 Elementary Spanish. This is an intensive introductory course to the language and culture of the Hispanic world. Equal attention is paid to the four skills: listening, speaking, reading and writing. In addition, students acquire a command of all the essential grammatical structures of Spanish and a vocabulary of a minimum of 2,500 items. This course is designed for students with no knowledge of Spanish.

Language of instruction: Spanish.

AS/SP 2000 6.0 Intermediate Spanish. This course is an extensive review of the fundamentals of Spanish grammar and emphasizes the four skills, listening, speaking, reading and writing through compositions, written exercises, oral presentations and conversations.

Prerequisite: AS/SP 1000 6.0, or OAC in Spanish or equivalent, or placement through testing.

Degree credit exclusion: AS/SP 1050 6.0.

Language of instruction: Spanish.

AS/SP 2200 6.0 Introduction to Spanish Literature. This course provides a general background in literature from the medieval period to the 20th century and in literary criticism. It is required for all students who intend to major or minor in Spanish. Students should take this course during their first 10 courses.

Prerequisite: AS/SP 1050 6.0 or equivalent, AS/SP 2000 6.0, or AS/SP 1000 6.0 with a minimum grade of A and concurrent enrolment in AS/SP 2000 6.0, or permission of the department.

Language of instruction: Spanish.

AS/SP 3000 6.0 Advanced Spanish Language and Grammar. This course develops the student's command of Spanish grammar through the writing of multiple drafts of essays, the discussion of advanced and subtle aspects of grammar and style, and the analysis of selected readings.

Prerequisite: AS/SP 2000 6.0 or AS/SP 1050 6.0 with a minimum grade of C, or equivalent.

Degree credit exclusion: AS/SP 2040 6.0.

Language of instruction: Spanish.

AS/SP 3040 6.0 A Socio-Cultural Approach to Spanish for Commerce. This course examines the cultural concepts that inform the world of business within Spanish-speaking societies. Short stories, journalistic prose and historical and geographic materials are read and communicative skills appropriate for a Spanish-speaking commercial environment are developed.

Prerequisite: AS/SP 3000 6.0 or AS/SP 2040 6.0 or permission of the department.

Degree credit exclusion: AS/SP 3800A 6.0 (Fall/Winter 1991-1992 to Fall/Winter 1996-1997).

Language of instruction: Spanish.

AS/SP 3110 3.0 Spanish Stylistics. This course is designed to teach students of the Spanish language some basic aspects of stylistics and to provide practice in stylistic analysis of both literary and non-literary texts. The language of instruction is Spanish.

Prerequisite: AS/SP 3000 6.0 or AS/SP 2040 6.0 (preferably with a minimum grade of B) or permission of the department.

Language of instruction: Spanish.

AS/SP 3120 3.0 English-Spanish and Spanish-English Translation. This course helps students to learn some of the skills necessary for accurate written translation from English to Spanish and vice versa.

Prerequisite: AS/SP 3000 6.0 or AS/SP 2040 6.0 (preferably with a minimum grade of B) or permission of the department.

Language of instruction: Spanish.

AS/SP 3210 6.0 Introduction to Spanish-American Literature. An intensive study of prose and poetry from colonial times to the 20th century, with some reference to historical and social influences on the development of literature.

Prerequisite: AS/SP 2200 6.0 or permission of the department.

Language of instruction: Spanish.

AS/SP 3360 3.0 Spanish Poetry of the Golden Age. A study of selected poetry from the Renaissance and Baroque periods. Works by Garcilaso, Fray Luis de León, Herrera, San Juan de la Cruz, Góngora, Lope de Vega and Quevedo.

Prerequisite: AS/SP 2200 6.0 or permission of the department.

Language of instruction: Spanish.

AS/SP 3370 3.0 Spanish Theatre of the Golden Age. The rise and development of the Spanish theatre in the Renaissance and Baroque periods.

Prerequisite: AS/SP 2200 6.0 or permission of the department.

Language of instruction: Spanish.

AS/SP 3540 3.0 19th-Century Spanish Poetry. A study of representative works of the more important Spanish poets from the Romantic period to the end of the 19th century.

Prerequisite: AS/SP 2200 6.0 or permission of the department.

Language of instruction: Spanish.

AS/SP 3560 3.0 19th-Century Spanish Theatre. A study of representative works of the most important Spanish playwrights of the Romantic, Post-Romantic and Realist schools.

Prerequisite: AS/SP 2200 6.0 or permission of the department.

Language of instruction: Spanish.

AS/SP 3570 6.0 19th- and Early 20th-Century Spanish Prose. A study of novels and short stories by outstanding Spanish writers, including Larra, Valera, Galdós, Blasco Ibañez and Unamuno.

Prerequisite: AS/SP 2200 6.0 or permission of the department.

Language of instruction: Spanish.

AS/SP 3580 6.0 The Generation of 1898 and Modern Spain. A study of major Spanish writers and thinkers from the generation of 1898 up to the present and their response to the problems facing the Spanish nation. Among the authors to be studied are Unamuno, Machado, Baraja, Zorin, Lorca, J. Ortega y Gasset and contemporary women writers.

Prerequisite: AS/SP 2200 6.0 or permission of the department.

Language of instruction: Spanish.

AS/SP 3660 6.0 20th-Century Spanish Poetry and Theatre. This course explores the development of poetry and theatre in 20th-century Spain and acquaints students with the literary and aesthetic values of poetic and dramatic works of the period.

Prerequisite: AS/SP 2200 6.0 or permission of the department.

Language of instruction: Spanish.

AS/SP 4150 6.0 History of the Spanish Language. The evolution of the Spanish language from Vulgar Latin to the present time. First Spanish texts. Spanish as a Romance language. Arabic and other foreign influences on the formation of Spanish.

Prerequisite: AS/SP 2040 6.0 and AS/SP 2200 6.0 or permission of the department.

Language of instruction: Spanish.

AS/SP 4220 6.0 The Spanish-American Essay and Short Story. Close reading of the Spanish-American essay and short story mainly of the 20th century including among the essayists Rodo, Mariategui, Pedro Henriquez Urena, Vasconcelos, Reyes, and among the cuentistas Darió, Borges, Rulfo, Garciá-Márquez and Carpentier.

Prerequisite: AS/SP 2200 6.0 or permission of the department.

Language of instruction: Spanish.

AS/SP 4300 6.0 Medieval Spanish Literature (from 1100 to 1400). An exploration of the origins and development of medieval Spanish poetry and prose with particular emphasis on major works such as *Poema de Mio Cid*, *Los Milagros* and *El Libro de Buen Amor*.

Prerequisite: AS/SP 2200 6.0 or permission of the department.

Language of instruction: Spanish.

AS/SP 4350 6.0 Spanish Prose of the Golden Age. This course covers important aspects of Spain's intellectual life during the Golden Age. While most of the texts to be read are works of literature, some are expository works which reflect religious, philosophical and political ideas of the period.

Prerequisite: AS/SP 2200 6.0 or permission of the department.

Language of instruction: Spanish.

AS/SP 4580 3.0 Spanish-American Modernismo. A survey of the poetry of the major Spanish-American modernists Jose Martií Ruben Darió, Julian del Casal and Manuel Gutierrez Najera. In addition, the course considers the social and literary milieu of the period.

Prerequisite: AS/SP 2200 6.0 or permission of the department.

Language of instruction: Spanish.

AS/SP 4640 6.0 The Spanish-American Novel of the 20th Century. A close study of the novel in 20th-century Spanish-America, based on works of some of the major novelists.

Prerequisite: AS/SP 2200 6.0 or permission of the department.

Language of instruction: Spanish.

AS/SP 4660 6.0 Contemporary Spanish Prose (Since 1939). Detailed examination of the Spanish novel and short story written after the Civil War (1936-1939), including such authors as Cela, Delibes, Matute, Ayala Martin-Gaite.

Prerequisite: AS/SP 2200 6.0 or permission of the department.

Language of instruction: Spanish.

XIV. Special Topics

AS/xx 1800 3.0/1800 6.0, AS/xx 2800 3.0/2800 6.0, AS/xx 3800 3.0/3800 6.0, AS/xx 4800 3.0/4800 6.0, AS/xx 4810 3.0, AS/xx 4820 3.0 Special Topics in Languages, Literatures and Linguistics. Under this heading the department will, from time to time, offer courses in languages, literatures or linguistics which are not usually taught in the department. These courses may focus on new aspects of, or approaches to, subject matter which is already being taught.

XV. Individualized Reading Courses

AS/xx 4900 3.0/4900 6.0 Individualized Reading Courses in Languages and Literatures. This course will only be offered under special circumstances and by agreement among a faculty member, the department and the student.

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

Latin American and Caribbean Studies – Arts

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The Interdisciplinary Program in Latin American and Caribbean Studies (LACS) allows students to pursue their interest in Latin America and the Caribbean by taking courses taught in a number of departments and divisions in the Faculty of Arts. Students can double major or minor in Latin American and Caribbean studies and an Honours BA program in the Faculty of Arts. The LACS Program offers introductory core courses in Latin American and Caribbean studies as well as other introductory and upper-level courses in the area. The purpose of the core courses is to introduce and develop interdisciplinary ways of looking at the regions while at the same time integrating knowledge obtained in other courses. The program courses provide shared intellectual meeting grounds for LACS majors and other students. The interdisciplinary nature of the LACS Program ensures a broad and deep understanding of the Latin American and Caribbean regions.

The LACS Program works together with Founders College and the Center for Research on Latin America and the Caribbean (CERLAC) to offer students a wide variety of events related to the Latin American and Caribbean regions. These include guest lectures by internationally renowned academics, workshops and conferences, and cultural and social events. LACS majors and minors may also use the Documentation Centre of the Centre for Research on Latin America and the Caribbean (CERLAC, 240 York Lanes).

LACS majors are also encouraged to join the LACS Students Association (LACSA), which provides students with an opportunity to meet together and set their own agenda.

Study Abroad Programs: York University has a formal student exchange agreement with the University of the West Indies (UWI) which allows York students to study at UWI and get credit from York. LACS majors may also get academic credit for other courses taken at other universities in the Latin American and Caribbean area. For further information contact York International or the LACS coordinator.

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

Courses in Latin American and Caribbean 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 Latin American and Caribbean 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 Latin American and Caribbean studies.

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

AS/ECON 3310 3.0 Development Economics I.
AS/ECON 3320 3.0 Development Economics II.
AS/EN 2370 6.0 Post-Colonial Literature.
AS/EN 4230D 3.0 Studies in Post-Colonial Literature: Derek Walcott.
AS/FR 2052 3.0 Music and Identity in the French Caribbean.
AS/FR 2053 3.0 Literature and Identity in the French Caribbean.
AS/GEOG 2020 6.0 Geographical Transformation of the Caribbean Islands.
AS/HIST 2720 6.0 Modern Latin America, 1810 to the present.
AS/HIST 3700 6.0 African, Caribbean and Latin American Connections: The Making of the South Atlantic World.
AS/HIST 3710 6.0 Ideology, Politics and Revolution in the Caribbean.
AS/HIST 3730 6.0 Mexican History from the Aztecs to the Mexican Revolution (1325-1911).
AS/HIST 4750 6.0 Backwardness and Revolution in Latin America
AS/HIST 4755 6.0 Cultural and Social History of Colonial Latin America.
AS/HUMA 2310 9.0 Introduction to Caribbean Studies.
AS/HUMA 4300 6.0 Aspects of Modern Latin American and Caribbean Studies (cross-listed to: AS/SOSC 4450 6.0).
AS/HUMA 4310 6.0 Religion and Politics in the Caribbean.
AS/POLS 3790 6.0 The Political Economy of Latin America and the Caribbean (cross-listed to: AS/SOSC 3410 6.0).
AS/POLS 4225 3.0 Canada and the Americas.
AS/POLS 4540 6.0 Caribbean Politics.
AS/SOSC 2460 6.0 Contemporary Latin America.
AS/SOSC 2470 6.0 Caribbean Society in Transition: Emancipation to Independence.
AS/SOSC 3410 6.0 The Political Economy of Latin America and the Caribbean (cross-listed to: AS/POLS 3790 6.0).
AS/SOSC 4450 6.0 Aspects of Modern Latin American and Caribbean Studies (cross-listed to: AS/HUMA 4300 6.0).
AS/SOCI 3330 6.0 Politics and Society in Latin America.
AS/SOCI 4350 3.0 Sociology of International Migration.
AS/SP 3210 6.0 Introduction to Spanish-American Literature.
AS/SP 4220 6.0 The Spanish American Essay and Short Story.
AS/SP 4580 3.0 Spanish-American Modernismo.
AS/SP 4640 6.0 The Spanish-American Novel of the 20th Century.

Note: The following courses provide the opportunity for advanced students to undertake directed reading and/or research projects under the guidance of a member of the Latin American and Caribbean Studies Program. Please consult the Faculty of Arts Academic Advising and Student Responsibility section for regulations on independent reading courses.

AS/HUMA 4050 6.0 Independent Studies.

Prerequisite: Permission of the Humanities Division.

AS/SOSC 4090 6.0 Directed Reading.

Prerequisite: Permission of the Social Science Division.

Note: The following courses are offered through Atkinson. Students should consult the Atkinson Calendar for details.

AK/ECON 3550 3.0 The Economics of Developing Countries, Part I.
AK/ECON 3560 3.0 The Economics of Developing Countries, Part II.
AK/POLS 3460 6.0 Latin America and the Caribbean: Development and Underdevelopment.
AK/POLS 3620 6.0 Racism and Colonialism.
AK/SOSC 2430 6.0 Introduction to Comparative Third World Studies.
AK/SOCI 4240 6.0 Health Society and Human Resources.

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Law and Society – Arts

Program Office (Division of Social Science):
S741 Ross, 416-736-5054
Coordinator of the Program:
Lesley Jacobs, Social Science
e-mail: *jacobs@yorku.ca*
Advisers:
M. Beare, Department of Sociology;
P. Harries-Jones, Department of Anthropology; J. Landa, Department of Economics; P. Oliver, Department of History;
L. Jacobs, Department of Philosophy;
I. Greene, Department of Political Science;
R. Schuller, Department of Psychology

Law is one of the most significant expressions of a society's social and political development. In recent years social scientists from many disciplines have begun to analyze the interplay between law and society. We live in a period of widespread public interest in law that arises from a concern with problems of social justice, social control and social deviance. Academic disciplines such as anthropology, economics, history, philosophy, political science, psychology and sociology have increasingly focused on such issues as the nature and origin of law; law-making and law-breaking; rights and obligations; freedom and responsibility and law as social policy. These are matters of increasing concern to teachers, social workers, businessmen, doctors and public servants whose professional responsibilities demand a knowledge of the relationship of law to their own fields.

The goals of the program may be stated briefly: to affirm the intellectual importance of the study of law and society and law in society; to provide a framework within which faculty and students may explore, within disciplines and between them, descriptive and analytic approaches to the subject; and to sharpen the appreciation of law as part of the active daily life of the student.

The program must be seen within the context of a liberal education. It is not a pre-law school program or a prerequisite for law school admission. It is designed for interested undergraduate students, whatever their future career orientation.

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

Courses in Law 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 the law and society 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 law and society.

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

AS/ANTH 4200M 6.0 A Socio-Cultural Perspective on Local-Level Politics.
AS/ECON 3240 3.0 Labour Economics – Theory.
AS/ECON 3250 3.0 Labour Economics – Institutions.
AS/ECON 4309 3.0 Law and Economics.
AS/HIST 2500 6.0 Canadian History.
AS/HIST 3415 6.0 Law, Property and Freedom in Britain and its Empire.
AS/HIST 3591 6.0 Politics, Law and the Constitution in Modern Canada.
AS/HIST 3850 6.0 Murder and Other Crimes: Law and Justice in 20th Century North America.
AS/LING 2400 3.0 Language in its Social Context.
AS/LING 2450 3.0 Language and the Law.
AS/PHIL 2050 6.0 Philosophy of Law.
AS/PHIL 2060 3.0 Social and Political Philosophy.
AS/PHIL 2070 3.0 Introduction to Ethics.
AS/PHIL 2075 3.0 Introduction to Applied Ethics.
AS/PHIL 3110 3.0 Political Philosophy.
AS/PHIL 4190 3.0 Topics in the Philosophy of Law.
AS/POLS 2040 6.0 Introduction to Political Theory.
AS/POLS 3075 3.0 Law, Justice and Jurisprudence.
AS/POLS 3165 6.0 Problems in Canadian Business Law (cross-listed to: AS/SOSC 3165 6.0).
AS/POLS 3600 3.0 Public Law I.
AS/POLS 3605 3.0 Public Law II.
AS/POLS 4015 3.0 Theories of Justice.
AS/POLS 4440 3.0 Human Rights in Europe.
AS/POLS 4445 3.0 European Union.
AS/POLS 4600 3.0 Judicial Administration in Canada.
AS/POLS 4601 3.0 Systems of Justice.
AS/PSYC 2120 3.0 Social Psychology.
AS/PSYC 3140 3.0 Abnormal Psychology.
AS/SOSC 1210 9.0 Human Rights and Canadian Minorities.
AS/SOSC 1350 9.0 Women and the Law.

AS/SOSC 2330 9.0 The Economics of Law, Policy and Organizations.

AS/SOSC 2350 6.0 Law and Society. This course examines the interrelationship between law and the social sciences with emphasis on types of legal thought, the function of law in society, legal systems and a variety of specific issues involving Canadian society and law, such as the legal profession, the criminal process, civil and political rights, and family law.

Note: This course is required of students registered in the Law and Society Program, but also is open to others.

AS/SOSC 3030 6.0 Crime and Punishment in Western Societies.
AS/SOSC 3165 6.0 Problems in Canadian Business Law (cross-listed to: AS/POLS 3165 6.0).
AS/SOSC 3360 6.0 The Charter of Rights and Freedoms.
AS/SOSC 3370 6.0 Social Justice and Law.
AS/SOSC 3380 6.0 Law, Labour and the State.
AS/SOSC 3381 6.0 Criminal Justice System.
AS/SOSC 3382 6.0 Criminology Theory.
AS/SOSC 3390 6.0 Special Topics in Law and Society.
AS/SOSC 3990B 6.0 Popular Trials.
AS/SOSC 3990C 3.0 Strategies of Social Science Research.

AS/SOSC 4350 6.0 Law and Society Seminar. This course, limited to and required of law and society students, examines theories and practice relating to the interaction of law and society, depending on student and faculty interest in one or other specific topics.

AS/SOCI 2070 6.0 Social Order and Social Organization.
AS/SOCI 3430 6.0 Ethnicity, Power and Identity.
AS/SOCI 3810 6.0 Sociology of Crime and Delinquency.
AS/SOCI 4440 6.0 Race, Minorities and the Legal Order.
AS/SOCI 4810 6.0 Women and the Criminal Justice System.
AS/SOCI 4840 6.0 Sociology of Policing.
AS/SOCI 4850 3.0 Organized Crime.

Atkinson

AK/POLS 3209G 6.0 Law and Society: Legal Institutions and Social Justice.
AK/PSYC 3210 3.0 Social Psychology.
AK/PSYC 3215 3.0 Abnormal Psychology.

Fine Arts

FA/INFA 4920 3.0 The Arts and the Law: Policies and Perspectives.

Note: other courses may be added to this list of recognized and approved courses from time to time. For the current full list, see the supplementary calendar for interdisciplinary programs available through the Division of Social Science office.

Seneca College of Applied Arts and Technology offers a one year diploma program in Court and Tribunal Administration for York graduates who have completed the Honours Double Major Interdisciplinary BA Program in Law and Society and one of the affiliated departments. For information about the Seneca College program, contact the Director, Court and Tribunal Administration Program, Seneca College, 1750 Finch Avenue East, Toronto, M2J 2X5.

Students applying for admission to York University on the basis of their Seneca College Diploma in Court and Tribunal Administration would be expected to satisfy the usual admission requirements as specified in the University Undergraduate Calendar for the session to which they are applying.

General Certificate in Law and Society

The Law and Society Program offers a certificate to students who take SOSC 2350 6.0 and an additional 18 credits from the list of approved courses. Six of these credits must be at the 4000 level. Students who apply for a certificate will be asked to indicate whether they are eligible for the certificate on the application form they fill out (application to graduate form) prior to their graduation. For further information, please contact the secretary or coordinator of the Law and Society Program.

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Linguistics – Arts

Department Office:
　S561 Ross, 416-736-5016
Program Coordinator:
　P. Avery

Linguistics is concerned with discovering the principles in terms of which natural languages are organized and applying these principles to the description of individual languages. Using systematic descriptions of language and language usage, linguists also investigate how language interacts with our intellectual life.

Because language mediates virtually all forms of human endeavour, the study of linguistics can provide new perspectives on almost every aspect of the humanities and social sciences. In addition, it has applications to primary and secondary education, speech-language pathology and the applied sciences of communication engineering and computer science.

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

Courses in Linguistics

Note: Not all courses will necessarily be offered in any given year; consult the department's supplemental calendar for details of courses to be offered.

AS/LING 1000 6.0 Introduction to Linguistics. An examination of fundamental principles of language organization including the study of phonetics, phonology, morphology and syntax from both practical and theoretical points of view with illustrations from English and a variety of other languages. Brief survey of the areas of sociolinguistics, child language acquisition, historical linguistics and psycholinguistics.

AS/LING 2060 6.0 The Grammatical Structure of English. An investigation of the grammatical structure of modern English, including phonology, morphology, syntax and semantics, within a linguistic framework.

Cross-listed to: AS/EN 2060 6.0.

AS/LING 2110 3.0 Phonetics. An investigation of speech sounds in terms of anatomy and physiology. Practice in discrimination and production of speech sounds.

Prerequisite: AS/LING 1000 6.0 or permission of the department.

AS/LING 2120 3.0 Fundamentals of Phonological Analysis. Practical techniques of phonological analysis exemplified by data taken from a variety of languages. Practice in the use of distinctive features and rule formalisms.

Prerequisite: AS/LING 1000 6.0 or equivalent, with a grade of C.

AS/LING 2140 3.0 Fundamentals of Grammatical Analysis. Practical techniques of grammatical analysis exemplified by data taken from a variety of languages.

Prerequisite: AS/LING 1000 6.0 or equivalent, with a grade of C.

AS/LING 2400 3.0 Language in its Social Context. An introduction to the study of language as a social phenomenon. Topics covered include language varieties; stereotypes and social identity; language, culture and thought; communicative competence; bilingualism and diglossia; languages in contact; language and social deprivation; and language planning and language policy.

Prerequisite: None.

AS/LING 2410 3.0 Language and Gender. This course explores the relationship between language and sex/gender systems from a feminist perspective. The main areas dealt with are language and sex stereotypes; language, power and women's status; and male *versus* female communicative style in different sociocultural contexts.

Cross-listed to: AK/AS/GL/WMST 2501 3.0, GL/SOSC 2900E 3.0.

Prerequisite: None.

AS/LING 2430 3.0 Language, Power and Persuasion. This course investigates the language of power and persuasion. The language used by powerful and powerless groups is analyzed to determine how it reinforces positions of dominance and subordination. The role of language in public persuasion is also considered.

Prerequisite: None.

AS/LING 2440 3.0 Languages and Societies. The study of the distribution, spread and interaction of language varieties; language and cultural conflict; and language and cultural change. The course surveys past and present

language situations in major culture-areas, such as Europe, East Asia, the Arab world and South Asia.

Prerequisite: AS/LING 2400 3.0 or permission of the department.

AS/LING 2450 3.0 Language and the Law. This course explores ways in which the discipline of linguistics can shed light on the use of language in the legal system. Topics include the special characteristics of written legal language, spoken language in the courtroom and linguists as expert witnesses.

AS/LING 2460 3.0 South Asian Language and Society. A survey of the diversity and unity of language in the South Asian cultural area and in South Asian diasporic communities focusing on the role of language in defining identity and in mediating social and cultural change.

Language of Instruction: English.

Prerequisite: None.

AS/LING 3040 3.0 Historical Linguistics. An introduction to the study of the development of language systems through time, including the principles of genetic classification of languages, comparative grammar and internal reconstruction.

Prerequisite: AS/LING 2120 3.0 with a grade of C+ or better or permission of the department.

AS/LING 3050 3.0/3050 6.0 Special Topics in Linguistics. A half-year course or full-year seminar on particular topics not ordinarily available. Requests for such offerings and information about courses or seminars available in a given year should be addressed to the departmental office.

AS/LING 3060 3.0 Linguistic History of English. A study of the principal changes in the English language from Anglo-Saxon times to the present day.

Prerequisite: AS/LING 2120 3.0 and AS/LING 2140 3.0 with a grade of C or better, or permission of the department.

Degree credit exclusion: AS/LING 4060 3.0.

AS/LING 3120 3.0 Phonology. Theoretical principles and practical techniques of phonological analysis exemplified by data taken from a variety of languages.

Prerequisite: AS/LING 2110 3.0 and AS/LING 2120 3.0 or equivalent.

AS/LING 3140 3.0 Syntax. This course provides a basic introduction to generative syntax, in particular to the recent work of Noam Chomsky and his followers. Although most of the data analyzed will be English, syntactic patterns of some other languages will be discussed.

Prerequisite: AS/LING 2140 3.0 or equivalent.

AS/LING 3150 3.0 Semantics. This course provides an introduction to sentence-level semantics. Some topics in word-level semantics are also considered. Issues are examined primarily from the perspective of a version of truth-conditional semantics.

Prerequisite: AS/LING 2140 3.0 or permission of the department.

Degree credit exclusion: AS/LING 4800C 3.0.

AS/LING 3160 3.0 Discourse Analysis. This course provides an analysis of spoken and written texts in context. Specific topics include spoken *versus* written discourse; the role of context in the interpretation of utterances; cohesion and coherence; and the relationship between information structuring and grammatical forms.

Prerequisite: AS/LING 1000 6.0 or AS/LING 2060 6.0.

AS/LING 3210 3.0 First Language Acquisition. This course surveys first language acquisition from a variety of approaches, including social interactionist, innatist and information processing.

Prerequisite: AS/LING 1000 6.0 or AS/LING 3220 3.0 (cross-listed to: AS/PSYC 3290 3.0).

AS/LING 3220 3.0 Psycholinguistics. A survey of psycholinguistic research and theory; topics include language acquisition, psychological correlates of transformational grammars, information-processing approaches to language.

Cross-listed to: AS/PSYC 3290 3.0.

Prerequisite: AS/LING 1000 6.0 or AS/PSYC 1010 6.0.

Degree credit exclusion: AK/PSYC 3250 3.0.

AS/LING 3240 3.0 Second Language Acquisition. This course deals with the main issues of second language acquisition. Topics treated include similarities and differences between first and second language acquisition, bilingualism and various theories such as interlanguage, the contrastive analysis hypothesis and the monitor model.

Prerequisite: AS/LING 1000 6.0 or AS/LING 3220 3.0.

Degree credit exclusion: AS/LING 3230 3.0.

AS/LING 3410 3.0 Writing Systems. This course deals with the interaction of spoken language and writing structure; functioning and cultural spread of writing systems; historical relationships; and orthographic change, reform and design. Systems studied include Roman, Greek, Cyrillic, Arabic and Hebrew alphabets, and systems of the Indian subcontinent, Korea, China and Japan.

Prerequisite: AS/LING 1000 6.0 or AS/LING 2060 6.0 or permission of the department.

AS/LING 3600 3.0 Socio-Political Issues in Second Language Teaching. Teaching English to speakers of other languages (TESOL) takes place within a complex socio-political context. Selected issues are used to consider how this context influences the teaching/learning process.

Prerequisite: None.

Note: This course does not count towards linguistics major credit.

AS/LING 4050 3.0 Topics in Historical Linguistics. This course includes further study of the comparative method and internal reconstruction, the role of typology, and the weighing of different types of evidence, using these as a springboard to consideration of topics of current interest to practising historical linguists.

Prerequisite: AS/LING 3040 3.0 with a minimum grade of C+, or permission of the department.

AS/LING 4070 3.0 A History of the Romance Language Family. A study of the evolution of the various members of the Romance family from Latin to the present day, with emphasis on French, Spanish and Italian.

Prerequisite: Completion of AS/LING 3040 3.0 with a grade of C+ or better, or permission of the department.

AS/LING 4120 3.0 Phonological Theories. This course concentrates on recent developments in phonological theory within a generative framework. Specific topics include the representation of segments, autosegmental phonology, syllable structure, metrical phonology and lexical phonology.

Prerequisite: AS/LING 3120 3.0 with a grade of C+ or better, or permission of the department.

AS/LING 4140 3.0 Grammatical Theories. This course examines the metatheoretical issues and assumptions underlying the development of different linguistic theories. The foundations and formal framework of Government-Binding Theory, the most recent version of Chomsky's Extended Standard Theory, will be introduced and later compared with a competing linguistic theory.

Prerequisite: AS/LING 3140 3.0 with a grade of C+ or better, or permission of the department.

AS/LING 4210 3.0 Theoretical Issues in First Language Acquisition. This course treats the acquisition of linguistic structures as seen from the perspectives of principles and parameters theory, the competition model and current theories of phonological development.

Prerequisite: AS/LING 3120 3.0, AS/LING 3140 3.0 and AS/LING 3210 3.0 with grades of C+ or better, or permission of the department.

AS/LING 4220 3.0 Acoustic Phonetics. An investigation of acoustic-phonetic aspects of speech and their relation to speech perception and recognition. Practical experience in techniques of acoustic-phonetic research.

Prerequisite: AS/LING 2110 3.0 and AS/LING 2120 3.0 with grades of C+ or better, or permission of the department.

AS/LING 4230 3.0 Language Disorders. This course surveys a variety of language disorders, among them aphasia, delayed language development, dyslexia and language dissolution in old age. Specific disorders are discussed within a psycholinguistic framework. There will be some discussion of basic strategies for therapy.

Prerequisites: Completion of AS/LING 3120 3.0, AS/LING 3140 3.0 and AS/LING 3220 3.0 (cross-listed to: AS/PSYC 3290 3.0) with grades of C+ or better, or permission of the department.

AS/LING 4240 3.0 Theoretical Issues in Second Language Acquisition. An examination of the relationship between linguistic theory and second language acquisition including the nature of second language learners' linguistic representations from both linguistic and neurolinguistic perspectives, the role of Universal Grammar, and elicitation and interpretation of second language data.

Prerequisite: Completion of AS/LING 3240 3.0 (formerly AS/LING 3230 3.0) with a grade of B+ and AS/LING 3120 3.0 and AS/LING 3140 3.0 with grades of B, or permission of the department.

AS/LING 4320 6.0 Field Methods. This course provides students with the skills and techniques necessary to conduct independent linguistic field work.

Prerequisites: Completion of AS/LING 2110 3.0, AS/LING 3120 3.0 and AS/LING 3140 3.0 with grades of C+ or better, or permission of the department.

AS/LING 4400 3.0 Sociolinguistic Variation and Change. This course examines language variation and change. Sociolinguistic variation is not random, but systematically reflects both social organization and features of the sociolinguistic context. Students will gain experience in all stages of sociolinguistic research and do an original research paper.

Prerequisites: AS/LING 2120 3.0, AS/LING 2140 3.0 and AS/LING 2400 3.0 with grades of C+ or better, or permission of the department.

Degree credit exclusion: AS/LING 3400 3.0.

AS/LING 4440 3.0 Topics in Grammatical Change. This course deals with morphosyntactic change from a broadly generative perspective. It focuses on large-scale changes, changes resulting in dialectal variation, and changes in progress. Both language-internal and language-external mechanisms by which change takes place are considered.

Prerequisites: AS/LING 2140 3.0 and AS/LING 3140 3.0, both with grades of C+ or better. AS/LING 2400 3.0 and AS/LING 3040 3.0 are recommended.

Degree credit exclusion: AS/LING 4800B 3.0.

AS/LING 4900 3.0/4900 6.0 Independent Study. Students may arrange to undertake independent study with a member of the Linguistics Program. This allows students and instructors to work on topics of mutual interest which lie outside the usual course offerings. Contact the undergraduate coordinator for details.

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

section for regulations on independent reading courses.

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Mathematics and Statistics – Arts, Pure and Applied Science

Department Office:
 N520 Ross, 416-736-5250
Chair of the Department:
 T. Salisbury
Professors:
 M. Abramson, R.G. Burns, S. Guiasu, I. Kleiner, S. Kochman, J. Laframboise, N.N. Madras, K.R. Maltman, H. Massam, M.E. Muldoon, G.L. O'Brien, P.Oh , J. Wick Pelletier, S.D. Promislow, T. Salisbury, A.D. Stauffer, J. Steprans, P.A. Taylor, W. Tholen, E.J.J. van Rensburg, S. Watson, A. Weiss, W.J. Whiteley, M.W. Wong, J. Wu, Y. Wu
Professors Emeriti:
 D.A.S. Fraser, C. Hruska, L. Lorch, R.P. McEachran, D.C. Russell, A. Shenitzer, D. Solitar
Associate Professors:
 N. Bergeron, J.M.N. Brown, K. Bugajska, S.R. Chamberlin, G.E. Denzel, R.A. Ganong, A. Kushniruk, G.A. Monette, D.H. Pelletier, P.H. Peskun, A. Pietrowski, N. Purzitsky, A.M.K. Szeto, D. Tanny
Associate Professors Emeriti:
 D.W.T. Bean, J.H. Grant, S.W. Lee, T. MacHenry, R.A. Schaufele
Assistant Professors:
 Y. Gao, A. Gibbs, H. Huang, D. Liang, D.M. Salopek, P. Song
Special Renewable Contract:
 E. Brettler
NSERC Women's Faculty Awardee:
 F. Vinette

The Department of Mathematics and Statistics offers a wide range of courses in both pure and applied mathematics and statistics. These meet the needs of students who wish to major in mathematics or statistics as well as those who require some knowledge of mathematics or statistics in other disciplines. In addition, there are courses for those who have a general interest in these subjects.

Actuarial Profession. Students interested in the actuarial profession should consult the Department of Mathematics and Statistics for guidance. The department will be glad to suggest a program of courses which will be helpful in preparing for examinations of the Society of Actuaries.

Operations Research. The Canadian Operational Research Society (CORS) has recognized that graduation from a Program in Applied Mathematics, Mathematics or Statistics with a prescribed set of courses will qualify a student for the Diploma in Operations Research awarded by CORS. Interested students should consult the Department of Mathematics and Statistics for guidance.

For specific requirements of programs offered by this department, see the Faculty of Arts Programs of Study section of this Calendar for

BA and BA Honours programs and see the Faculty of Pure and Applied Science Programs of Study section of this Calendar for BSc and BSc Honours programs.

Courses in Mathematics and Statistics

When selecting courses, please note the following:

1. A student taking lower-level mathematics courses may wish to make use of the services provided by the department's Mathematics Laboratory.

2. AS/SC/MATH 1510 6.0 is intended for students who, despite having one or more OACs in mathematics (or equivalents), have a weak mathematical background. AS/SC/MATH 1510 6.0 can serve as preparation for AS/SC/MATH 1515 3.0 and from there entrance to further calculus courses.

3. Note on calculus courses for first-year students.

a) BBA Honours students who wish to take only a minimum amount of mathematics should take both AS/MATH 1530 3.0 and AS/MATH 1540 3.0, or AK/AS/MATH 1550 6.0. The prerequisite for these courses is AS/SC/MATH 1515 3.0 or OAC calculus or equivalent.

b) Science students (particularly those majoring in biology, geography, kinesiology and health science, or psychology) who do not require other specific calculus courses to satisfy degree requirements or as prerequisites for higher-level courses, may take SC/MATH 1505 6.0 to satisfy the Faculty of Pure and Applied Science 1000-level mathematics requirement.

Other students should be guided by paragraphs (c) and (d) below.

c) A student with at least one OAC in mathematics or equivalent, but without previous calculus, must begin the study of calculus with AS/SC/MATH 1515 3.0.

d) A student with OAC calculus or equivalent can begin with AS/SC/MATH 1000 3.0 or AS/SC/MATH 1013 3.0 or AK/AS/SC/MATH 1300 3.0 and then take AS/SC/MATH 1010 3.0 or AS/SC/MATH 1014 3.0 or AK/AS/SC/MATH 1310 3.0.

4. **Course numbering.** Courses with second digit 5 cannot be used to satisfy departmental degree requirements except (i) by students in the bachelor Program in Mathematics for Commerce; and (ii) by students in other programs in a few cases as noted in program descriptions.

With the exception of AS/MATH 1530 3.0, MATH courses with third digit 3 involve statistics.

Unless otherwise specified, courses whose numbers end in "6.0" (i.e. six-credit courses) have three lecture hours per week for two terms, while those whose numbers end in "3.0" (i.e. three-credit courses) have three lecture hours per week for one term. In addition, problem sessions or tutorials are scheduled for many courses.

5. Arts students should note that some Atkinson Faculty of Liberal and Professional Studies courses are out-of-Faculty and there are restrictions on the number of out-of-Faculty courses that may be taken. Science students should note that some Atkinson Faculty of Liberal

and Professional Studies courses are out-of-department - see the restrictions in note 2. under Mathematics and Statistics in the Faculty of Pure and Applied Science Programs of Study section of this Calendar.

Atkinson Faculty of Liberal and Professional Studies MATH courses which are cross-listed with MATH courses offered by the Faculties of Arts and Pure and Applied Science are identified in the course outlines below. For a list of other Atkinson Faculty of Liberal and Professional Studies courses which are equivalent to and/or degree credit exclusions for MATH courses in this Calendar, Faculty of Arts students should consult the Faculty of Arts degree credit exclusion/equivalent tables in the back of the Lecture Schedules. Science students should consult the Faculty of Pure and Applied science degree credit exclusion/equivalent tables in the back of the Lecture Schedules and in the Office of Science Academic Services beginning in March each year.

AS/SC/MATH 1000 3.0 Differential Calculus (Honours Version). Axioms for real numbers, limits, continuity and differentiability. This course covers slightly fewer topics than AK/AS/SC/MATH 1300 3.0, but covers them in greater depth. It should be taken by all those planning an Honours degree in mathematics or a Specialized Honours degree in statistics.

Prerequisite: AS/SC/MATH 1515 3.0 or OAC calculus or equivalent.

Degree credit exclusions: AS/SC/MATH 1013 3.0, AK/AS/SC/MATH 1300 3.0, AS/SC/MATH 1505 6.0, AS/MATH 1530 3.0, AK/AS/MATH 1550 6.0, AS/ECON 1530 3.0.

AS/SC/MATH 1010 3.0 Integral Calculus (Honours Version). Riemann integral, fundamental theorems of calculus, transcendental functions, integration techniques, sequences, series. This course covers fewer topics than AK/AS/SC/MATH 1310 3.0, but covers them in greater depth. It should be taken by all those planning an Honours degree in mathematics or a Specialized Honours degree in statistics.

Prerequisite: AS/SC/MATH 1000 3.0 or permission of the department.

Degree credit exclusions: AS/SC/MATH 1014 3.0, AK/AS/SC/MATH 1310 3.0, AS/SC/MATH 1505 6.0, AK/AS/SC/MATH 3110 3.0.

AS/SC/MATH 1013 3.0 Applied Calculus I. The first half of this course deals with differentiation and the second half with integration. Topics include derivatives of algebraic and transcendental functions, indefinite integrals, techniques of integration, the definite integral and its interpretation as an area.

Prerequisite: AS/SC/MATH 1515 3.0 or OAC calculus.

Degree credit exclusions: AS/SC/MATH 1000 3.0, AK/AS/SC/MATH 1300 3.0, AS/SC/MATH 1505 6.0, AS/MATH 1530 3.0, AK/AS/MATH 1550 6.0, AS/ECON 1530 3.0.

AS/SC/MATH 1014 3.0 Applied Calculus II. Applications of differential and integral calculus (e.g. maxima and minima, areas, volumes of revolution, moments and centroids etc.), indeterminate forms, improper integrals, Taylor series, simple ordinary differential equations and an introduction to multivariate calculus.

Prerequisite(s): One of AS/SC/MATH 1000 3.0, AS/SC/MATH 1013 3.0, AK/AS/SC/MATH 1300 3.0, or, for non-science students only, six credits from AS/MATH 1530 3.0 and AS/MATH 1540 3.0, AK/AS/MATH 1550 6.0, AS/ECON 1530 3.0 and AS/ECON 1540 3.0.

Degree credit exclusions: AS/SC/MATH 1010 3.0, AK/AS/SC/MATH 1310 3.0, AS/SC/MATH 1505 6.0.

AS/SC/MATH 1016 1.0 Applied Mathematics Module I. Designed for students in applied mathematics to complement and enrich the material in AS/SC/MATH 1013 3.0. The module treats the theory in greater depth, and explores extended applications and modelling. One lecture hour per week. One term. One credit.

Prerequisite: OAC calculus or AS/SC/MATH 1515 3.0.

Prerequisite or corequisite: AS/SC/MATH 1013 3.0.

Note: AS/SC/MATH 1016 1.0 must be taken within the first 60 credits of a student's program.

AS/SC/MATH 1017 1.0 Applied Mathematics Module II. Designed for students in applied mathematics to complement and enrich the material in AS/SC/MATH 1014 3.0. The module treats the theory in greater depth, and explores extended applications and modelling. One lecture hour per week. One term. One credit.

Prerequisites: AS/SC/MATH 1013 3.0; AS/SC/MATH 1016 1.0.

Prerequisite or corequisite: AS/SC/MATH 1014 3.0.

Note: AS/SC/MATH 1017 1.0 must be taken within the first 60 credits of a student's program.

AK/AS/SC/MATH 1021 3.0 Linear Algebra I. (formerly AS/SC/MATH 2021 3.0 — before 2001-2002) Linear equations, matrices, Gaussian elimination, determinants and vector spaces. This course covers material similar to that in AK/AS/SC/MATH 2221 3.0 but at a more advanced level. Required in Specialized Honours statistics and in all Applied Mathematics, Mathematics and Mathematics for Commerce programs except the BA Program in Mathematics for Commerce.

Prerequisite: One OAC mathematics course or equivalent.

Degree credit exclusions: AS/SC/MATH 1025 3.0, AS/SC/MATH 2021 3.0, AK/AS/SC/MATH 2221 3.0.

AS/SC/MATH 1025 3.0 Applied Linear Algebra. Topics include spherical and cylindrical coordinates in Euclidean 3-space, general matrix algebra, determinants, vector space concepts for Euclidean n-space (e.g. linear dependence and independence, basis, dimension, linear transformations etc.), an introduction to eigenvalues and eigenvectors.

Prerequisite: OAC algebra and geometry.

Degree credit exclusions: AK/AS/SC/MATH 1021 3.0, AS/SC/MATH 2021 3.0, AK/AS/SC/MATH 2221 3.0.

AK/AS/SC/MATH 1090 3.0 Introduction to Logic for Computer Science. The syntax and semantics of propositional and predicate logic. Applications to program specification and verification. Optional topics include set theory and induction using the formal logical language of the first part of the course.

Prerequisite: One OAC in mathematics or equivalent, or AK/MATH 1710 6.0.

Degree credit exclusion: This course may not be taken for degree credit by any student who has passed AK/AS/SC/MATH 4290 3.0.

AK/AS/SC/MATH 1131 3.0 Introduction to Statistics I. Displaying and describing distributions; relations in categorical data; Simpson's paradox and the need for design; experimental design and sampling design; randomization; probability laws and models; central limit theorem; statistical inference including confidence intervals and tests of significance; matched pairs; simulation.

Prerequisite: At least one OAC in mathematics is recommended.

Degree credit exclusions: AK/AS/SC/MATH 2560 3.0, SC/BIOL 2060 3.0, SC/BIOL 3090 3.0, AS/ECON 2500 3.0, AS/SC/GEOG 2420 3.0, AS/SC/KINE 2050 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/PSYC 2510 3.0, AK/AS/SOCI 3030 6.0.

AK/AS/SC/MATH 1190 3.0 Introduction to Sets and Logic. Sets, functions, relations, induction, proof techniques, logic and logic circuits, basic combinatorics and some basic graph theory.

Prerequisite: One OAC in mathematics or equivalent, or AK/MATH 1710 6.0.

Degree credit exclusions: This course may not be taken for degree credit by any student who has passed AK/AS/SC/MATH 1090 3.0 or AS/SC/MATH 1120 3.0 or any 3000- or higher-level MATH course.

Note: Students who plan to major or minor in computer science must take AK/AS/SC/MATH 1090 3.0 instead of this course.

AK/AS/SC/MATH 1300 3.0 Differential Calculus with Applications. Limits, derivatives with applications, antiderivatives, fundamental theorem of calculus, beginnings of integral calculus.

Prerequisite: AS/SC/MATH 1515 3.0 or AK/MATH 1710 6.0 or OAC calculus or equivalent.

Degree credit exclusions: AS/SC/MATH 1000 3.0, AS/SC/MATH 1013 3.0, AS/SC/MATH 1505 6.0, AS/MATH 1530 3.0, AK/AS/MATH 1550 6.0, AS/ECON 1530 3.0.

AK/AS/SC/MATH 1310 3.0 Integral Calculus with Applications. Transcendental functions, differential equations, techniques of integration, improper integrals, infinite series.

Prerequisite(s): One of AS/SC/MATH 1000 3.0, AS/SC/MATH 1013 3.0, AK/AS/SC/MATH 1300 3.0, or, for non-science students only, six credits from AS/MATH 1530 3.0 and AS/MATH 1540 3.0, AK/AS/MATH 1550 6.0, AS/ECON 1530 3.0 and AS/ECON 1540 3.0.

Degree credit exclusions: AS/SC/MATH 1010 3.0, AS/SC/MATH 1014 3.0, AS/SC/MATH 1505 6.0.

AS/SC/MATH 1505 6.0 Mathematics for the Life and Social Sciences. A presentation of the elements of single-variable differential and integral calculus, elementary linear algebra and introductory probability and statistics. This course is designed to provide a comprehensive mathematical background for students of the biological and social sciences. Emphasis is placed on basic mathematical skills and their applications.

Prerequisite: At least one OAC in mathematics or AS/SC/MATH 1510 6.0.

Degree credit exclusions: AS/SC/MATH 1000 3.0, AS/SC/MATH 1010 3.0, AS/SC/MATH 1013 3.0, AS/SC/MATH 1014 3.0, AK/AS/SC/MATH 1300 3.0, AK/AS/SC/MATH 1310 3.0, AS/MATH 1530 3.0, AS/MATH 1540 3.0, AK/AS/MATH 1550 6.0, AS/ECON 1530 3.0, AS/ECON 1540 3.0.

AS/SC/MATH 1510 6.0 Fundamentals of Mathematics. Designed for the student whose mathematical background is weak and who wishes to take further courses in mathematics. Topics include algebraic equations and inequalities; simple sequences and series; analytic geometry; trigonometry; functions, including algebraic, exponential, logarithmic and trigonometric functions.

Degree credit exclusions: AS/MATH 1520 6.0. May not be taken by any student who has taken or is currently taking another university course in mathematics or statistics except for AS/SC/MATH 1500 3.0 or AS/SC/MATH 1515 3.0.

AS/SC/MATH 1515 3.0 Introduction to Calculus. Elements of differential calculus, antiderivatives and integrals, with applications. Designed for students who have not taken (or have performed inadequately in) OAC calculus.

Prerequisite: One OAC in mathematics or AS/SC/MATH 1510 6.0 or equivalent, or permission of the department. This course may be taken at the same time as the second half of AS/SC/MATH 1510 6.0.

Degree credit exclusions: AS/SC/MATH 1500 3.0. May not be taken by any student who has taken or is currently taking another university course in calculus.

AS/MATH 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 or

equivalent is required for all economics majors or minors; it also satisfies the mathematics requirement for the Schulich School of Business. It is suitable for the bachelor Program in Mathematics for Commerce, but should not be taken by those who intend to major in any other Program in Mathematics or Statistics or in Computer Science.

Cross-listed to: AS/ECON 1530 3.0.

Prerequisite: AS/SC/MATH 1515 3.0 or OAC calculus or equivalent.

Prerequisite or corequisite: AS/ECON 1000 3.0 or AS/ECON 1010 3.0.

Degree credit exclusions: AS/SC/MATH 1000 3.0, AS/SC/MATH 1013 3.0, AK/AS/SC/MATH 1300 3.0, AS/SC/MATH 1505 6.0, AK/AS/MATH 1550 6.0, AS/ECON 1530 3.0.

AS/MATH 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 or equivalent is required for all economics majors or minors; it also satisfies the mathematics requirement for the Schulich School of Business.

Cross-listed to: AS/ECON 1540 3.0.

Prerequisite: One of AS/MATH 1530 3.0, AS/SC/MATH 1000 3.0, AS/SC/MATH 1013 3.0, AK/AS/SC/MATH 1300 3.0, AS/ECON 1530 3.0.

Prerequisite or corequisite: AS/ECON 1000 3.0 or AS/ECON 1010 3.0.

Degree credit exclusions: AS/SC/MATH 1505 6.0, AK/AS/MATH 1550 6.0, AS/ECON 1540 3.0. May not be taken by any student who has taken or is taking AK/AS/SC/MATH 1021 3.0 or AS/SC/MATH 1025 3.0 or AS/SC/MATH 2021 3.0 or AK/AS/SC/MATH 2221 3.0 or equivalent.

AK/AS/MATH 1550 6.0 Mathematics with Management Applications. This course is designed to provide a mathematical background for students in the BBA Honours program. It is also suitable for the bachelor Program in Mathematics for Commerce, but should not be taken by those who intend to major in any other Program in Mathematics or Statistics or in Computer Science. It includes calculus, matrix algebra and elements of optimization with applications to management.

Prerequisite: AS/SC/MATH 1515 3.0 (may also be taken as a first-term corequisite) or OAC calculus or equivalent.

Degree credit exclusions: AS/SC/MATH 1000 3.0, AS/SC/MATH 1013 3.0, AK/AS/SC/MATH 1300 3.0, AS/SC/MATH 1505 6.0, AS/MATH 1530 3.0, AS/MATH 1540 3.0, AS/ECON 1530 3.0, AS/ECON 1540 3.0. This course may not be taken by any student who has taken or is taking AK/AS/SC/MATH 1021 3.0 or AS/SC/MATH 1025 3.0 or AS/SC/MATH 2021 3.0 or AK/AS/SC/MATH 2221 3.0 or equivalent.

AS/SC/MATH 1580 3.0 The Nature of Mathematics I. Designed to create a positive attitude towards mathematics through an examination of topics relevant to the study of mathematics at the elementary school level. Topics include numeral systems, number theory, nature of algebra and geometry. Intended primarily, but not exclusively, for education students in the primary/junior stream.

Degree credit exclusion: Not open to any student who has taken or is taking another university mathematics course unless permission of the course coordinator is obtained.

AS/MATH 1581 3.0 Business Mathematics I. This course is an introduction to interest rates (simple, compound), annuities (ordinary, due, deferred), amortization (mortgages, other debts), sinking funds, bonds (face value, bond rate, price, yield rate) and depreciation (straight line, constant percentage).

Prerequisite: Ontario Grade 12 mathematics or equivalent.

Degree credit exclusion: AK/AS/MATH 2580 6.0.

AS/SC/MATH 1590 3.0 The Nature of Mathematics II. A continuation of some of the themes explored in AS/SC/MATH 1580 3.0. Further topics include elements of probability and statistics, the nature of computers, elementary set theory and logic.

Prerequisite: AS/SC/MATH 1580 3.0 or permission of the course coordinator.

Degree credit exclusion: Not open to any student who has taken or is taking another university mathematics course (except AS/SC/MATH 1580 3.0) unless permission of the course coordinator is obtained.

AS/SC/MATH 2010 3.0 Vector Differential Calculus. Power series, partial derivatives, linear maps, differentiability of maps from n-space to m-space, chain rule, gradients, tangent lines to curves, tangent planes to surfaces, cross product, implicit function theorem, multidimensional Taylor's theorem with remainder, extrema, quadratic forms, Hessian, Lagrange multipliers.

Prerequisite: AS/SC/MATH 1010 3.0 or permission of the department.

Degree credit exclusions: AS/SC/MATH 2015 3.0, AK/AS/SC/MATH 2310 3.0.

AS/SC/MATH 2015 3.0 Applied Multivariate and Vector Calculus. Topics covered include partial derivatives; grad, div, curl and Laplacian operators; line and surface integrals; theorems of Gauss and Stokes; double and triple integrals in various coordinate systems; extrema and Taylor series for multivariate functions.

Prerequisite: One of AS/SC/MATH 1010 3.0, AS/SC/MATH 1014 3.0, AK/AS/SC/MATH 1310 3.0; or AS/SC/MATH 1505 6.0 plus permission of the course coordinator.

Degree credit exclusions: AS/SC/MATH 2010 3.0, AK/AS/SC/MATH 2310 3.0.

AS/SC/MATH 2018 1.0 Applied Mathematics Module III. Designed for students in applied mathematics to complement and enrich material in AS/SC/MATH 2015 3.0. The module treats the

theory in greater depth, and explores extended applications and modeling. One lecture hour per week. One term. One credit.

Prerequisites: AS/SC/MATH 1014 3.0; AS/SC/MATH 1017 1.0.

Prerequisite or corequisite: AS/SC/MATH 2015 3.0.

Note: AS/SC/MATH 2018 1.0 must be taken within the first 90 credits of a student's program.

AK/AS/SC/MATH 2022 3.0 Linear Algebra II. Inner product spaces, linear transformations, eigenvalues, diagonalization, least squares, quadratic forms and Markov chains. Similiar to AK/AS/SC/MATH 2222 3.0 but at a more advanced level. Required in Specialized Honours applied mathematics, Specialized Honours statistics and in all Mathematics and Mathematics for Commerce programs except the BA Program in Mathematics for Commerce.

Prerequisite: AK/AS/SC/MATH 1021 3.0 or AS/SC/MATH 2021 3.0 or permission of the course coordinator.

Degree credit exclusion: AK/AS/SC/MATH 2222 3.0.

AK/AS/SC/MATH 2030 3.0 Elementary Probability. Introduction to the theory of probability as preparation for further study in either mathematical or applied probability and statistics. Topics include probability spaces, conditional probability, independence, random variables, distribution functions, expectation, Chebyshev's inequality, common distributions, moment-generating functions and limit theorems.

Prerequisite: One of AS/SC/MATH 1010 3.0, AS/SC/MATH 1014 3.0, AK/AS/SC/MATH 1310 3.0.

AS/SC/MATH 2041 3.0 Symbolic Computation Laboratory I. An introduction to symbolic computing in the Maple environment. Topics from single-variable differential and integral calculus, including simple ordinary differential equations, are covered. Both mathematical understanding and applications are emphasized. Three lecture hours, open laboratory hours. One term. Three credits.

Prerequisites: AK/AS/SC/COSC 1540 3.0 or equivalent computing experience; AS/SC/MATH 1010 3.0 or AS/SC/MATH 1014 3.0 or AK/AS/SC/MATH 1310 3.0.

Degree credit exclusion: AS/SC/MATH 2040 6.0.

AS/SC/MATH 2042 3.0 Symbolic Computation Laboratory II. Advanced symbolic computing with Maple. Topics from linear algebra, differential equations, multivariate calculus, integral theorems, are covered. Both mathematical understanding and applications are emphasized. Three lecture hours, open laboratory hours. One term. Three credits.

Prerequisites: AS/SC/MATH 2041 3.0; AS/SC/MATH 2010 3.0 or AS/SC/MATH 2015 3.0 or AK/AS/SC/MATH 2310 3.0; AK/AS/SC/MATH 1021 3.0 or AS/SC/MATH 1025 3.0 or AS/SC/MATH 2021 3.0 or AK/AS/SC/MATH 2221 3.0.

Prerequisites or corequisites: AK/AS/SC/MATH 2270 3.0; AK/AS/SC/MATH 2022 3.0 or AK/AS/SC/MATH 2222 3.0.

Degree credit exclusion: AS/SC/MATH 2040 6.0.

AK/AS/SC/MATH 2090 3.0 Applications of Logic to Discrete Mathematics. A continuation of AK/AS/SC/MATH 1090 3.0, this course uses formal logic to study topics in discrete mathematics, including sets, relations, functions, induction, the integers. Optional topics include program specification, sequences, recurrence relations.

Prerequisite: AK/AS/SC/MATH 1090 3.0 taken after Summer 1998.

AK/AS/SC/MATH 2131 3.0 Introduction to Statistics II. This course is a continuation of AK/AS/SC/MATH 2030 3.0. It provides students with an introduction to statistical methods with an emphasis on applications using continuous probability models.

Prerequisites: AK/AS/SC/MATH 2030 3.0; one of AS/SC/MATH 2010 3.0, AS/SC/MATH 2015 3.0, AK/AS/SC/MATH 2310 3.0.

Degree credit exclusion: Not open to any student who has passed or is taking AK/AS/SC/MATH 3131 3.0.

Note: Computer/Internet use may be required to facilitate course work.

AK/AS/SC/MATH 2221 3.0 Linear Algebra with Applications I. Systems of linear equations, linear and affine subspaces of Euclidean n-space, the Gauss-Jordan algorithm, matrices and matrix algebra, determinants, vector space concepts for Euclidean n-space (linear dependence and independence, basis, dimension etc.), various applications.

Prerequisite: OAC algebra or any university mathematics course.

Degree credit exclusions: AK/AS/SC/MATH 1021 3.0, AS/SC/MATH 1025 3.0, AS/SC/MATH 2021 3.0.

AK/AS/SC/MATH 2222 3.0 Linear Algebra with Applications II. Linear transformations and their representation by matrices, change of basis and similarity, eigenvalues and eigenvectors, diagonalization, inner product spaces, orthogonality, the Gram-Schmidt algorithm, least squares approximations, abstract vector spaces, various applications.

Prerequisite: AK/AS/SC/MATH 1021 3.0 or AS/SC/MATH 1025 3.0 or AK/AS/SC/MATH 2221 3.0.

Degree credit exclusion: AK/AS/SC/MATH 2022 3.0.

AS/SC/MATH 2260 6.0 An Introduction to Combinatorics. Basic graph theory, permutations, combinations, inclusion-exclusion principle, recurrence relations, generating functions, occupancy problems, application to probability theory, geometry of the plane, maps on the sphere, colouring problems, finite structures, systems of distinct representatives, existence problems, magic squares, Latin squares.

Prerequisite: One OAC in mathematics or equivalent.

Degree credit exclusion: AS/SC/MATH 2040 6.0.

AK/AS/SC/MATH 2270 3.0 Differential Equations. Introduction to differential equations, including a discussion of the formation of mathematical models for real phenomena; solution by special techniques; applications; linear equations; solutions in series; other topics if time permits.

Prerequisites: AS/SC/MATH 2010 3.0 or AS/SC/MATH 2015 3.0 or AK/AS/SC/MATH 2310 3.0; AK/AS/SC/MATH 1021 3.0 or AS/SC/MATH 1025 3.0 or AS/SC/MATH 2021 3.0 or AK/AS/SC/MATH 2221 3.0.

AS/SC/MATH 2280 3.0 The Mathematical Theory of Interest. Topics include measurement of interest, annuities, amortization of loans, bonds, sinking funds and depreciation. The course is at a level which will prepare students for the interest theory portion of the Society of Actuaries examinations.

Prerequisite: AS/SC/MATH 1010 3.0 or AS/SC/MATH 1014 3.0 or AK/AS/SC/MATH 1310 3.0.

Degree credit exclusions: AK/AS/MATH 2580 6.0, AS/MATH 2581 3.0.

AK/AS/SC/MATH 2310 3.0 Calculus of Several Variables with Applications. Vector functions, partial derivatives, gradient, multiple integrals, line integrals, optimization, applications.

Prerequisites: AS/SC/MATH 1010 3.0 or AS/SC/MATH 1014 3.0 or AK/AS/SC/MATH 1310 3.0. Students should have a knowledge of vector algebra in two and three dimensions.

Degree credit exclusions: AS/SC/MATH 2010 3.0, AS/SC/MATH 2015 3.0.

AK/AS/SC/MATH 2320 3.0 Discrete Mathematical Structures. Algebraic and combinatorial structures required in computer science and other disciplines. Review of sets; induction; combinatorics; graph theory, trees; big Oh-notation, complexity of algorithms; recursive definitions, recurrence relations; posets; congruence relations. This course emphasizes analysis, problem solving and proofs.

Prerequisites: AK/AS/SC/MATH 1190 3.0, or AK/AS/SC/MATH 1090 3.0, or AK/MATH 2441 3.0, or any 2000-level MATH course without second digit 5. Students who have not taken AK/AS/SC/MATH 1190 3.0 or AK/AS/SC/MATH 2090 3.0 are advised to review set theory, functions, relations and induction proofs, before the course begins.

AK/AS/SC/MATH 2500 3.0 An Introduction to the Basic Practice of Statistics. This course provides an introduction to the concepts of statistics with an emphasis on developing a critical attitude towards the use and misuse of statistics in business, health sciences and other areas.

Degree credit exclusions: AS/SC/KINE 2050 3.0, AS/SC/KINE 3150 3.0, 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. May not be taken by students who have taken or are taking any university course in statistics.

Note: Computer/Internet use may be required to facilitate course work.

AK/AS/SC/MATH 2560 3.0 Elementary Statistics I. Displaying and describing distributions, normal distibution. Relationships between variables, regression and correlation. The need for design, experimental design and sampling design. Sampling distributions, bias, variability. Probability models, random variables, probability laws.

Prerequisite: Ontario Grade 12 advanced mathematics.

Degree credit exclusions: AK/AS/SC/MATH 1131 3.0, SC/BIOL 2060 3.0, SC/BIOL 3090 3.0, AS/ECON 2500 3.0, AS/SC/GEOG 2420 3.0, AS/SC/KINE 2050 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/PSYC 2510 3.0, AK/AS/SOCI 3030 6.0.

AK/AS/SC/MATH 2570 3.0 Elementary Statistics II. Binomial distribution, sampling distribution of sample proportions and means, central limit theorem. Confidence intervals, tests and decisions, abuse of tests. Inference for a single mean, comparing two means, and for spread. Contingency tables. Simple regression and basic analysis of variance.

Prerequisite: AK/AS/SC/MATH 2560 3.0 or AK/AS/SC/MATH 1131 3.0.

Degree credit exclusions: AS/SC/MATH 1132 3.0, SC/BIOL 2060 3.0, SC/BIOL 3090 3.0, AS/ECON 3210 3.0, AS/ECON 3500 3.0, AS/SC/GEOG 2420 3.0, AS/SC/KINE 3150 3.0, AS/POLS 3300 6.0, AK/AS/SC/PSYC 2020 6.0, AK/AS/SC/PSYC 2022 3.0, AK/PSYC 3110 3.0, AK/AS/SOCI 3030 6.0.

AK/AS/MATH 2580 6.0 Mathematics of Investment and Actuarial Science. Theory of interest; annuities certain; amortization and sinking funds; evaluation of bonds and other investments; depreciation, depletion and capital cost; insurance, including mortality tables, principles of life annuities, premiums and reserves.

Prerequisite: One full university mathematics course.

Degree credit exclusions: AS/MATH 1581 3.0, AS/SC/MATH 2280 3.0, AS/MATH 2581 3.0.

AS/MATH 2581 3.0 Business Mathematics II. Spreadsheets and their application to business mathematics; deepening of topics in Business Mathematics I, including continuous compound interest, perpetuities, annuities where payments vary, callable bonds, bond yield rate, capital budgeting; mortality tables, life annuities, life insurance.

Prerequisites: AS/MATH 1581 3.0; AK/AS/SC/COSC 1520 3.0 or permission of the course coordinator.

Degree credit exclusions: AS/SC/MATH 2280 3.0, AK/AS/MATH 2580 6.0.

AK/AS/SC/MATH 3010 3.0 Vector Integral Calculus. Integrability of continuous functions over suitable domains, iterated integrals and Fubini's theorem, counterexamples, change of variables, Jacobian determinants, polar and spherical coordinates, volumes, vector fields, divergence, curl, line and surface integrals, Green's and Stokes' theorems, differential forms, general Stokes' theorem.

Prerequisite: AS/SC/MATH 2010 3.0 or AK/AS/SC/MATH 2310 3.0; or AS/SC/MATH 2015 3.0 and written permission of the mathematics undergraduate director (normally granted only to students proceeding in Honours programs in Mathematics or in the Specialized Honours Program in Statistics).

Prerequisite or corequisite: AK/AS/SC/MATH 2022 3.0 or AK/AS/SC/MATH 2222 3.0.

AK/AS/SC/MATH 3020 6.0 Algebra I. Introduction to the basic concepts of abstract algebra, with applications: groups (cyclic, symmetric, Lagrange's theorem, quotients, homomorphism theorems); rings (congruences, quotients, polynomials, integral domains, principal-ideal and unique-factorization domains); fields (field extensions, constructions with ruler and compasses, coding theory).

Prerequisite: AK/AS/SC/MATH 2022 3.0 or AK/AS/SC/MATH 2222 3.0.

AS/SC/MATH 3033 3.0 Classical Regression Analysis. General linear model. Properties and geometry of least-squares estimation. General linear hypothesis, confidence regions and intervals. Multicollinearity. Relationship between ANOVA models and linear models. Residual analysis, outliers, partial and added variable plots.

Prerequisites: AK/AS/SC/MATH 2131 3.0 or permission of the course director; AK/AS/SC/MATH 2022 3.0 or AK/AS/SC/MATH 2222 3.0.

Degree credit exclusions: AK/AS/SC/MATH 3330 3.0, AS/SC/GEOG 3421 3.0, AK/AS/SC/PSYC 3030 6.0.

AK/AS/SC/MATH 3034 3.0 Applied Categorical Data Analysis. Regression using categorical explanatory variables, one-way and two-way analysis of variance. Categorical response data, two-way and three-way contingency tables, odds ratios, tests of independence, partial association. Generalized linear models. Logistic regression. Loglinear models for contingency tables.

Prerequisite: AS/SC/MATH 3033 3.0 or AK/AS/SC/MATH 3330 3.0.

Degree credit exclusion: Not open to any student who has passed or is taking AS/SC/MATH 4130G 3.0.

Note: Computer/Internet use may be required to facilitate course work.

AK/AS/SC/MATH 3050 6.0 Introduction to Geometries. Analytic geometry over a field with vector and barycentric coordinate methods, affine and projective transformations, inversive geometry,

foundations of Euclidean and non-Euclidean geometry, applications throughout to Euclidean geometry.

Prerequisite: AK/AS/SC/MATH 2022 3.0 or AK/AS/SC/MATH 2222 3.0 or permission of the course coordinator.

AK/AS/SC/MATH 3090 3.0 Computational Mathematics. Modelling (discrete and continuous, deterministic and stochastic) and practical solutions to general categories of applied problems. Case studies of solutions through modelling and representation of data. Implementation, nuerical considerations, efficiency, and application of numerical algorithms. Three lecture hours per week. One term. Three credits.

Prerequisites: AK/AS/SC/COSC 2031 3.0 or AK/AS/SC/COSC 1540 3.0, AK/AS/SC/MATH 2022 3.0, AK/AS/SC/MATH 2030 3.0, AK/AS/SC/MATH 2041 3.0

AS/SC/MATH 3100 3.0 Famous Problems in Mathematics. An attempt to foster an appreciation of the history, the personalities and some of the content of different areas of mathematics, by means of a study of some specific problems which have exercised the minds of mathematicians.

Prerequisites: At least 12 credits from 2000-level MATH courses without second digit 5, or permission of the course coordinator.

AK/AS/SC/MATH 3110 3.0 Introduction to Mathematical Analysis. Proofs in calculus and analysis. Topics include sets, functions, axioms for R, applications of the completeness axiom, countability, sequences and their limits, monotone sequences, limits of functions, continuity.

Prerequisite: AK/AS/SC/MATH 1310 3.0 or AS/SC/MATH 1014 3.0.

Prerequisites or corequisites: AK/AS/SC/MATH 2310 3.0 or AS/SC/MATH 2010 3.0 or AS/SC/MATH 2015 3.0; AK/AS/SC/MATH 1021 3.0 or AS/SC/MATH 2021 3.0 or AK/AS/SC/MATH 2221 3.0 or AS/SC/MATH 1025 3.0.

Degree credit exclusion: AS/SC/MATH 1010 3.0.

AK/AS/SC/MATH 3131 3.0 Mathematical Statistics I. Topics include common density functions, probability functions, principle of likelihood, the likelihood function, the method of maximum likelihood, likelihood regions, tests of hypotheses, likelihood ratio tests, goodness of fit tests, conditional tests, and confidence sets with a view towards applications.

Prerequisite: AK/AS/SC/MATH 2131 3.0 or permission of the course coordinator.

AK/AS/SC/MATH 3132 3.0 Mathematical Statistics II. Important examples and methods of statistical estimation and hypothesis testing are discussed in terms of their mathematical and statistical properties. Topics include sufficiency, Bayesian statistics, decision theory, most powerful tests, likelihood ratio tests.

Prerequisite: AK/AS/SC/MATH 3131 3.0.

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AK/AS/SC/MATH 3140 6.0 Number Theory and Theory of Equations. A study of topics in number theory and theory of equations using relevant methods and concepts from modern algebra, such as Abelian groups, unique factorization domains and field extensions.

Prerequisite: AK/AS/SC/MATH 2022 3.0 or AK/AS/SC/MATH 2222 3.0 or permission of the course coordinator.

AK/AS/SC/MATH 3170 6.0 Operations Research I. A study of linear programming; transportation problems, including network flows, assignment problems and critical path analysis; integer programming; dynamic programming and an introduction to stochastic models. Application to a set of problems representative of the field of operations research.

Prerequisites: AK/AS/SC/MATH 1021 3.0 or AS/SC/MATH 1025 3.0 or AS/SC/MATH 2021 3.0 or AK/AS/SC/MATH 2221 3.0; AK/AS/SC/COSC 1520 3.0 or AK/AS/SC/COSC 1540 3.0 or AK/AS/SC/COSC 1020 3.0 or equivalent.

AK/AS/SC/MATH 3190 3.0 Set Theory and Foundations of Mathematics. The following topics are covered: paradoxes in naive set theory; functions and relations, transfinite numbers, their ordering and their arithmetic; well-ordered sets and ordinal numbers; Zorn's lemma; an introduction to axiomatic set theory.

Prerequisite: Six credits from 2000-level MATH courses without second digit 5.

AK/AS/SC/MATH 3210 3.0 Principles of Mathematical Analysis. Rigorous presentation, with proofs, of fundamental concepts of analysis: limits, continuity, differentiation, integration, fundamental theorem, power series, uniform convergence.

Prerequisite: At least one of the following four courses or course combinations: (1) AS/SC/MATH 2010 3.0, (2) AK/AS/SC/MATH 3110 3.0, (3) AK/AS/SC/MATH 2310 3.0 and AS/SC/MATH 1010 3.0, (4) AS/SC/MATH 2015 3.0 and AS/SC/MATH 1010 3.0.

AS/SC/MATH 3241 3.0 Numerical Methods 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: AK/AS/SC/COSC 3121 3.0.

Prerequisites: 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; one of AK/AS/SC/COSC 1540 3.0, AK/AS/SC/COSC 2031 3.0.

Degree credit exclusion: AK/AS/SC/COSC 3121 3.0.

AS/SC/MATH 3242 3.0 Numerical Methods 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: AK/AS/SC/COSC 3122 3.0.

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

Degree credit exclusion: AK/AS/SC/COSC 3122 3.0.

AK/AS/SC/MATH 3260 3.0 Introduction to Graph Theory. Introductory graph theory with applications. Graphs, digraphs. Eulerian and Hamiltonian graphs. The travelling salesman. Path algorithms; connectivity; trees; planarity; colourings; scheduling; minimal cost networks. Tree searches and sortings, minimal connectors and applications from physical and biological sciences.

Prerequisite: At least six credits from 2000-level MATH courses without second digit 5.

AS/SC/MATH 3271 3.0 Partial Differential Equations. Partial differential equations of mathematical physics and their solutions in various coordinates, separation of variables in Cartesian coordinates, application of boundary conditions; Fourier series and eigenfunction expansions; generalized curvilinear coordinates; separation of variables in spherical and polar coordinates.

Prerequisites: AK/AS/SC/MATH 2270 3.0; AS/SC/MATH 2010 3.0 or AS/SC/MATH 2015 3.0 or AK/AS/SC/MATH 2310 3.0; AK/AS/SC/MATH 3010 3.0 is also desirable, though not essential, as prerequisite for students presenting AS/SC/MATH 2010 3.0 or AK/AS/SC/MATH 2310 3.0.

AS/SC/MATH 3272 3.0 Special Functions. The special functions of mathematical physics: Bessel functions, Legendre functions, Gamma function, Hermite functions, Laguerre functions, Chebyshev polynomials, hypergeometric and confluent hypergeometric functions; boundary value problems, heat flow, wave motion in Cartesian and polar coordinates; Laplace and Fourier transforms.

Prerequisite: AS/SC/MATH 3271 3.0 or permission of the course coordinator.

AS/SC/MATH 3280 6.0 Actuarial Mathematics. Deterministic and stochastic models for contingent payments. Topics include survival distributions, life tables, premiums and reserves for life insurance and annuities, multiple life contracts, multiple decrement theory.

Prerequisite: AS/SC/MATH 2280 3.0.

Prerequisite or corequisite: AK/AS/SC/MATH 2131 3.0.

AK/AS/SC/MATH 3330 3.0 Regression Analysis. Simple regression analysis, multiple regression analysis, matrix form of the multiple regression model, estimation, tests (t- and F-tests), multicollinearity and other problems encountered in regression, diagnostics, model building and variable selection, remedies for violations of regression assumptions.

Prerequisites: One of AK/AS/SC/MATH 2131 3.0, AK/AS/SC/MATH 2570 3.0, AK/AS/SC/PSYC 2020 6.0, or equivalent; some acquaintance with matrix algebra (such as is provided in AK/AS/SC/MATH 1021 3.0, AS/SC/

MATH 1025 3.0, AS/SC/MATH 1505 6.0, AK/AS/MATH 1550 6.0, AS/SC/MATH 2021 3.0, or AK/AS/SC/MATH 2221 3.0).

Degree credit exclusions: AS/SC/MATH 3033 3.0, AS/ECON 4210 3.0, AS/SC/GEOG 3421 3.0, AK/AS/SC/PSYC 3030 6.0.

AK/AS/SC/MATH 3410 3.0 Complex Variables. Analytic functions, the Cauchy-Riemann equations, complex integrals, the Cauchy integral theorem, maximum modulus theorem. Calculations of residues and applications to definite integrals, two-dimensional potential problems and conformal mappings.

Prerequisite: AS/SC/MATH 2010 3.0 or AS/SC/MATH 2015 3.0 or AK/AS/SC/MATH 2310 3.0. (AK/AS/SC/MATH 3010 3.0 is also recommended as a prerequisite for students who have taken AS/SC/MATH 2010 3.0.)

AK/AS/SC/MATH 3430 3.0 Sample Survey Design. Principal steps in planning and conducting a sample survey. Sampling techniques including simple random sampling, stratified random sampling, cluster sampling and sampling with probabilities proportional to size. Estimation techniques including difference, ratio and regression estimation.

Prerequisite: AK/AS/SC/MATH 2131 3.0 or AK/AS/SC/MATH 3330 3.0.

AS/SC/MATH 3450 3.0 Introduction to Differential Geometry. Curves and surfaces in 3-space, tangent vectors, normal vectors, curvature, introduction to topology and to manifolds.

Prerequisites: AK/AS/SC/MATH 3010 3.0; AK/AS/SC/MATH 2022 3.0 or AK/AS/SC/MATH 2222 3.0; or permission of the course coordinator.

Degree credit exclusion: AK/AS/SC/MATH 4250 6.0.

AS/MATH 3500 6.0 Mathematics in the History of Culture. An introduction to the history of mathematical ideas from antiquity to the present, with emphasis on the role of these ideas in other areas of culture such as philosophy, science and the arts.

Prerequisite: Six credits in university-level mathematics (other than AS/SC/MATH 1500 3.0, AS/SC/MATH 1510 6.0 or AS/SC/MATH 1515 3.0) is strongly recommended.

AS/SC/MATH 4000 3.0/4000 6.0 Individual Project. A project of a pure or applied nature in mathematics or statistics under the supervision of a faculty member. The project allows the student to apply mathematical or statistical knowledge to problems of current interest. A report is required at the conclusion of the project.

Prerequisites: Open to all students in Honours programs in the Department of Mathematics and Statistics. Permission of the program director is required. Applied mathematics students can enrol only after they have completed the core program in applied mathematics.

AK/AS/SC/MATH 4010 6.0 Real Analysis. Survey of the real and complex number systems, and inequalities. Metric space topology. The Riemann-Stieltjes integral. Some topics of advanced calculus, including more advanced theory of series and interchange of limit processes. Lebesgue measure and integration. Fourier series and Fourier integrals.

Prerequisite: AK/AS/SC/MATH 3210 3.0 or permission of the course coordinator.

AK/AS/SC/MATH 4020 6.0 Algebra II. Continuation of Algebra I, with applications: groups (finitely generated Abelian groups, solvable groups, simplicity of alternating groups, group actions, Sylow's theorems, generators and relations); fields (splitting fields, finite fields, Galois theory, solvability of equations); additional topics (lattices, Boolean algebras, modules).

Prerequisite: AK/AS/SC/MATH 3020 6.0 or permission of the course coordinator.

Degree credit exclusion: AS/SC/MATH 4241 3.0.

AK/AS/SC/MATH 4030 3.0 Probability Theory. Elementary measure theory, convergence of random variables, strong law of large numbers, convergence in distribution, stable laws, conditional expectation, martingales.

Prerequisite: AK/AS/SC/MATH 2030 3.0.

AK/AS/SC/MATH 4033 3.0 Applications of Mixed Models. Theory and applications of mixed models and extensions: theoretical formulation, hierarchical models, generalized least-squares, empirical Bayes, shrinkage estimators, fitting algorithms, unbalanced nested structures, longitudinal analysis, non-linear models, categorical dependent variables.

Prerequisites: AK/AS/SC/MATH 3330 3.0 or AK/AS/SC/MATH 3033 3.0 or permission of course director.

Note: SAS and Splus computing environments will be used to facilitate course work.

AK/AS/SC/MATH 4034 3.0 Data Mining. This course will review some of the principal methods used for data mining, with the goal of placing them in common perspective and providing a unifying overview.

Prerequisites: AK/AS/SC/MATH 3034 3.0 and AK/AS/SC/MATH 3430 3.0 or permission of the course director.

Corequisites: AK/AS/SC/MATH 4630 3.0 or AK/AS/SC/MATH 4730 3.0 or AK/AS/SC/MATH 4230 3.0.

Note: SAS and Splus computing environments will be used to facilitate course work.

AK/AS/SC/MATH 4080 6.0 Topology. Topological spaces, continuity, connectedness, compactness, nets, filters, metrization theorems, complete metric spaces, function spaces, fundamental group, covering spaces.

Prerequisite: AK/AS/SC/MATH 3210 3.0 or permission of the course coordinator.

AK/AS/SC/MATH 4090 3.0 Mathematical Modelling. Discrete, continuous and probabilistic modelling of problems from industry, finance and the life and physical sciences. The ability to model complex problems is stressed. Three lecture hours. One term. Three credits.

Prerequisites: Registration in an Honours Program in Mathematics and Statistics and the completion of all specified core courses in that program.

AS/SC/MATH 4100 3.0 Topics in Mathematical Education. This course consists of a series of presentations, by the students, of mathematical topics chosen in consultation with the instructor. Suitability of the material for presentation in high schools is discussed.

Prerequisite: Permission of the course coordinator.

AS/SC/MATH 4110 3.0 Topics in Analysis. Possible topics include special functions, integral transforms, Fourier series, divergent series, asymptotic expansions, approximation theory, ordinary differential equations, partial differential equations, calculus of variations, calculus on manifolds, introduction to functional analysis, difference equations.

Prerequisite: Permission of the course coordinator.

AS/SC/MATH 4120 3.0 Topics in Algebra. One or two topics which may be chosen from the following: category theory, commutative algebra, infinite Abelian groups, non-associative algebras, advanced linear algebra, presentation theory, representations of finite groups, universal algebra.

Prerequisite: Permission of the course coordinator.

AS/SC/MATH 4130 3.0 Topics in Probability and Statistics. One or two topics which may be chosen from the following: statistical decision theory, statistical inference, sequential analysis, information theory, large sample theory, design of experiments, stochastic processes, time series.

Prerequisite: Permission of the course coordinator.

AS/SC/MATH 4134 3.0 Biostatistics. This course provides students with an introduction to the statistical methods which are commonly used in medical research and epidemiology.

Prerequisites: AK/AS/SC/MATH 3034 3.0 and AK/AS/SC/MATH 3131 3.0 or permission of the course director.

Note: SAS and Splus computing environments will be used to facilitate course work.

AS/SC/MATH 4140 3.0 Topics in Number Theory. Topics chosen from quadratic diophantine equations and infinite continued fractions, elements of algebraic number theory, p-adic numbers, other topics selected according to student interest.

Prerequisite: Permission of the course coordinator.

AS/SC/MATH 4141 3.0 Advanced Numerical Methods. Newton-Raphson, quasi Newton methods; optimization problems: steepest descents, conjugate gradient methods; approximation theory: least squares, singular value decomposition, orthogonal polynomials, Chebyshev and Fourier approximation, Padé approximation; matrix eigenvalues: power method, householder, QL and QR algorithms.

Prerequisite: AS/SC/MATH 3242 3.0 or AK/AS/SC/COSC 3122 3.0.

AS/SC/MATH 4142 3.0 Numerical Solutions to Partial Differential Equations. Review of partial differential equations, elements of variational calculus; finite difference methods for elliptic problems, error analysis, boundary conditions, non-Cartesian variables, PDE-eigenvalue problems; hyperbolic and parabolic problems, explicit and implicit methods, stability analysis; Rayleigh-Ritz and Galerkin method for ODEs, finite element methods.

Prerequisites: AK/AS/SC/MATH 2270 3.0; AS/SC/MATH 3242 3.0 or AK/AS/SC/COSC 3122 3.0.

AK/AS/SC/MATH 4150 3.0 Topics in Geometry. One or two topics which may be chosen from the following: projective geometry, algebraic geometry, geometrical algebra, finite geometries, differential geometry, Riemannian geometry, discrete applied geometry.

Prerequisites: AK/AS/SC/MATH 2022 3.0 or AK/AS/SC/MATH 2222 3.0; six credits from 3000-level MATH courses without second digit 5; or permission of the course coordinator.

AS/SC/MATH 4160 3.0 Combinatorial Mathematics. Topics from algebra of sets, permutations, combinations, occupancy problems, partitions of integers, generating functions, combinatorial identities, recurrence relations, inclusion-exclusion principle, Polya's theory of counting, permanents, systems of distinct representatives, Latin rectangles, block designs, finite projective planes, Steiner triple systems.

Prerequisites: AK/AS/SC/MATH 2022 3.0 or AK/AS/SC/MATH 2222 3.0; six credits from 3000-level MATH courses without second digit 5; or permission of the course coordinator.

AS/SC/MATH 4170 6.0 Operations Research II. Selected topics from game theory, decision theory, simulation, reliability theory, queuing theory, non-linear programming, classification, pattern-recognition and prediction. Each chapter contains an optimization problem and methods and algorithms for solving it. The course is rich in examples.

Prerequisites: AS/SC/MATH 2010 3.0 or AS/SC/MATH 2015 3.0 or AK/AS/SC/MATH 2310 3.0; AK/AS/SC/MATH 2030 3.0; AK/AS/SC/MATH 3170 6.0; or permission of the course coordinator.

Degree credit exclusion: AS/MATH 4570 6.0.

AS/SC/MATH 4200 3.0/4200 6.0 Special Topics. The department may offer courses or seminars on particular topics not ordinarily available. Some special topics courses may not be eligible for science (SC) credit. Two terms. Six credits. One term. Three credits.

Prerequisite: Permission of the course coordinator.

AS/SC/MATH 4230 3.0 Non-Parametric Methods in Statistics. Order statistics; general rank statistics; one-sample, two-sample and k-sample problems; Kolmogorov-Smirnov statistics; tests of independence and relative efficiencies.

Prerequisite: AK/AS/SC/MATH 3131 3.0; AK/AS/SC/MATH 3132 3.0 is recommended but not required.

AS/SC/MATH 4231 3.0 Robust Statistics. This course provides students with an introduction to robust statistics. Basic robustness concepts and robust etimators will be covered.

Prerequisites: AK/AS/SC/MATH 3131 3.0, either AK/AS/SC/MATH 3033 3.0 or AK/AS/SC/MATH 3303 3.0 or permission of the course director.

Note: SAS and Splus computing environments will be used to facilitate course work.

AS/SC/MATH 4240 3.0 Independent Studies in Applied Mathematics. Independent studies under the direction of a faculty supervisor. Areas: applied and numerical analysis, discrete applied mathematics, operations research, mathematical physics, mathematical biology, mathematical modelling. The area is restricted by the availability of a supervisor.

Prerequisites: Permission of the applied mathematics program director; restricted to students who have completed the Applied Mathematics Program core.

Note: Faculty of Arts students should see the Faculty of Arts section of this Calendar for regulations governing independent reading courses.

AS/SC/MATH 4241 3.0 Applied Group Theory. Introduction to group theory and its applications in the physical sciences. Finite groups. Compact Lie groups. Representation theory, tensor representations of classical Lie groups, classification of semi-simple Lie groups.

Prerequisites: AS/SC/MATH 2015 3.0; AK/AS/SC/MATH 2022 3.0 or AK/AS/SC/MATH 2222 3.0; AK/AS/SC/MATH 2270 3.0.

Degree credit exclusion: AK/AS/SC/MATH 4020 6.0.

AK/AS/SC/MATH 4250 6.0 Differential Geometry. Curves and surfaces in 3-space, tangent vectors, normal vectors, curvature, introduction to topology, manifolds, tangent spaces, multilinear algebra and tensors.

Prerequisites: AK/AS/SC/MATH 3010 3.0; AK/AS/SC/MATH 2022 3.0 or AK/AS/SC/MATH 2222 3.0; or permission of the course coordinator.

Degree credit exclusion: AS/SC/MATH 3450 3.0.

AS/SC/MATH 4270 3.0 Integral Transforms and Equations. This course studies the Laplace, Fourier, Hankel and Mellin transforms; the solution of integral equations; and the treatment of asymptotic expansions. The applications are to problems in circuit theory, heat flow, elasticity, transport theory and scattering theory.

Prerequisites: AK/AS/SC/MATH 2270 3.0; AK/AS/SC/MATH 3410 3.0.

Prerequisite or corequisite: AS/SC/MATH 3271 3.0.

AK/AS/SC/MATH 4271 3.0 Dynamical Systems. Iterations of maps and differential equations; phase portraits, flows; fixed points, periodic solutions and homoclinic orbits; stability, attraction, repulsion; Poincaré maps, transition to chaos. Applications: logistic maps, interacting populations, reaction kinetics, forced Van der Pol, damped Duffing and Lorenz equations.

Prerequisites: AK/AS/SC/MATH 2270 3.0; AK/AS/SC/MATH 1021 3.0 or AS/SC/MATH 2021 3.0 or AK/AS/SC/MATH 2221 3.0 or AS/SC/MATH 1025 3.0.

Degree credit exclusion: AK/AS/SC/MATH 3270 3.0.

AS/SC/MATH 4280 3.0 Risk Theory. Frequency and severity models in insurance, compound distributions, compound Poisson processes, ruin theory, non-proportional reinsurance, related topics in loss models and stochastic processes.

Prerequisite: AK/AS/SC/MATH 2131 3.0.

AK/AS/SC/MATH 4290 3.0 Mathematical Logic. Predicate logic, rules of inference, elimination of quantifiers, Tarski semantics, Godel's completeness, compactness and incompleteness theorems. Untrapowers. Non-standard analysis.

Prerequisite: AK/AS/SC/MATH 3020 6.0 or AK/AS/SC/MATH 3190 3.0 or AK/AS/SC/MATH 3210 3.0 or permission of the instructor; AK/AS/SC/MATH 1090 3.0 or AK/AS/SC/MATH 1190 3.0 is recommended.

AS/SC/MATH 4300 3.0/4300 6.0 Directed Readings. A student may arrange to do independent study with a member of the Mathematics and Statistics Department. Such an arrangement must have prior approval of the department Chair. Two terms. Six credits. One term. Three credits.

Note: Faculty of Arts students should see the Faculty of Arts section of this Calendar for regulations governing independent reading courses. Some directed readings topics may not be eligible for science (SC) credit.

AS/SC/MATH 4400 6.0 The History of Mathematics. Selected topics in the history of mathematics, discussed in full technical detail but with stress on the underlying ideas, their evolution and their context.

Prerequisites: 36 credits from MATH courses without second digit 5, including at least 12 credits at or above the 3000 level. (12 of the 36 credits may be taken as corequisites.)

AK/AS/SC/MATH 4430 3.0 Stochastic Processes. Basic Markov processes, including Markov chains, Poisson processes, birth-and-death processes, Brownian motion.

Prerequisite: AK/AS/SC/MATH 2030 3.0.

Corequisite: A MATH course at the 3000 level or higher, without second digit 5.

AK/AS/SC/MATH 4431 3.0 Probability Models. This course introduces the theory and applications of several kinds of probabilistic models, including renewal theory, branching processes and martingales. Additional topics may include stationary processes, large deviations, or models from the sciences.

Prerequisite: AK/AS/SC/MATH 2030 3.0.

Corequisite: A MATH course at the 3000 level or higher, without second digit 5.

AS/SC/MATH 4470 3.0 Gas and Fluid Dynamics. Fundamental laws; conservation of mass, momentum and energy; vortex motion; incompressible, compressible and viscous flows; turbulent flow; surface waves.

Cross-listed to: SC/PHYS 4120 3.0.

Prerequisites: AS/SC/MATH 2015 3.0; AK/AS/SC/MATH 2270 3.0; SC/EATS 2470 4.0 or SC/EATS 2470 3.0 or SC/PHYS 2010 3.0.

Degree credit exclusion: SC/PHYS 4120 3.0.

AS/MATH 4570 6.0 Applied Optimization. Topics chosen from decision theory, game theory, inventory control, Markov chains, dynamic programming, queuing theory, reliability theory, simulation, non-linear programming.

Prerequisites: AK/AS/MATH 1550 6.0; AK/AS/SC/MATH 2560 3.0; AK/AS/SC/MATH 3170 6.0.

Degree credit exclusion: AS/SC/MATH 4170 6.0.

AS/SC/MATH 4630 3.0 Applied Multivariate Statistical Analysis. The course covers the basic theory of the multivariate normal distribution and its application to multivariate inference about a single mean, comparison of several means and multivariate linear regression. As time and interest permit, further related topics may also be covered.

Prerequisites: AK/AS/SC/MATH 3131 3.0; AK/AS/SC/MATH 3034 3.0; AK/AS/SC/MATH 2022 3.0 or AK/AS/SC.MATH 2222 3.0.

AS/SC/MATH 4730 3.0 Experimental Design. An examination of the statistical issues involved in ensuring that an experiment yields relevant information. Topics include randomized block, factorial, fractional factorial, nested, Latin square and related designs. Further topics as time permits. The emphasis is on applications.

Prerequisite: AK/AS/SC/MATH 3034 3.0 or permission of the course coordinator.

AS/SC/MATH 4731 3.0 Design and Analysis. Topics include: sampling weights and design effects in complex surveys; imputation and weighting methods for

nonresponse; variance estimation in complex surveys; effects of complex sampling design on categorical data analysis and on regresion analysis.

Prerequisites: AK/AS/SC/MATH 3430 3.0 or permission of the course director.

Note: SAS and Splus computing environments will be used to facilitate coure work.

AS/SC/MATH 4830 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.

Cross-listed to: SC/EATS 4020 3.0, SC/PHYS 4060 3.0.

Prerequisites: AK/AS/SC/COSC 1540 3.0 or equivalent FORTRAN programming experience; AK/AS/SC/MATH 2270 3.0; AS/SC/MATH 2015 3.0 or AK/AS/SC/MATH 3010 3.0.

Degree credit exclusions: AK/AS/SC/COSC 4242 3.0, AK/AS/SC/COSC 4451 3.0, SC/EATS 4020 3.0, AS/SC/MATH 4130B 3.0, AS/SC/MATH 4930C 3.0, SC/PHYS 4060 3.0.

AS/SC/MATH 4930 3.0 Topics in Applied Statistics. Each time this course is given, it is on a topic chosen from the following:

    A: statistical quality control

    B: simulation and the Monte Carlo method

    C: forecasting and applied time series

    D: applied decision theory.

Prerequisites: AK/AS/SC/MATH 3330 3.0; AK/AS/SC/MATH 3034 3.0 or AK/AS/SC/MATH 3430 3.0.

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McLaughlin College – Arts

Academic Program Office:
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    www.yorku.ca/mclaughlin
College Master:
    David Shugarman
Academic Adviser:
    Terry Conlin

Listed below are the 1000-level 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 McLaughlin College foundation courses, in either the Division of Humanities or the Division of Social Sciences, will be members of McLaughlin College with access to academic advising, orientation programs, social and cocurricular events.

1000-Level Courses

AS/HUMA 1950 9.0 Concepts of the "Male" and "Female" in the West. An examination of the origins of, and the interrelationships among, gender, male and female concepts and roles through myth, literature, art, and artifacts from various Western cultures, past and present.

Degree credit exclusion: AS/HUMA 1950 6.0.

AS/HUMA 2960 9.0 The Body in Western Culture. From an interdisciplinary perspective this course explores the attitudes of Western culture to the body and to entities such as soul, spirit and mind which have been contrasted with it.

AS/SOSC 1130 9.0 International Migration. The course examines why people leave their native lands and what becomes of them in the countries to which they immigrate, with particular reference to the impact of the immigrant on the host country, using Canadian examples.

Degree credit exclusions: AS/SOSC 1130 6.0, AS/SOSC 1139 9.0.

AS/SOSC 1140 9.0 Self, Culture and Society: The Problem of Personal Identity. The course concerns the development of concepts of culture by which individuals seek to understand themselves and the world about them, using materials from anthropology, sociology and philosophy, and with the aim of developing a critique of our own situation.

Degree credit exclusion: AS/SOSC 1140 6.0.

AS/SOSC 1188 9.0 Women's Roles. The intersection of gender and culture is considered, with emphasis on women's issues. We explore the role of women in Canada and elsewhere, assessing how nation and culture shape gender discourses, and we examine aboriginal issues at home and abroad.

AS/SOSC 1200 9.0 Canadian Problems. The conceptual framework that has been developed out of this experience is used to examine a number of contemporary problems, selected each year on the basis of their topicality and relevance to a comprehensive understanding of current Canadian public policy.

Degree credit exclusion: AS/SOSC 1200 6.0.

AS/SOSC 1350 9.0 Women and the Law. This course explores the role of gender within the context of the legal system. Current issues that highlight the relationship between gender and law are examined by analyzing both legislation and case law. Topics include: divorce, rape and equal pay.

Degree credit exclusion: AS/SOSC 1350 6.0.

AS/SOSC 1520 9.0 Markets and Democracy: The Development of Industrial Society. The development of industrial capitalism has entailed profound changes in ways of living. The course will consider the spread of the market economy, the industrialization of production and the associated transformation of social and political institutions and ideas.

Degree credit exclusions: AS/SOSC 1520 6.0, AS/SOSC 2510 6.0.

AS/SOSC 1535 9.0 Societies and Economic Systems. This course examines the 20th century's two dominant economic systems: Western capitalism and eastern European socialism. It provides a comprehensive understanding of the theory and practice of both systems, and discusses movement between them.

AS/SOSC 2150 9.0 Families in Crisis: Issues of Health Environments and Poverty. This course examines the crisis of the contemporary family. We use the family therapy literature to examine the crisis within the family system; and we also use the critical perspectives of Marxism, psychoanalysis and feminism to understand the position of the family in the surrounding social world.

Degree credit exclusions: AS/SOSC 2150 6.0, AS/SOCI 3660 6.0, AS/SOSC 3150 6.0.

AS/SOSC 2200 9.0 Sovereignty and Democracy: Canada in the New Global Economy. An introduction to the Program in Canadian Studies. A critical assessment of the body of knowledge on Canada as it has developed in selected disciplines. Works of various scholars are examined to illustrate approaches used.

Degree credit exclusion: AS/SOSC 2200 6.0.

Note: This course is required of students in the Canadian Studies Program, but also is open to others.

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Music – Fine Arts

Department Office:
    225 Winters College, 416-736-5186
Chair of the Department:
    M. Coghlan
Professors:
    C. Petrowska-Quilico, T. Sankaran
Professors Emeriti:
    A. Clarkson, J. Tenney
Associate Professors:
    R. Bowman, M. Coghlan, D. Lidov, D. Mott, C. Sokol, P. Wait, R. Witmer
Associate Professor Emeritus:
    R.S. Beckwith, J. Gittens, P. Werren, P. Sampson
Assistant Professors:
    D. de Val, G. Halls, S. Otto, R.Simms, M. Marcuzzi, S. Viswawathan

Programs of Study

The mandate of our students and faculty is to make and share music and to acquire, develop and disseminate musical knowledge. We understand musical study as interacting with nearly all studies pursued in the University - those of the humanities and the other fine arts, the social and natural sciences and the professions. From its inception, the Music Department has

emphasized the study and performance of contemporary music in all its diversity, while bringing to bear a wide range of historical and social perspectives on the music of other times and places.

Students who major in music may pursue the BA, the BA Honours or BFA Honours degree. These degree options address both academic and practical concerns, combining the knowledge and skills needed for professional work in music with experience that will stimulate lifelong musical and personal growth. Undergraduate studies include courses in performance, composition, music history and ethnology, theory and pedagogy, with the emphasis largely depending on the student's own interests and abilities. Many of these courses are also available to non-majors, with opportunities for participation in various performances and musical events on and off campus organized by members of the department.

Both the BA Honours and BFA Honours degree programs comprise a total of 120 credits and may be completed in four years of full-time study or over a longer period of part-time study. The major Program in Music may be combined with a second major in the Faculty of Arts, or with a minor in the Faculties of Arts, Environmental Studies, Fine Arts or Pure and Applied Science. A five-year program leading to two degrees (the BA Honours or BFA Honours in music and the bachelor of education degree) is also available. A minor in music may be pursued by qualified honours degree students in the Faculties of Arts, Environmental Studies and Fine Arts. Students may apply to the BA (90-credit) degree in music at the end of their first year of study. Completion of this degree forms a strong basis for further studies in fields such as music therapy, arts administration and management, music journalism, music marketing, cultural tourism, community arts and cultural management. For students interested in teaching at the primary, junior and intermediate levels, a BA and a BEd can be completed in four years, rather than five, as currently with the BA or BFA Honours.

Admission to the department is by audition. Further information on audition evaluations, admissions, degree requirements and Faculty of Fine Arts regulations may be found in the Faculty of Fine Arts section of this Calendar.

In the area of performance, a qualified student may select one or more of a number of courses including chamber ensembles in Western art music (piano, percussion, winds, strings, voice, guitar), jazz, world music ensembles and contemporary music both notated and improvised. Each course entails ensemble workshops, study of the history and literature of the instruments, and attention to individual problems of performance. Performance experience in large ensembles is provided by the choir, jazz orchestra, jazz choir and wind symphony.

In the area of composition, instruction is given in the skills of writing in score, arranging and orchestration. In addition, fully equipped digital and MIDI studios provide facilities for learning all phases of the composition and production of music.

In the area of musical research (music history, area studies and ethnomusicology), the aim is to integrate musicianship with the history, theory and anthropology of music. Intensive study may be pursued in the musics of Asia and the Americas as well as of Europe, past and present.

All music majors complete a sequence of foundational courses which equips them with essential concepts and practical skills in ear-training, sight-singing, rhythm, theory and awareness of the social, cultural and historical contexts of music. These requirements include FA/MUSI 1000 6.0, FA/MUSI 1200 9.0, FA/MUSI 2200 6.0, FA/MUSI 2201 3.0 and FA/MUSI 2202 3.0. A student may be exempted from one or more of those courses by passing proficiency exams; otherwise, students who do not maintain enrolment in the foundation courses scheduled for their first and second years may not be enrolled in performance and/or composition courses. These foundation courses are prerequisite for all the department's upper-level offerings for majors, and both full and part-time students must complete them within their first 60 credits. All Honours music majors must complete 30 upper-level music credits (at or above the 3000 level), including at least 18 credits in studies courses for the BA Honours degree, and at least 12 credits in studies courses and at least 12 credits in studio courses for the BFA Honours degree. (See the lists of courses below.)

In addition to courses in music, the bachelor's, BA Honours and BFA Honours degrees require 18 general education credits, and 12 credits from other departments in fine arts.

For degree credit, music courses are classified as follows:

Non-Major Courses (not open to music majors or minors)

FA/MUSI 1511 3.0, 1512 3.0, 1520 6.0, 1530 6.0, 2540 6.0 (In addition, many of the courses listed below are available to non-majors.)

Foundation Courses

FA/MUSI 1000 6.0, 1200 9.0, 2200 6.0, 2201 3.0, 2202 3.0. (All other 1000- and 2000-level Music courses are counted as electives.)

Upper-Level Studies Courses

FA/MUSI 3059 6.0, 3081 3.0, 3220 3.0, 3300 6.0, 3310 6.0, 3320 6.0, 3340 6.0, 3350 6.0, 3360 6.0, 3370 3.0, 3380 3.0, 3460 3.0, 3470 3.0, 4059 6.0, 4081 3.0, 4200 3.0, 4300 3.0, 4320 3.0, 4370 3.0, 4380 3.0, 4381 3.0, 4399 3.0, 4590 3.0/4590 6.0, 4600 6.0.

Upper-Level Studio Courses

FA/MUSI 3000 6.0, 3010 6.0, 3020 3.0, 3022 3.0, 3024 3.0, 3025 3.0, 3026 3.0, 3028 3.0, 3029 6.0, 3031 6.0, 3032 6.0, 3040 6.0, 3041 6.0, 3042 3.0, 3043 3.0, 3044 3.0, 3045 3.0, 3046 3.0, 3047 3.0, 3048 3.0, 3049 3.0, 3051 6.0, 3052 3.0, 3053 3.0, 3054 3.0, 3059 6.0, 3070 3.0/3070 6.0, 3071 3.0, 3080 3.0/3080 6.0, 3082 3.0, 3090 3.0, 3091 6.0, 3092 3.0, 3093 3.0, 3110 6.0, 3120 3.0, 3131 3.0, 3132 3.0, 3140 6.0, 3201 3.0, 3202 3.0, 3210 6.0, 3240 6.0, 3450 3.0, 3460 3.0, 3900 3.0/3900 6.0, 4020 3.0, 4024 3.0, 4025 3.0, 4026 3.0,

4028 3.0, 4029 6.0, 4031 6.0, 4032 6.0, 4040 6.0, 4041 6.0, 4042 3.0, 4043 3.0, 4044 3.0, 4045 3.0, 4046 3.0, 4047 3.0, 4048 3.0, 4049 3.0, 4051 6.0, 4052 3.0, 4053 3.0, 4054 3.0, 4059 6.0, 4070 3.0/4070 6.0, 4080 3.0/4080 6.0, 4082 3.0, 4090 3.0, 4091 3.0, 4092 3.0, 4093 3.0, 4110 6.0, 4140 6.0, 4150 6.0, 4200 3.0, 4590 3.0/4590 6.0, 4900 3.0.

Note: Some courses involve additional maintenance fees. Consult the department's supplementary calendar for details.

Courses in Music

Note: For new courses, the list of courses offered in a given term and detailed course descriptions, consult the supplementary calendar available from the department office.

FA/MUSI 1000 6.0 Workshop in Musicianship I. An intensive course designed to develop musical sensitivity, imagination and practical skills, through a variety of individual exercises in singing, playing, composing and listening.

Note: Limited to music majors and minors and required of all new majors. Available to students in fine arts cultural studies by entrance examination.

FA/MUSI 1020 3.0/1020 6.0 Classical Performance: Individual Instruction. This course provides instruction in instrumental or vocal performance. Students enrol in the course corresponding to their instrument.

    A.   Flute
    B.   Oboe
    C.   Clarinet
    D.   Bassoon
    E.   Saxophone
    F.   French Horn
    G.   Trumpet
    H.   Trombone
    I.   Tuba
    J.   Percussion
    L.   Guitar
    M.   Voice
    N.   Violin
    O.   Viola
    P.   Cello
    Q.   Double Bass
    R.   Harp
    S.   Euphonium

Prerequisite: Permission of the course director, by audition.

Corequisites: FA/MUSI 1022 3.0, FA/MUSI 1024 3.0 or FA/MUSI 1025 3.0 or FA/MUSI 1026 3.0, FA/MUSI 1052 3.0 or FA/MUSI 1053 3.0.

FA/MUSI 1022 3.0 York University Women's Chorus. This course is open to all qualified York University students. The York University Women's Chorus performs repertoire written

especially for soprano and also voice ranges, and presents several concerts annually. Open to non-majors.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 1024 3.0 York University Concert Choir. This course is open to all qualified York University students and offers performance training in the environment of a large choir.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 1025 3.0 York University Wind Symphony. This course is open to all qualified York University students and offers performance training in the environment of a large ensemble.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 1026 3.0 Orchestra. This course is open to all qualified York University students and offers performance training in the environment of a large ensemble.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 1028 3.0 York Chamber Music Ensembles. This course provides training and experience in the performance of chamber music. Students enrol in one of the following ensembles:

- B. York Brass Ensemble
- G. York Guitar Ensemble
- P. York Percussion Ensemble
- S. York Chamber Strings
- W. York Woodwind Ensemble

Prerequisite: Permission of the course director, by audition.

Corequisite: FA/MUSI 1020 3.0.

FA/MUSI 1029 3.0 Vocal Diction I. Examines diction as it relates to performance within the tradition of classical voice. Students will receive practical instruction in classical vocal pronunciation, diction, articulation and correct vowel formation with an aim to developing the linguistic fluency and foreign language competency necessary for the vocal art in the western classical tradition.

Corequisite: Enrolment in FA/MUSI 1020M 3.0 Voice or permission of the instructor.

FA/MUSI 1031 6.0 Piano Improvisation and Contemporary Styles. Designed for pianists of all backgrounds interested in exploring a variety of improvisational practices and 20th-century techniques and styles. Students learn to develop a compositional orientation to improvisation which allows the free exploration and integration of materials and processes from all periods and cultures.

Prerequisite: Permission of the course director, by audition. Open to non-majors.

Prerequisites or corequisites: FA/MUSI 1000 6.0 and FA/MUSI 1200 9.0.

FA/MUSI 1032 6.0 Contemporary Musicianship and Improvisation. Designed to integrate musicianship training with work in composition and improvisation. Development of the skills, strategies and sensibilities required to achieve fluency in spontaneous solo and ensemble music making and the development and refining of one's own musical voice are among the main course objectives. Admission is by audition in September.

Prerequisite: Permission of the course director, by audition. Open to non-majors.

Prerequisites or corequisites: FA/MUSI 1000 6.0 and FA/MUSI 1200 9.0.

FA/MUSI 1042 3.0 Gamelan Orchestra. Group instruction in the technique and performance of Indonesian Gamelan repertoire. Rhythmic and melodic techniques are developed while performing on various gongs, metalophones, flutes and drums of the Gamelan Orchestra. Repertoire is memorized and ensemble performance practice is emphasized through public performance.

Note: Open to majors and non-majors.

FA/MUSI 1043 3.0 West African Drum Ensemble. Practical instruction in the performance practice and repertoires of various West African cultures including Ewe, Dagamba, Mandinka and other Mande people. The songs and basic dance movements integral to these traditions will also be studied.

Note: Open to majors and non-majors.

FA/MUSI 1044 3.0 Celtic Canadian Folk Ensemble. Practical instruction in several vernacular fiddle-based musical traditions of North America. Some knowledge of fiddle, guitar, piano, harmonica or tin whistle is an asset.

Prerequisite: Permission of the course director. No prior experience is necessary.

Note: Open to majors and non-majors.

FA/MUSI 1045 3.0 Klezmer Folk Ensemble. Practical performance instruction in the Klezmer musical tradition. Some knowledge of fiddle, guitar, piano or clarinet required. The course develops facility and repertoire in the improvisational styles associated with the Klezmer (Jewish wedding band) tradition of central Europe and the Middle East.

Prerequisite: Permission of the course director. No prior experience is necessary.

Note: Open to majors and non-majors.

FA/MUSI 1046 3.0 African-American Musics. Practical performance instruction in the African-American traditions of ragtime, blues, barrelhouse, boogie-woogie and stride piano styles. Students develop manual independence, rhythmic security, improvisation skills and stylistic awareness using repertoire chosen from the tradition. Both aural sources and written scores are consulted and used to recreate the music.

Prerequisite: Permission of the course director.

Note: Open to majors and non-majors with appropriate skill level in piano playing.

FA/MUSI 1047 3.0 Chinese Classical Ensemble. Practical and repertoire studies in traditional Chinese orchestral techniques (chin, erhu etc.).

Note: Open to majors and non-majors.

FA/MUSI 1048 3.0 Japanese Music. Practical and repertoire studies in traditional instrumental techniques (shakuhachi, koto etc.) Students concentrate on issues of performance such as tone colour, rhythmic accuracy and nuance, and ensemble performance.

Note: Open to majors and non-majors.

FA/MUSI 1049 3.0 Cuban Music. A performance oriented course dealing primarily with Cuban popular music styles. An in depth examination of various Afro-cuban traditional musics, which have had important influence on the popular styles, will also be presented.

Note: Open to majors and non-majors.

FA/MUSI 1050 6.0 Introduction to Jazz Performance. Improvisation and ensemble playing in the jazz idiom, intended for students with instrumental proficiency and musical literacy, and some experience in jazz performance.

Prerequisite: Permission of the course director, by audition. All aspirants can receive further information on auditions from the department office. Open to non-majors.

Prerequisites or corequisites: FA/MUSI 1000 6.0 and FA/MUSI 1200 9.0.

FA/MUSI 1051 6.0 Jazz Workshop I. A systematic approach to improvising and ensemble playing in the jazz idiom. The course is designed primarily for students with instrumental proficiency and basic experience in small group jazz performance and/or jazz theory. Hours vary.

Prerequisite: Permission of the course director, by audition. Open to non-majors.

Prerequisites or corequisites: FA/MUSI 1000 6.0 and FA/MUSI 1200 9.0.

FA/MUSI 1052 3.0 Jazz Orchestra I. The York Jazz Orchestra performs traditional and contemporary jazz for large ensembles, including student compositions as well as music by noted jazz composers.

Prerequisite: Permission of the course director, by audition. Open to non-majors.

Note: The Jazz Orchestra meets from September to April.

FA/MUSI 1053 3.0 Jazz Choir I. This course provides instruction in jazz choral techniques and emphasizes the development of vocal performance skills within the jazz tradition.

Prerequisite: Permission of the course director, by audition.

Note: The Jazz Choir meets from September to April.

FA/MUSI 1054A 3.0/1054A 6.0 Jazz Piano. This course focuses on performance dealing primarily with the tradition of jazz piano in both its solo and ensemble forms. Practical instruction in

jazz piano performance includes an emphasis on developing stylistic fluency and repertoire competency.

Prerequisite: Permission of the instructor for 1054A, appropriate lower level or permission of the instructor required for upper-level registration.

FA/MUSI 1054B 3.0/1054B 6.0 Jazz Bass. This course focuses on performance techniques within the tradition of jazz bass as manifested in various historical and contemporary styles. Practical instruction in jazz bass playing includes an emphasis on developing proper technique, tone, intonation, harmonic conception, stylistic integrity, melodic fluency, and repertoire competency.

Prerequisite: Permission of the instructor for 1054B, appropriate lower level or permission of the instructor required for upper-level registration.

FA/MUSI 1054C 3.0/1054C 6.0 Jazz Percussion. This course focuses on performance dealing primarily with the tradition of jazz percussion performance styles. Practical instruction in jazz drum "set" or "kit" includes an emphasis on developing proper technique, stylistic fluency and repertoire competency.

Prerequisite: Permission of the instructor for 1054C, appropriate lower level or permission of the instructor required for upper-level registration.

FA/MUSI 1054D 3.0/1054D 6.0 Jazz Guitar. This course focuses on performance techniques within the tradition of jazz guitar as manifested in various historical and contemporary styles. Practical instruction in jazz guitar playing includes an emphasis on developing melodic technique, harmonic structure, stylistic integrity, comping fluency and repertoire competency.

Prerequisite: Permission of the instructor for 1054D, appropriate lower level or permission of the instructor required for upper-level registration.

FA/MUSI 1054E 3.0/1054E 6.0 Jazz Woodwind. This course focuses on performance techniques within the tradition of jazz woodwind (saxophone, clarinet, flute) as manifested in various historical and contemporary styles. Practical instruction in jazz woodwind playing includes an emphasis on developing tone, technique, harmonic sensitivity, stylistic integrity, melodic fluency and repertoire competency.

Prerequisite: Permission of the instructor for 1054E, appropriate lower level or permission of the instructor required for upper-level registration.

FA/MUSI 1054F 3.0/1054F 6.0 Jazz Brass. This course focuses on performance techniques within the tradition of jazz brass (trumpet, trombone, tuba) as manifested in various historical and contemporary styles. Practical instruction in jazz brass playing includes an emphasis on developing tone, technique, harmonic sensitivity, stylistic integrity, melodic fluency and repertoire competency.

Prerequisite: Permission of the instructor for 1054F, appropriate lower level or permission of the instructor required for upper-level registration.

FA/MUSI 1054G 3.0/1054G 6.0 Jazz Vocal. This course focuses on performance dealing primarily with the tradition of solo jazz singing.

Practical instruction in jazz vocal performance includes an emphasis on developing stylistic fluency and repertoire competency.

Prerequisite: Permission of the instructor for 1054G, appropriate lower level or permission of the instructor required for upper-level registration.

FA/MUSI 1059 3.0 Jazz Theory and Musicianship I. A jazz theory course for students in the jazz performance stream. All students enrolled in FA/MUSI 1051 6.0 must be concurrently enrolled in FA/MUSI 1059 3.0. However, qualified students may elect to take FA/MUSI 1059 3.0 without concurrent enrolment in FA/MUSI 1051 6.0.

Corequisites: FA/MUSI 1000 6.0 and FA/MUSI 1200 9.0.

FA/MUSI 1070 3.0/1070 6.0 Electro-Acoustic Orchestra. This course allows students to participate in a large electro-acoustic orchestra that will create (re-create) and perform both historical and contemporary repertoire using both the latest digital sound production hardware as well as traditional instruments. A participating student will be required to function as both performer and in at least one other capacity such as composer, arranger, improviser or conductor.

FA/MUSI 1080 3.0/1080 6.0 Classical Piano Performance. Instruction and recital preparation in classical piano through individual lessons and master classes.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 1081 3.0 Piano Literature and Pedagogy. Literature and pedagogy of classical piano. Students undertake lecture demonstrations, piano four-hand projects and research papers. The literature will rotate through a three-year cycle treating different historical periods. Open to non-majors who have studied piano. Activities vary according to the level of skill and experience of the individual student.

Prerequisite: Permission of the course director.

FA/MUSI 1082 3.0 Piano Accompanying. This course develops the pianist's ability to function as a sensitive and musical accompanist.

Prerequisite: Permission of the course director.

FA/MUSI 1090 3.0 Middle Eastern Ensemble. Practical instruction in selected Middle Eastern classical and fold repertoires drawn from Arab, Persian and Turkish cultures. In addition to voice and percussion (frame drum, darabouka) instrumentation will include 'oud, setar (lute), violin and ney (reed flute).

Prerequisite: Permission of the course director.

FA/MUSI 1091 3.0 World Music Chorus. A practical performance course which surveys selected polyphonic traditions from around the world. This course seeks to expand conceptions regarding vocal technique and production while exploring various compositional possibilities.

Prerequisite: Permission of the course director.

FA/MUSI 1092 3.0 Early Music Ensemble. Practical instruction in selected repertoires drawn from medieval and Renaissance sources. Ensembles will utilize voice, wind (recorders and gemhorns), string and percussion instruments.

Prerequisite: Permission of the instructor.

FA/MUSI 1093 3.0 Balkan Music Ensemble. Practical instruction in selected repertoires drawn from the rich and varied Balkan region sources. Ensembles will utilize voice, string, wind and percussion instruments.

Prerequisite: Permission of the instructor.

FA/MUSI 1094 3.0 Latin Jazz Ensemble. Practical instruction in established and newly-composed repertoires drawn from the confluence of Afrolatin folk/popular music and jazz. The course will provide fundamental instruction in Latin folk music traditions.

Prerequisite: Permission of the instructor for 1094, appropriate lower level or permission of the instructor required for upper-level registration.

FA/MUSI 1095 3.0 Caribbean Ensemble. Practical instruction in repertoires drawn from the island cultures of the Caribbean region with a focus on the steel pan tradition. The course will provide fundamental instruction in steel pan or drum repertoire, techniques, and traditions.

Prerequisite: Permission of the instructor for 1095, appropriate lower level or permission of the instructor required for upper-level registration.

FA/MUSI 1110 3.0 Composition Studio I. An introduction to musical composition for acoustic instruments and voice, emphasizing clarity as attained by distinct decisions about all compositional variables and adequate notation of these. Students are expected to expand their idiomatic ranges.

Prerequisites or corequisites: FA/MUSI 1000 6.0 and FA/MUSI 1200 9.0. Open to non-majors/minors by permission of the course director.

Degree credit exclusion: The former FA/MUSI 2110 3.0.

FA/MUSI 1140 6.0 Digital and Electronic Media I. This course deals with the historical, technical and aesthetic aspects of electronic music systems in theory, composition and performance. Work includes the theory and analysis of acoustics, sound recording, classical tape techniques, synthesizers, microphones, mixers and various digital and analogue devices and methods.

Prerequisites or corequisites: For music majors, FA/MUSI 1000 6.0 and FA/MUSI 1200 9.0. Open to non-majors/minors by permission of the course director.

FA/MUSI 1200 9.0 Musics and Cultures I. Students are exposed to concepts underlying music as a whole, with emphasis upon the cultivation of listening skills and upon the aural

recognition of particular kinds of musical materials. Topics include rhythm and meter, acoustics, melody, harmony, texture, musical form and basic techniques of analysis. Six hours. Open only to music majors and minors, and required of all first year full time music majors. Available to students in fine arts cultural studies by entrance examination.

FA/MUSI 1511 3.0 The Musical Experience I. This course teaches active, creative listening skills and explores the power and significance of music in human life, using illustrations from a broad range of musical practices including jazz, popular, world and classical musics.

Note: This course is designed for students not majoring or minoring in music. No prior training in music is required. Not open to music majors or minors. Equivalent to the first half of AK/ MUSI 2210 6.0. Materials fee required.

FA/MUSI 1512 3.0 The Musical Experience II. A continuation of FA/MUSI 1511 3.0.

Prerequisite: FA/MUSI 1511 3.0.

Note: This course is designed for students not majoring or minoring in music. No prior training in music is required. Not open to music majors or minors. Equivalent to the second half of AK/ MUSI 2210 6.0. Materials fee applies.

FA/MUSI 1520 6.0 Rhythm and Blues, Soul, Funk and Rap. This course explores in-depth the range of African-American popular musics that have come into existence since the end of the Second World War. All styles and genres are studied from both a musicological and sociological perspective. Designed for students not majoring or minoring in music.

Prerequisite: None.

FA/MUSI 1530 6.0 Rock, Country and Popular Music. This course explores in-depth from both a musicological and sociological perspective the range of Euro-American popular musics as well as some styles of British popular music that have come into existence since the end of the Second World War. Designed for students not majoring or minoring in music.

Prerequisite: None.

FA/MUSI 2020 3.0/2020 6.0 Classical Performance. This course provides instruction in instrumental or vocal performance. Students enrol in the course corresponding to their particular instrument.

Prerequisite: Permission of the course director, by audition.

Corequisites: FA/MUSI 2022 3.0, FA/MUSI 2024 3.0 or FA/MUSI 2025 3.0 or FA/MUSI 2026 3.0, FA/MUSI 2053 3.0 or FA/MUSI 2054 3.0.

FA/MUSI 2022 3.0 York University Women's Chorus. Continuation of FA/MUSI 1022 3.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 2024 3.0 York University Concert Choir. Continuation of FA/MUSI 1024 3.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 2025 3.0 York University Wind Symphony. Continuation of FA/MUSI 1025 3.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 2026 3.0 Orchestra. Continuation of FA/MUSI 1026 3.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 2028 3.0 York Chamber Music Ensembles. Continuation of FA/MUSI 1028 3.0.

Prerequisite: Permission of the course director, by audition.

Corequisite: FA/MUSI 2020 3.0.

FA/MUSI 2029 3.0 Vocal Diction II. Continuation of FA/MUSI 1029 3.0 Vocal Diction I. Examines diction as it relates to performance within the tradition of classical voice. Students will receive practical instruction in classical vocal pronunciation, diction, articulation and correct vowel formation with an aim to developing the linguistic fluency and foreign language competency necessary for the vocal art in the western classical tradition.

Prerequisite: FA/MUSI 1029 3.0 or permission of the instructor.

FA/MUSI 2031 6.0 Piano Improvisation and Contemporary Styles. Continuation of FA/ MUSI 1031 6.0. Hours vary.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 2032 6.0 Contemporary Musicianship and Improvisation. Continuation of FA/MUSI 1032 6.0. Hours vary.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 2040 6.0 South Indian Classical Music I. Practical training in performance styles, together with some of the appropriate theory, terminology and cultural background.

Prerequisite: No prior experience is necessary, but permission of the course director is required. Open to non-majors.

FA/MUSI 2041 6.0 Philippine Kolintang Ensemble I. Practical training in performance styles, together with some of the appropriate theory, terminology and cultural background.

Prerequisite: No prior experience is necessary, but permission of the course director is required. Open to non-majors.

FA/MUSI 2042 3.0 Gamelan Orchestra. Group instruction in the technique and performance of Indonesian Gamelan repertoire.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2043 3.0 West African Drum Ensemble. Practical instruction on the two fontomfrom ensembles of Ghana.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2044 3.0 Celtic Canadian Folk Ensemble. Practical instruction in several vernacular fiddle-based musical traditions of several North American regions. Some knowledge of fiddle, guitar, piano, banjo, harmonica or tin whistle is an asset.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2045 3.0 Klezmer Folk Ensemble. Practical performance instruction in the Klezmer musical tradition. Some performance ability and knowledge of fiddle, bass, guitar, piano, or clarinet required.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2046 3.0 African-American Musics: Ragtime, Blues, Boogie-Woogie and Barrelhouse Piano. Practical performance instruction in the African-American traditions of ragtime, blues, barrelhouse, boogie-woogie and stride piano styles.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors with appropriate skill level in piano playing. (Grade VIII RCM level suggested).

FA/MUSI 2047 3.0 Chinese Classical Ensemble. Practical and repertoire studies in traditional Chinese orchestral techniques (chin, erhu etc.) Students learn and perform pieces from the repertoire while concentrating on appropriate instrumental techniques.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2048 3.0 Japanese Music. Practical and repertoire studies in traditional instrumental techniques (shakuhachi, koto etc.) Students concentrate on issues of performance such as tone colour, rhythmic accuracy and nuance, and ensemble performance.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2049 3.0 Cuban Music. A performance oriented course dealing primarily with Cuban popular music styles. An in depth examination of various Afro-cuban traditional musics, which have had important influence on the popular styles, will also be presented.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2051 6.0 Jazz Workshop II. Continuation of FA/MUSI 1051 6.0. Hours vary.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 2052 3.0 Jazz Orchestra II. Continuation of FA/MUSI 1052 3.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 2053 3.0 Jazz Choir II. Continuation of FA/MUSI 1053 3.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 2054A 3.0/2054A 6.0 Jazz Piano. Continuation of FA/MUSI 1054A.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2054B 3.0/2054B 6.0 Jazz Bass. Continuation of FA/MUSI 1054B.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2054C 3.0/2054C 6.0 Jazz Percussion. Continuation of FA/MUSI 1054C.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2054D 3.0/2054D 6.0 Jazz Guitar. Continuation of FA/MUSI 1054D.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2054E 3.0/2054E 6.0 Jazz Woodwind. Continuation of FA/MUSI 1054E.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2054F 3.0/2054F 6.0 Jazz Brass. Continuation of FA/MUSI 1054F.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2054G 3.0/2054G 6.0 Jazz Vocal. Continuation of FA/MUSI 1054G.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2059 3.0 Jazz Theory and Musicianship II. A jazz theory course for students in the jazz performance stream. All students enrolled in FA/MUSI 2051 6.0 must be concurrently enrolled in FA/MUSI 2059 3.0. However, qualified students may elect to take FA/MUSI 2059 3.0 without concurrent enrolment in FA/MUSI 2051 6.0.

Prerequisite: FA/MUSI 1059 3.0 or equivalent.

Prerequisite or corequisite: FA/MUSI 1000 6.0 and FA/MUSI 1200 9.0.

FA/MUSI 2070 3.0/2070 6.0 Electro-Acoustic Orchestra. This course allows students to participate in a large electro-acoustic orchestra that will create (re-create) and perform both historical and contemporary repertoire using both the latest digital sound production hardware as well as traditional instruments. A participating student will be required to function as both performer and in at least one other capacity such as composer, arranger, improviser or conductor.

FA/MUSI 2080 3.0/2080 6.0 Classical Piano Performance. Instruction and recital preparation in classical piano through individual lessons and master classes.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 2081 3.0 Piano Literature and Pedagogy. Literature and pedagogy of classical piano. Open to non-majors who have studied piano. Activities vary according to the level of skill and experience of the individual student.

Prerequisite: Permission of the course director.

FA/MUSI 2082 3.0 Piano Accompanying. This course develops the pianist's ability to function as a sensitive and musical accompanist.

Prerequisite: Permission of the course director.

FA/MUSI 2090 3.0 Middle Eastern Ensemble. Continuation of FA/MUSI 1090 3.0.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2091 3.0 World Music Chorus. Continuation of FA/MUSI 1091 3.0.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2092 3.0 Early Music Ensemble. Continuation of FA/MUSI 1092 3.0.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2093 3.0 Balkan Music Ensemble. Continuation of FA/MUSI 1093 3.0.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 2094 3.0 Latin Jazz Ensemble. Practical instruction in established and newly-composed repertoires drawn from the confluence of Afrolatin folk/popular music and jazz. The course will provide fundamental instruction in Latin folk music traditions.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration.

FA/MUSI 2095 3.0 Caribbean Ensemble. Practical instruction in repertoires drawn from the island cultures of the Caribbean region with a focus on the steel pan tradition. The course will provide fundamental instruction in steel pan or drum repertoire, techniques, and traditions.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration.

FA/MUSI 2110 3.0 Composition Studio II. A continuation of work begun in FA/MUSI 1110 3.0, emphasizing the control of variation, repetition and development to create coherent musical thought in short compositions for small groups of acoustic instruments and voices.

Prerequisite: FA/MUSI 1110 3.0 (formerly FA/MUSI 2110 3.0) or permission of the course director.

FA/MUSI 2140 6.0 Digital Electronic Media II. A continuation of work begun in MUSI 1140 6.0, with an emphasis on the historical and contemporary use of digital and electronic music systems. Emphasis is on creative studio work using digital and electronic music systems in composition and performance

Prerequisites: FA/MUSI 1140 6.0 or permission of the course director and for music majors, FA/MUSI 1000 6.0 (or FA/MUSI 2000 6.0) and FA/MUSI 1200 9.0.

FA/MUSI 2200 6.0 Musics and Cultures II. Historical developments and social context of specific repertoires including western art music. Involves intensive repertoire study, aural perception, analysis and score reading in addition to developing skills in writing about music and its place in the historical/cultural continuum. {Mandatory unless exempted via a proficiency exam}.

Prerequisites: FA/MUSI 1000 6.0 with a minimum grade of C+, and FA/MUSI 1200 9.0.

Note: Must be completed within the first 60 credits by all music majors. Offered annually.

FA/MUSI 2201 3.0 Counterpoint. Students master the traditional pedagogy of species counterpoint while studying examples of the Renaissance vocal polyphonic style from which it is derived. Correlated work in vocal, aural and keyboard skills is a major component of the course. Four hours plus tutorial.

Prerequisites: FA/MUSI 1000 6.0 with a minimum final grade of C+, or equivalent score on a proficiency exam and FA/MUSI 1200 9.0.

FA/MUSI 2202 3.0 Harmony. Students study the traditional art of selecting and connecting chords in four voices. Idioms which draw on the formulae of this texture in freer or abstract presentations are also considered, as these are the materials of classical music which are most nearly adopted in jazz, popular and some folk music styles. Four hours plus tutorial.

Prerequisites: FA/MUSI 1000 6.0 with a minimum final grade of C+, or equivalent score on a proficiency exam and FA/MUSI 1200 9.0.

FA/MUSI 2540 6.0 Music of the World's Peoples. This course is a broad, comparative survey of the indigenous music of North and South America, Africa, Asia, Europe, Australia and Oceania. Selected classical, folk and popular genres from around the globe will be studied from the perspectives of varying social contexts, musical structures and performance practices.

Prerequisite: None.

Note: This course is designed for students not majoring or minoring in music. No prior training is required.

FA/MUSI 3000 6.0 Score Study, Advanced Musicianship and Conducting. Advanced musicianship, with emphasis upon skills and methods applicable to learning and teaching music from orchestral vocal and ensemble scores. Individual and class exercises in conducting, analysis, aural recognition, keyboard harmony, sight-reading and transposing.

Prerequisites or corequisites: Foundation courses. Keyboard proficiency is helpful.

FA/MUSI 3010 6.0 Rhythm. A comprehensive musicianship course, developing rhythmic skills and perception through a detailed study of Indian rhythmic theory and practice from the disciplines of music and dance. Rhythmic systems of other musical cultures are also discussed in a comparative context.

Prerequisites or corequisites: Foundation courses or permission of the course director.

FA/MUSI 3020 3.0/3020 6.0 Classical Performance. This course provides instruction in instrumental or vocal performance. Students enrol in the course number corresponding to their particular instrument.

Prerequisite: Permission of the course director, by audition.

Corequisites: FA/MUSI 3022 3.0, FA/MUSI 3024 3.0 or FA/MUSI 3025 3.0 or FA/MUSI 3026 3.0, FA/MUSI 3052 3.0 or FA/MUSI 3053 3.0.

FA/MUSI 3022 3.0 York University Women's Chorus. Continuation of FA/MUSI 2022 3.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 3024 3.0 York University Concert Choir. Continuation of FA/MUSI 2024 3.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 3025 3.0 York University Wind Symphony. Continuation of FA/MUSI 2025 3.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 3026 3.0 Orchestra. Continuation of FA/MUSI 2026 3.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 3028 3.0 York Chamber Music Ensembles. Continuation of FA/MUSI 2028 3.0.

Prerequisite: Permission of the course director, by audition.

Corequisite: FA/MUSI 3020 3.0.

FA/MUSI 3029 6.0 Recital and Master Class in Performance I. An intensive course in performance highlighting historical context, style, interpretation, musicianship, performance practices. Designed for students who have the ability to pursue careers or graduate studies in performance. Open to all.

Note: All FA/MUSI 3029 6.0 students participate in a weekly performance master class which includes lectures and practice in performance.

FA/MUSI 3030 3.0/3030 6.0 Recital I. This course allows advanced students in performance to present themselves in the format of a concert recital. Students must plan a recital program in conjunction with a faculty member who serves as adviser and mentor during the planning and preparation process. Applicants must submit a recital proposal and program, signed by the faculty adviser, to the Chair by Oct. 15.

FA/MUSI 3031 6.0 Piano Improvisation and Contemporary Styles. Continuation of FA/MUSI 2031 6.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 3032 6.0 Contemporary Musicianship and Improvisation. Continuation of FA/MUSI 2032 6.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 3040 6.0 South Indian Classical Music II. A continuation of FA/MUSI 2040 6.0.

Prerequisites: FA/MUSI 2040 6.0 and permission of the course director.

Prerequisites or corequisites: For music majors, foundation courses.

FA/MUSI 3041 6.0 Philippine Kolintang Ensemble II. A continuation of FA/MUSI 2041 6.0.

Prerequisites: FA/MUSI 2041 6.0 and permission of the course director.

Prerequisites or corequisites: For music majors, foundation courses.

FA/MUSI 3042 3.0 Gamelan Orchestra. A continuation of FA/MUSI 2042 3.0.

Prerequisites: FA/MUSI 2042G 3.0 or FA/MUSI 2042 3.0 and permission of the course director.

Prerequisites or corequisites: For music majors, foundation courses.

FA/MUSI 3043 3.0 West African Drum Ensemble. A continuation of FA/MUSI 2043 3.0.

Prerequisites: FA/MUSI 2043 3.0 and permission of the course director.

Prerequisites or corequisites: For music majors, foundation courses.

FA/MUSI 3044 3.0 Celtic Canadian Folk Ensemble. A continuation of FA/MUSI 2044 3.0.

Prerequisites: FA/MUSI 2044 3.0 and permission of the course director.

Prerequisites or corequisites: For music majors, foundation courses.

FA/MUSI 3045 6.0 Klezmer Folk Ensemble. A continuation of FA/MUSI 2045 3.0.

Prerequisites: FA/MUSI 2045 3.0 and permission of the course director.

Prerequisites or corequisites: For music majors, foundation courses.

FA/MUSI 3046 6.0 African-American Musics: Ragtime, Blues, Boogie-Woogie and Barrelhouse Piano. A continuation of FA/MUSI 2046 3.0.

Prerequisites: FA/MUSI 2046 3.0 and permission of the course director.

Prerequisites or corequisites: For music majors, foundation courses.

FA/MUSI 3047 3.0 Chinese Classical Ensemble. A continuation of FA/MUSI 2047 3.0.

Prerequisites: FA/MUSI 2047 3.0 and permission of the course director.

Prerequisites or corequisites: For music majors, foundation courses.

FA/MUSI 3048 3.0 Japanese Music. A continuation of FA/MUSI 2048 3.0.

Prerequisites: FA/MUSI 2048 3.0 and permission of the course director.

Prerequisites or corequisites: For music majors, foundation courses.

FA/MUSI 3049 3.0 Cuban Music. A continuation of FA/MUSI 2049 3.0.

Prerequisites: FA/MUSI 2049 3.0 and permission of the course director.

Prerequisites or corequisites: For music majors, foundation courses.

FA/MUSI 3051 6.0 Jazz Workshop III. Advanced improvising and ensemble playing in contemporary jazz, emphasizing theoretical and practical competence in some of its main idioms. Students receive applied training in performance workshops each week.

Prerequisites: FA/MUSI 2051 6.0 and permission of the course director, by audition.

Corequisite: FA/MUSI 3059 6.0.

Prerequisites or corequisites: For music majors, foundation courses.

FA/MUSI 3052 3.0 Jazz Orchestra III. Continuation of FA/MUSI 2052 3.0.

Prerequisite: Permission of course director, by audition.

Prerequisites or corequisites: For music majors, foundation courses.

FA/MUSI 3053 3.0 Jazz Choir III. Continuation of FA/MUSI 2053 3.0.

Prerequisites and corequisites: For music majors, foundation courses.

FA/MUSI 3054A 3.0/3054A 6.0 Jazz Piano. Continuation of FA/MUSI 2054A.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 3054B 3.0/3054B 6.0 Jazz Bass. Continuation of FA/MUSI 2054B.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 3054C 3.0/3054C 6.0 Jazz Percussion. Continuation of FA/MUSI 2054C.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 3054D 3.0/3054D 6.0 Jazz Guitar. Continuation of FA/MUSI 2054D.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 3054E 3.0/3054E 6.0 Jazz Woodwind. Continuation of FA/MUSI 2054E.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 3054F 3.0/3054F 6.0 Jazz Brass. Continuation of FA/MUSI 2054F.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 3054G 3.0/3054G 6.0 Jazz Vocal. Continuation of FA/MUSI 2054G.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 3059 6.0 Jazz Theory and Musicianship III. An intensive jazz theory course for students in the jazz performance stream who through assessment at the beginning of third year, are eligible to proceed to advanced studies.

Prerequisite: FA/MUSI 2059 3.0 or equivalent, or permission of the course director.

Prerequisites or corequisites: For music majors, foundation courses.

FA/MUSI 3070 3.0/3070 6.0 Electro-acoustic Orchestra. This course allows students to participate in a large electro-acoustic orchestra that will create (re-create) and perform both historical and contemporary repertoire using both the latest digital sound production hardware as well as traditional instruments. A participating student will be required to function as both performer and in at least one other capacity such as composer, arranger, improviser or conductor.

FA/MUSI 3071 3.0 Synthesizer Performance. This course prepares the student for a career as a professional synthesizer artist. It deals with the development of specific performance techniques, style considerations and sonic perception related to contemporary synthesizer practice.

Prerequisite: Foundation courses.

FA/MUSI 3080 3.0/3080 6.0 Classical Piano Performance. Instruction and recital preparation in classical piano through individual lessons and master classes.

Prerequisite: Permission of the course director, by audition.

Corequisite: FA/MUSI 3081 3.0.

FA/MUSI 3081 3.0 Piano Literature and Pedagogy. Literature and pedagogy of classical piano. Open to non-majors who have studied piano. Activities vary according to the level of skill and experience of the individual student.

Prerequisite: Permission of the course director.

FA/MUSI 3082 3.0 Piano Accompanying. This course develops the pianist's ability to function as a sensitive and musical accompanist.

Prerequisite: Permission of the course director.

FA/MUSI 3090 3.0 Middle Eastern Ensemble. Continuation of FA/MUSI 2090 3.0.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 3091 3.0 World Music Chorus. Continuation of FA/MUSI 2091 3.0.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 3092 3.0 Early Music Ensemble. Continuation of FA/MUSI 2092 3.0.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 3093 3.0 Balkan Music Ensemble. Continuation of FA/MUSI 2093 3.0.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 3094 3.0 Latin Jazz Ensemble. Practical instruction in established and newly-composed repertoires drawn from the confluence of Afrolatin folk/popular music and jazz. The course will provide fundamental instruction in Latin folk music traditions.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration.

FA/MUSI 3095 3.0 Caribbean Ensemble. Practical instruction in repertoires drawn from the island cultures of the Caribbean region with a focus on the steel pan tradition. The course will provide fundamental instruction in steel pan or drum repertoire, techniques, and traditions.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration.

FA/MUSI 3110 6.0 Composition Studio III. Students are encouraged to compose in contemporary idioms and to undertake exercises which expand their awareness of styles, methods, materials, notation systems. Hours vary.

Prerequisites or corequisites: Foundation courses or permission of the course director.

FA/MUSI 3120 3.0 Song Writing and Repertoire. Students develop and explore aspects of the compositional process by dealing with melodic, rhythmic, harmonic, formal and textural considerations as they pertain to song writing. Students are required to produce a substantial number of original songs and analyze relevant material from the literature. The use of the multi-track recording process is studied as a compositional aid and as a means of producing pre-production demos.

Prerequisites: Foundation courses, or permission of the course director.

Note: Materials fee, $25.

FA/MUSI 3131 3.0 Jazz Composition and Arranging (Small Ensembles). A study of jazz compositional techniques of the past and present through analysis, transcription and performance. Aims of the course are development of a basic craft, and experimentation leading towards a more personal expression. Projects for small ensembles are required and read by members of the class.

Prerequisites: FA/MUSI 2201 3.0, FA/MUSI 2202 3.0 and FA/MUSI 2051 6.0, or permission of the course director.

FA/MUSI 3132 3.0 Jazz Composition and Arranging (Large Ensembles). A study of jazz compositional techniques of the past and present through analysis, transcription and

performance. Aims of the course are development of a basic craft, and experimentation leading towards a more personal expression. Projects for large ensembles are required and read by members of the class.

Prerequisites: FA/MUSI 2201 3.0, FA/MUSI 2202 3.0 and FA/MUSI 2051 6.0, or permission of the course director.

FA/MUSI 3140 6.0 Digital and Electronic Media III. Continuation of FA/MUSI 2140 6.0.

Prerequisite: FA/MUSI 2140 6.0 or equivalent, or permission of the course director. Enrolment limited.

FA/MUSI 3201 3.0 Fugal Style. An introduction to fugal composition including advanced work in tonal harmony and counterpoint. Students analyze compositions in fugal style, principally those of J.S. Bach with some regard to earlier and later developments, and learn to organize and execute compositions using the techniques of this genre.

Prerequisite: FA/MUSI 2201 3.0.

Prerequisite or corequisite: FA/MUSI 2200 6.0.

FA/MUSI 3202 3.0 Sonata Style. An introduction to composition in sonata form and related genres in advanced tonal harmonic style. Students analyze compositions in sonata style, principally those of Haydn, Mozart and Beethoven, with some regard to earlier and later developments, and learn to organize and execute compositions using the techniques of this genre.

Prerequisite: FA/MUSI 2202 3.0.

Prerequisite or corequisite: FA/MUSI 2200 6.0.

FA/MUSI 3210 6.0 Introduction to Sonic Architecture and Design. This course introduces students to the complex world of sonic architecture and design. Through the manipulation, control and creation of digital instruments, the class will explore the musical and technical aspects of sonic theory and practice in the digital domain.

Prerequisite: For music majors, foundation courses.

FA/MUSI 3220 3.0 Introduction to Alternate Tunings. This course deals with the historical, theoretical, aesthetic and practical aspects of various alternate and microtonal tuning systems. Mathematical relationships, practical applications, sonic characteristics and compositional aesthetics will be discussed. Students will be encouraged to create original systems and to perform and compose music using various temperaments.

Prerequisite: Foundation courses.

FA/MUSI 3240 6.0 Instrumentation and Orchestration. A study of instruments, singly and in combination, with respect to their use in composition. The course emphasizes traditional instruments of the band and orchestra, though other types of instrumentation may be considered. The student's main work involves regular exercises in arranging or composing in a variety of styles.

Prerequisites: Foundations courses.

FA/MUSI 3300 6.0 Music of World Cultures. An introduction, through listening and analysis, filmed or live demonstrations, and occasional field trips, to the musical traditions of specific nations and communities. The social practices, concepts and sound structures of the music, as well as the impact of contemporary recording technologies will be explored.

Prerequisite: For music majors, foundation courses.

Degree credit exclusion: FA/MUSI 2310 6.0.

FA/MUSI 3310 6.0 Music in the Modern Era. A study of major musical developments from 1890 to 1950 in Europe and North America, with emphasis on the relationship between innovation and tradition and on problems of style and communication in an era of rapid social and cultural change.

Prerequisites: For music majors, foundation courses. Open to non-majors/minors by permission of the course director.

FA/MUSI 3320 6.0 Music of India. Theoretical systems and contemporary performance styles in relation to one another and in the context of a number of closely related aspects of Indian culture.

Prerequisites or corequisites: Foundation courses. Open to non-majors/minors by permission of the course director.

FA/MUSI 3340 6.0 History of European Music. A survey of the history of European music from 1590 to 1890, with particular attention to Italy, France, Austria and Germany. Important works of major composers are examined in detail with reference to the pertinent social and historical contexts.

Prerequisite: For music majors, foundation courses.

Degree credit exclusions: FA/MUSI 2220 6.0, AK/MUSI 2220 6.0.

FA/MUSI 3350 6.0 Music of the Americas. A study of the various musical traditions that have been absorbed and transformed by the emerging civilizations of the New World. Topics include: the history of music in British North America; the blending of African, European and native idioms in Latin America and the Caribbean; the rise and development of jazz, blues and urban popular music (including rock); the music and musical culture of minority groups; New World musics in their cultural context. Equivalent to AK/MUSI 3440 6.0.

Prerequisite: For music majors, foundation courses.

Degree credit exclusion: FA/MUSI 2350 6.0.

FA/MUSI 3360 6.0 Jazz History and Repertory Studies. Jazz history and repertory emphasizing the small group tradition in the US from the mid-1930s to the late 1960s. Various paradigms for jazz history, style analysis and criticism are examined, with attention to jazz as a repertory music as well as a musical process.

Prerequisites: For music majors, foundation courses. Open to non-majors/minors by permission of the course director.

FA/MUSI 3370 3.0 Opera. A history of opera from its origins to the 20th century, exploring the interrelationship of music and drama. Production and staging techniques are discussed, and students are required to attend and comment critically upon all aspects of at least one live operatic performance.

FA/MUSI 3380 3.0 Western Art Song. A study of the interconnections between poetry and music in western art song, particularly in the 19th- and 20th-century German Lied, French chanson and English/North American song.

FA/MUSI 3450 3.0 Creative Applications of MIDI Technology. A major focus of the course is the mastery of MIDI technology as a means towards individual artistic expression. Class work includes regular assignments using a variety of instruments and techniques and demands both live and recorded performances. The use of MIDI-equipped mixers, effects units and rhythm composers are explored.

Prerequisites: Foundation courses; or FA/MUSI 2110 3.0 and FA/MUSI 2111 3.0.

Note: Materials fee, $25.

FA/MUSI 3460 3.0 Music Engraving and Notation Using Computers. This course deals with aesthetic, theoretical and practical considerations involved in the production and printing of music scores, and develops skill in score layout, part extraction, preparation for publications, step time/MIDI input techniques, scanning and other relevant techniques.

Prerequisite: Foundation courses.

FA/MUSI 3470 3.0 Pedagogical Applications of Computer Software in the Contemporary Music Curriculum. This course explores the recent and growing use of music software in teaching subjects such as ear training and rudiments, musicianship, theory, history and analysis. Computer-aided instruction and interactive tools are considered.

Prerequisite: Foundation courses.

FA/MUSI 3900 3.0/3900 6.0 Special Options I. In any given year, special courses may be offered in theory, composition, or performance.

Prerequisites: Foundation courses.

FA/MUSI 4020 3.0 Classical Performance. This course provides instruction in instrumental or vocal performance. Students enrol in the course corresponding to their particular instrument.

Prerequisite: Permission of the course director, by audition.

Corequisites: FA/MUSI 4022 3.0, FA/MUSI 4024 3.0 or FA/MUSI 4025 3.0 or FA/MUSI 4026 3.0 or FA/MUSI 4052 3.0 or FA/MUSI 4053 3.0.

FA/MUSI 4022 3.0 York University Women's Chorus. Continuation of FA/MUSI 3022 3.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 4024 3.0 York University Concert Choir. Continuation of FA/MUSI 3024 3.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 4025 3.0 York University Wind Symphony. Continuation of FA/MUSI 3025 3.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 4026 3.0 Orchestra. Continuation of FA/MUSI 3026 3.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 4028 3.0 York Chamber Music Ensembles. Continuation of FA/MUSI 3028 3.0.

Prerequisite: Permission of the course director, by audition.

Corequisite: FA/MUSI 4020 3.0.

FA/MUSI 4029 6.0 Recital and Master Class in Performance II. Continuation of FA/MUSI 3029 6.0.

Prerequisites: FA/MUSI 3029 6.0 with a minimum grade of B+, or permission of the audition jury.

Corequisite: FA/MUSI 4020 3.0.

FA/MUSI 4030 3.0/4030 6.0 Recital II. Continuation of FA/MUSI 3030.

Prerequisite: Permission of the Chair, Department of Music.

FA/MUSI 4031 6.0 Piano Improvisation and Contemporary Styles. Continuation of FA/MUSI 3031 6.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 4032 6.0 Contemporary Musicianship and Improvisation. Continuation of FA/MUSI 3032 6.0. Hours vary.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 4040 6.0 South Indian Classical Music. Continuation of FA/MUSI 3040 6.0.

Prerequisites: FA/MUSI 3040 6.0 and permission of the course director.

FA/MUSI 4041 6.0 Philippine Kolintang Ensemble. Continuation of FA/MUSI 3041 6.0.

Prerequisites: FA/MUSI 3041 6.0 and permission of the course director.

FA/MUSI 4042 3.0 Gamelan Orchestra. A continuation of FA/MUSI 3042 3.0.

Prerequisites: FA/MUSI 3042 3.0 and permission of the course director.

FA/MUSI 4043 3.0 West African Drum Ensemble. A continuation of FA/MUSI 3043 3.0.

Prerequisites: FA/MUSI 3043 3.0 and permission of the course director.

FA/MUSI 4044 3.0 Celtic Canadian Folk Ensemble. A continuation of FA/MUSI 3044 3.0.

Prerequisites: FA/MUSI 3044 3.0 and permission of the course director.

FA/MUSI 4045 3.0 Klezmer Folk Ensemble. A continuation of FA/MUSI 3045 3.0.

Prerequisites: FA/MUSI 3045 3.0 and permission of the course director.

FA/MUSI 4046 3.0 African-American Musics: Ragtime, Blues, Boogie-Woogie and Barrelhouse Piano. A continuation of FA/MUSI 3046 3.0.

Prerequisites: FA/MUSI 3046 3.0 and permission of the course director.

FA/MUSI 4047 3.0 Chinese Classical Ensemble. A continuation of FA/MUSI 3047 3.0.

Prerequisites: FA/MUSI 3047 3.0 and permission of the course director.

FA/MUSI 4048 3.0 Japanese Music. A continuation of FA/MUSI 3048 3.0.

Prerequisites: FA/MUSI 3048 3.0 and permission of the course director.

FA/MUSI 4049 3.0 Cuban Music. A continuation of FA/MUSI 3049 3.0.

Prerequisites: FA/MUSI 3049 3.0 and permission of the course director.

FA/MUSI 4051 6.0 Jazz Workshop IV. A continuation and intensification of FA/MUSI 3051 6.0. Students receive applied training in performance workshops each week.

Prerequisites: FA/MUSI 3051 6.0 and FA/MUSI 3059 6.0.

Corequisite: FA/MUSI 4059 6.0.

FA/MUSI 4052 3.0 Jazz Orchestra IV. Continuation of FA/MUSI 3052 3.0.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 4053 3.0 Jazz Choir IV. Continuation of FA/MUSI 3053 3.0.

Prerequisites: FA/MUSI 3053 3.0 and permission of the course director, by audition, and for music majors, foundation courses.

FA/MUSI 4054A 3.0/4054A 6.0 Jazz Piano. Continuation of FA/MUSI 3054A.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 4054B 3.0/4054B 6.0 Jazz Bass. Continuation of FA/MUSI 3054B.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 4054C 3.0/4054C 6.0 Jazz Percussion. Continuation of FA/MUSI 3054C.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 4054D 3.0/4054D 6.0 Jazz Guitar. Continuation of FA/MUSI 3054D.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 4054E 3.0/4054E 6.0 Jazz Woodwind. Continuation of FA/MUSI 3054E.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 4054F 3.0/4054F 6.0 Jazz Brass. Continuation of FA/MUSI 3054F.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 4054G 3.0/4054G 6.0 Jazz Vocal. Continuation of FA/MUSI 3054G.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 4059 6.0 Jazz Theory and Musicianship IV. A continuation and intensification of FA/MUSI 3059 6.0. All students in FA/MUSI 4051 6.0 must be concurrently enrolled in FA/MUSI 4059 6.0. Qualified students, however, may elect to take FA/MUSI 4059 6.0 without concurrent enrolment in FA/MUSI 4051 6.0.

Prerequisite: FA/MUSI 3059 6.0.

FA/MUSI 4070 3.0/4070 6.0 Electro-acoustic Orchestra. This course allows students to participate in a large electro-acoustic orchestra that will create (re-create) and perform both historical and contemporary repertoire using both the latest digital sound production hardware as well as traditional instruments. A participating student will be required to function as both performer and in at least one other capacity such as composer, arranger, improviser, or conductor.

FA/MUSI 4080 3.0/4080 6.0 Classical Piano Performance. Instruction and recital preparation in classical piano through individual lessons and master classes.

Prerequisite: Permission of the course director, by audition.

FA/MUSI 4081 3.0 Piano Literature and Pedagogy. Literature and pedagogy of classical piano. Open to non-majors who have studied piano. Activities vary according to the level of skill and experience of the individual student.

Prerequisite: Permission of the course director.

FA/MUSI 4082 3.0 Piano Accompanying. This course develops the pianist's ability to function as a sensitive and musical accompanist.

Prerequisite: Permission of the course director.

FA/MUSI 4090 3.0 Middle Eastern Ensemble. Continuation of FA/MUSI 3090 3.0.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 4091 3.0 World Music Chorus. Continuation of FA/MUSI 3091 3.0.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 4092 3.0 Early Music Ensemble. Continuation of FA/MUSI 3092 3.0.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 4093 3.0 Balkan Music Ensemble. Continuation of FA/MUSI 3093 3.0.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration. Open to majors and non-majors.

FA/MUSI 4094 3.0 Latin Jazz Ensemble. Practical instruction in established and newly-composed repertoires drawn from the confluence of Afrolatin folk/popular music and jazz. The course will provide fundamental instruction in Latin folk music traditions.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration.

FA/MUSI 4095 3.0 Caribbean Ensemble. Practical instruction in repertoires drawn from the island cultures of the Caribbean region with a focus on the steel pan tradition. The course will provide fundamental instruction in steel pan or drum repertoire, techniques, and traditions.

Prerequisite: Appropriate lower level or permission of the instructor required for upper-level registration.

FA/MUSI 4110 6.0 Composition Studio IV. A continuation of FA/MUSI 3110 6.0. Advanced work in composition, analysis and current music-theoretic ideas of relevance to the composer.

Prerequisites: FA/MUSI 3110 6.0 and permission of the course director. Prior or concurrent courses in the theory and literature of 20th-century music, such as FA/MUSI 3310 6.0 or FA/MUSI 4300 3.0, are strongly recommended.

FA/MUSI 4140 6.0 Digital and Electronic Media IV. A continuation of FA/MUSI 3140 6.0. Advanced electro-acoustical composition studies involving composing with analogue, digital and computer-based music systems. Students are expected to complete and present several electro-acoustics compositions in the following formats tape, live and tape, acoustic instruments and tape.

Prerequisite: FA/MUSI 3140 6.0 and permission of the course director.

FA/MUSI 4150 6.0 Digital Recording, Editing and Composition. This course deals with digital composition techniques. Included are topics such as: hard-disk recording, destructive and non-destructive editing, non-linear editing, digital signal processing, digital audio sampling, multipass processing, processor smoothing, effects portamento, sample looping, crossfading and other additional rubrics.

Prerequisite: Foundation courses and permission of the course director.

FA/MUSI 4200 3.0 Topics in Advanced Theory and Analysis. A seminar in contemporary musical analysis emphasizing the comprehensive investigation of complete musical works. Drawing on such perspectives as set theory or Schenkerian reduction, the course introduces the student to research problems in theory and analysis from various perspectives.

Prerequisite: A minimum grade of B in a third year theory course.

FA/MUSI 4300 3.0 Studies in Contemporary Music. Analytical and historical studies of the theory and development of contemporary music, with emphasis on the latter half of the 20th century.

Prerequisite: FA/MUSI 3310 6.0 or permission of the course director.

FA/MUSI 4320 3.0 Honours Seminar. Researchers are motivated by problems which reflect basic issues in intellectual history, humanities, science and social science. In this course, pilot projects will introduce the broad range of research tools which several centuries of theory and academic scholarship have made available to musical study.

Prerequisite: A minimum grade of B in an upper-level studies course.

FA/MUSI 4370 3.0 Music of Canada. Canadians tend to be sharply aware of the derivative aspects of their culture; yet the physiognomy of Canadian music taken as a whole is unique. This course studies selected aspects of Canadian musical achievements which offer perspectives on our national situation.

Prerequisite: FA/MUSI 3310 6.0, FA/MUSI 3350 6.0 or permission of the course director.

FA/MUSI 4380 3.0 Historical Studies in Music. The introductory unit of the course situates the chosen topic with regard to historiographical variables and methods. Then a focused study of a period, style, or individual is devoted to the detailed assessment of continuity, influence and change in music history.

Prerequisite: An upper-level studies course.

FA/MUSI 4381 3.0 Cultural Studies in Music. Musical styles are shaped by their interactions with language, religion, economy, other arts and with the whole fabric of social life. This course studies selected musical traditions with the aim of exploring their dependence on, and contribution to, the cultural matrix. When appropriate, the course may explore traditional activities in local communities.

Prerequisite: An upper-level studies course.

FA/MUSI 4390 3.0/4390 6.0 Special Topics II. In any given year, advanced courses may be offered in history or area studies.

Prerequisite: An upper-level studies course.

FA/MUSI 4399 3.0 Special Topics in the Graduate Program. Fourth-year undergraduates who have the necessary background may apply to take certain half courses offered in the graduate program.

Prerequisites: Permission of both the graduate program director and the course director; a minimum grade of B+ in an upper-level studies course.

FA/MUSI 4590 3.0/4590 6.0 Honours Project in Music. A special project option open to fourth year students who have shown an exceptional ability to study independently and who have designed a course that cannot be accommodated elsewhere in the department's offerings. At the end of the year, the student's work is evaluated on the basis of one or more of the following: a recital, composition, research paper, or lecture-recital.

Prerequisite: Permission of the Curriculum Committee.

Note: See departmental supplementary calendar for specific requirements.

FA/MUSI 4600 6.0 Seminar on the Sonic Enhancement of Healing and Learning. A seminar exploring the use of sound, in conjunction with colour and other subtle energies, as tools for the enhancement of healing, learning and creative activity in the context of recent literature from the disciplines of metaphysics, physics, biology, psychology, phonology, thanatology, colour theory and music composition.

Prerequisite: An upper-level studies course or permission of the course director.

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Natural Science – Pure and Applied Science

Division Office:
   126 Chemistry and Computer Science Building, 416-736-5021
Director of the Division:
   C.E. Holloway
Professors:
   J.J. Caldwell, J.M. Goodings, D.R. Hastie, J.N. Hattiangadi, J.A.M. Heddle, C.E. Holloway,

R.A. Jarrell, L.E. Licht, B.G. Loughton, M.L. McCall, H. Wilson
Associate Professors:
S. Jeffers, R.A. Koehler, F.J. Morgan
Associate Professor Emeritus:
G. Hunter
Senior Lecturers:
P.A. Delaney, S.B. Joshi
Associate Lecturers:
E.C. Gardonio, N. Smith

Courses in Natural Science

The natural science courses are designed, as part of the general education program, to acquaint those students not intending to be professionally concerned with science with the outlook, methods and some of the achievements of science. The individual courses offered approach this objective by selecting a particular area, problem or aspect of science in which the operations of the scientific enterprise can be studied in some detail.

The courses may be broadly classified into four areas, within which some overlap occurs, resulting in degree credit exclusions as noted. However, in certain circumstances, such exclusions are petitionable. The four categories are as follows:

a) History and philosophy of science and technology (with science laboratories and/or tutorials): SC/NATS 1710 6.0, SC/NATS 1730 6.0, SC/NATS 1760 6.0;

b) Biological science: SC/NATS 1610 6.0, SC/NATS 1620 6.0, SC/NATS 1650 6.0, SC/NATS 1660 6.0, SC/NATS 1680 6.0, SC/NATS 1690 6.0, SC/NATS 1695 6.0, SC/NATS 1850 6.0;

c) Environmental science: SC/NATS 1640 6.0, SC/NATS 1770 6.0, SC/NATS 1840 6.0;

d) Physical science: SC/NATS 1720 6.0 (also has a psychological component), SC/NATS 1740 6.0, SC/NATS 1750 6.0, SC/NATS 1780 6.0 (has an environmental aspect), SC/NATS 1790 6.0, SC/NATS 1810 6.0, SC/NATS 1820 6.0, SC/NATS 1830 6.0.

The natural science courses are intended primarily for non-science majors. Courses in biology, chemistry, earth and atmospheric science, physics and astronomy and other science disciplines are described elsewhere in this section of the Calendar. Those courses are available, subject to prerequisites, as electives to students in the Faculties of Arts and Fine Arts. Six credits from 1000-level courses offered by the departments of Biology, Chemistry, Earth and Atmospheric Science, Physics and Astronomy, will satisfy the Faculty of Arts natural science general education requirement.

Grading Procedure. Grades will be assigned in the manner described by the Faculty of Pure and Applied Science in the Faculty of Pure and Applied Science Regulations Governing Examinations and Academic Standards section of this Calendar.

Not all natural science courses will be offered in any given year. 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 a summer session, the format and scheduling may be different, though equivalent in credit value. For all such scheduling details, students should consult the Lecture Schedules or the natural science mini-calendar which is published in March of each year.

The natural science courses all follow the Faculty of Arts sessional dates.

For a list of Atkinson Faculty of Liberal and Professional Studies courses which are degree credit exclusions for natural science courses in this Calendar, Faculty of Arts students should consult the Faculty of Arts degree credit exclusion/equivalent tables in the back of the Lecture Schedules. Science students should consult the Faculty of Pure and Applied Science degree credit exclusion/equivalent tables in the back of the Lecture Schedules and in the Office of Science Academic Services beginning in March each year.

SC/NATS 1610 6.0 The Living Body. Some aspects of human biology, including structure and function, reproduction, physiology, genetics and a study of some human diseases. Laboratories are self-paced, scheduled audio-tutorials involving demonstrations, experiments and observations. Two lecture hours, two laboratory hours. Two terms. Six credits.

Degree credit exclusions: SC/NATS 1620 6.0 (taken before 2001-2002), SC/NATS 1660 6.0, SC/NATS 1690 6.0. Not open to students enrolled in biology programs.

SC/NATS 1620 6.0 Human Biology: Brain and Behaviour. The first term examines nerve cells, drug action, visual and auditory systems, and neural bases of learning and memory. Brain imaging is discussed. The second term focuses on muscle control, brain development, human genetics and brain evolution. Three lecture hours for two terms, two laboratory hours for one term. Six credits.

Degree credit exclusion: Not open to students enrolled in biology programs.

SC/NATS 1640 6.0 Biology and the Environment. This course provides an understanding of the fundamental biological and ecological principles influencing the environment. The impact of the human species on the biosphere and inter-relationships with all living organisms are discussed in the context of environmental concerns. Three lecture hours, one tutorial hour. Two terms. Six credits.

Degree credit exclusions: SC/NATS 1690 6.0, SC/NATS 1770 6.0, SC/NATS 1840 6.0, ES/ENVS 1500 6.0. Not open to students enrolled in biology programs.

SC/NATS 1650 6.0 Human Anatomy for the Fine Arts. An introductory course on the structure and function of the human body specifically oriented towards the needs of students in fine arts. Body systems are studied from anatomical, physiological and biomechanical perspectives. Included as well are on-going references to nutrition, athletic injuries, and health and wellness. Two lecture hours, two laboratory hours. Two terms. Six credits.

Degree credit exclusions: AS/SC/KINE 2031 3.0, AS/SC/KINE 3070 3.0, AS/PHED 2030 3.0, SC/PHED 2030 4.0, AS/SC/PHED 2070 3.0, SC/PHED 2070 4.0, AS/PHED 3070 3.0, SC/PHED 3070 4.0.

SC/NATS 1660 6.0 The Biology of Sex. This course investigates the role of sexual reproduction in the living world. The cellular, physiological and genetic bases of sex are discussed. Other topics include sexual behaviour and the influence of sexual reproduction on evolution. Three lecture hours for two terms, two laboratory hours for one term. Six credits.

Degree credit exclusions: SC/NATS 1610 6.0, SC/NATS 1690 6.0. Not open to students enrolled in biology programs.

SC/NATS 1680 6.0 The Genetic Revolution. This course examines the impact of recent genetic discoveries on medicine, agriculture and industry. New technologies employ enzymes to cut and splice DNA from different organisms. This has the potential to benefit human society but gene manipulations raise important ethical questions. Three lecture hours, one tutorial hour. Two terms. Six credits.

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

SC/NATS 1690 6.0 Evolution. This course concerns the origin and diversification of life forms on Earth. Students are introduced to the historical development of evolutionary theory, classification of living things and to scientific explanations of how biological diversity has arisen. Three lecture hours for two terms, two laboratory hours for one term. Six credits.

Degree credit exclusions: SC/NATS 1610 6.0, SC/NATS 1640 6.0, SC/NATS 1660 6.0, SC/NATS 1695 6.0. Not open to students enrolled in biology programs.

SC/NATS 1695 6.0 Evolution and the Diversity of Life. An introductory overview of some of the major issues, concepts and theories concerning evolution and the diversity of life from the rise of Darwinism in the 19th century, to molecular biology and global ecology in the second half of the 20th century. Three lecture hours, one tutorial hour. Two terms. Six credits.

Degree credit exclusions: SC/NATS 1690 6.0, AK/NATS 1770 6.0. Not open to students enrolled in biology programs.

SC/NATS 1710 6.0 The Nature and Growth of Scientific Thought. Science is examined as an intellectual activity. Emphasis is placed on the evolution of some key concepts to show the nature and methodology of natural science, the development of scientific ideas and their grounding in experience. Three lecture hours plus scheduled laboratory sessions. Two terms. Six credits.

Degree credit exclusion: SC/NATS 1730 6.0.

SC/NATS 1720 6.0 Light and Sound. An introduction to the physics, physiology and psychology of light and sound, together with some of the historical background and philosophical implications of these studies. Three lecture hours plus scheduled laboratory sessions. Two terms. Six credits.

SC/NATS 1730 6.0 Science as Discovery. A study of the nature of scientific discovery based on several case histories, including the Ptolemaic and Copernican planetary theories, the Newtonian mechanist system, Darwin's theory of evolution, Einstein's relativity, and Watson and Crick's discovery of the structure of DNA. Three lecture hours, one tutorial hour. Two terms. Six credits.

Degree credit exclusion: SC/NATS 1710 6.0.

SC/NATS 1740 6.0 Astronomy. A discussion of our present understanding of the universe and its constituents. Topics include the structure and evolution of the planets, stars, galaxies and the universe as a whole. Three lecture hours per week, two-hour laboratory sessions every second week. Two terms. Six credits.

Degree credit exclusions: Not open to any student who has passed or is taking SC/PHYS 1070 4.0 or SC/PHYS 1070 3.0.

SC/NATS 1750 6.0 The Earth and Its Atmosphere. Topics addressed concerning the Earth include geochronology, seismology, geomagnetism and plate tectonics. Topics addressed concerning the atmosphere include the general circulation, climate change, ozone depletion, weather and violent storms. Three lecture hours, one tutorial hour. Two terms. Six credits.

Degree credit exclusions: SC/NATS 1780 6.0, SC/NATS 1800H 6.0. Not open to any student who has passed or is taking a course in earth and atmospheric science.

SC/NATS 1760 6.0 Science and Technological Change. The relationship and interaction between science and technology are explored through a number of topics, both biological and physical. Specific topics discussed may vary from year to year, but most have relevance to our everyday lives and life-styles. Three lecture hours, one tutorial hour. Two terms. Six credits.

SC/NATS 1770 6.0 Technology and the Environment. Basic scientific principles and reasoning need to be applied to environmental pollution. Underlying causes of the present difficulties and current technological solutions are examined. Some ecological and societal aspects of pollution are discussed. Three lecture hours per week, one tutorial hour every second week. Two terms. Six credits.

Degree credit exclusions: SC/NATS 1640 6.0, SC/NATS 1840 6.0.

SC/NATS 1780 6.0 Weather and Climate. The weather and health of our atmosphere affect us all. This course provides an overview of the Earth's atmosphere; its chemistry, physics and dynamics; an introduction to meteorology and weather forecasting; and a discussion of climate. Canada's weather and climate are emphasized. Three lecture hours, one tutorial hour. Two terms. Six credits.

Degree credit exclusions: SC/NATS 1750 6.0, SC/NATS 1800H 6.0.

SC/NATS 1790 6.0 The Science of Flight. This course presents basic physical principles by studying various aspects of aircraft and flying. Topics include properties of air as a fluid, aero-engines, basic theory of flight, principles of aircraft instruments and navigation, and processes which influence the weather. Three lecture hours, one tutorial hour. Two terms. Six credits.

SC/NATS 1800 6.0 Special Topics in Natural Science. Each year the division may offer full courses of a unique or experimental character in natural science. Descriptions of such courses are available in the divisional office in March of the preceding year. Two terms. Six credits.

SC/NATS 1810 6.0 Energy. Conversion technology of current and possible future energy sources is described. The extent of the resource base of each and the environmental consequences of utilization are discussed, with emphasis on nuclear power and energy policies of Ontario and Canada. Three lecture hours, one tutorial hour. Two terms. Six credits.

Degree credit exclusions: SC/NATS 1800C 6.0, SC/BC 1810 6.0.

SC/NATS 1820 6.0 Chemistry in Modern Living. A study of the role of chemistry in contemporary society. Relevant topics are selected each year to show how chemistry impinges upon daily life. Important historical perspectives and basic concepts, such as energy and atomic/molecular structure, are introduced as background. Three lecture hours, one tutorial hour. Two terms. Six credits.

Degree credit exclusions: Not open to any student who has passed or is taking any one of SC/CHEM 1000 6.0, SC/CHEM 1000 3.0, SC/CHEM 1001 3.0, SC/CHEM 1010 6.0.

SC/NATS 1830 6.0 Matter and Structure. From atomic structure comes molecular structure, and, in turn, come the physical properties of matter composed of atoms and molecules. The relationship between physical properties and usefulness of materials is developed. The role of science in developing new materials is discussed. Three lecture hours per week, two tutorial/laboratory hours in alternate weeks. Two terms. Six credits.

SC/NATS 1840 6.0 Science and the Environment. This course provides a simplified description of the complex interactions and balances controlling the biosphere. The ways in which pollutants are produced and dispersed in the environment are discussed, together with their effects and how they are monitored and controlled. Three lecture hours, one tutorial hour. Two terms. Six credits.

Degree credit exclusions: SC/NATS 1640 6.0, SC/NATS 1770 6.0.

SC/NATS 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/BC 1850 6.0.

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

SC/NATS 2700 9.0 Science: Fundamental Ideas and Social Dimensions. A study of key ideas in the physical, life, earth, space and environmental sciences necessary to teach the Ontario elementary science curriculum. The social dimensions of science and technology, especially relating to Canada, are integrated with the scientific material. Four lecture hours per week, 12 two-hour laboratory sessions. Two terms. Nine credits.

Prerequisite: Normally open only to those coregistered in the Faculty of Education primary/ junior or junior/intermediate programs or planning to apply for those programs.

Note: This course fulfills the Faculty of Arts general education requirement.

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Philosophy – Arts

Department Office:
  S428 Ross, 416-736-5113
  Fax: 416-736-5114
Chair of the Department:
  G. Naddaf
Distinguished Research Professors:
  L.B. Code, I.C. Jarvie
Professors:
  A.W. Cragg, M.A. Gilbert, L.J.M. Green, J.N. Hattiangadi, M. Schabas
Professors Emeriti:
  J. Agassi, M.B. Bakan, G.F. Cowley, W.E. Creery, C.D. MacNiven, J.D. McFarland, N. Mackenzie, R.E. Simpson
Associate Professors:
  S. Dimock, L. Jacobs, D.M. Johnson, D.A. Jopling, A. MacKenzie, E. Morera, G. Naddaf, J. Pelham E. Thompson
Assistant Professors:
  H, Jackman, R. Myers

"Philosophy is to be studied, not for the sake of any definite answers to its questions, since no definite answers can, as a rule, be known to be true, but rather for the sake of the questions themselves; because these questions enlarge our conception of what is possible, enrich our intellectual imagination and diminish the dogmatic assurance which closes the mind against speculation; but above all because, through the greatness of the universe which philosophy contemplates, the mind also is rendered great, and becomes capable of that

union with the universe which constitutes its highest good." (Bertrand Russell)

Courses in Philosophy

Note: Not all courses will be offered in any given year. The department's mini-calendar, generally available in early March, should be consulted for specific offerings and detailed course descriptions.

Courses in philosophy have three class hours a week unless otherwise specified. All 2000-level courses are introductory and require no previous knowledge of philosophy. For specific requirements of degree programs offered by this department, please consult the Faculty of Arts Programs of Study section of this Calendar.

Note: Honours BA majors are strongly urged to take PHIL 2010 3.0, PHIL 2015 3.0, PHIL 2020 3.0, PHIL 2025 3.0 and PHIL 2100 3.0. All majors should consult the undergraduate program director concerning course selection and design of individual programs.

Note: For a list of Atkinson courses which are degree credit exclusions, students should consult the degree credit exclusion/equivalent tables in the Lecture Schedule or the departmental/divisional supplemental calendars.

1000-Level Courses

AS/PHIL 1000 6.0 Introduction to Philosophy. A full-year introduction to the basic issues and classic writers in the Western philosophical tradition. Areas such as ethics, metaphysics, theory of knowledge, and logic are surveyed by examining the writings of philosophers such as Plato, Aristotle, Descartes, Berkeley, Hume as well as more modern writers.

Cross-listed to: AK/PHIL 1000 6.0.

Degree credit exclusion: AK/PHIL 1400 6.0.

AS/PHIL 1100 3.0 The Meaning of Life. This course explores a number of fundamental practical philosophical questions: What is the meaning of (my) life? What is happiness and how can I achieve it? What is wisdom? What is death and what does it mean to me?

Cross-listed to: AK/PHIL 1100 3.0.

2000-Level Courses

AS/PHIL 2010 3.0 Origins of Western Philosophy. The ancient Greek philosophers are the origin of modern Western thought. How did they construe reality, knowledge and humankind's relation to the world? Philosophers such as Heraclitus, Parmenides, Zeno and Democritus will be explored.

Cross-listed to: AK/PHIL 2010 3.0.

AS/PHIL 2015 3.0 Plato and Aristotle. Plato and Aristotle are the pillars of Western philosophy. Practically all modern thought has its roots in their work. This course examines their writings and philosophy.

AS/PHIL 2020 3.0 Reason, God and the Mind. The works of Descartes, Spinoza and Leibniz are crucial building blocks of our contemporary understanding of the world. This course examines their work.

AS/PHIL 2025 3.0 Experience, World and the Self. Locke, Berkeley and Hume manifested an approach to philosophy that emphasized sense experience and the development of all knowledge from it. This course explores this tradition and its impact on our current world view.

Cross-listed to: AK/PHIL 2025 3.0.

AS/PHIL 2035 3.0 Asian Philosophical Traditions. This course is an introduction to the major philosophical traditions of India and China.

AS/PHIL 2050 6.0 Philosophy of Law. A. Crime and Punishment: What is the criminal law for? What should be prohibited and why? What excuses allowed? B. The concept of law: What is a law? What is a legal system? Positivism, realism and Natural Law theories.

Cross-listed to: AK/PHIL 2050 6.0.

Degree credit exclusion: AK/PHIL 3530 6.0.

AS/PHIL 2060 3.0 Social and Political Philosophy. This course examines several theories of social justice including utilitarianism, social contract theory and natural rights. How do we distinguish between right and wrong? Good and evil?

Cross-listed to: AK/PHIL 2060 3.0.

AS/PHIL 2070 3.0 Introductory Ethics. This course provides a basic introduction to the three main branches of moral theory. Normative, descriptive and theoretical ethics will be examined in order to develop a comprehensive ethical system.

Cross-listed to: AK/PHIL 2070 3.0.

AS/PHIL 2075 3.0 Introduction to Applied Ethics. This course introduces students to the application of ethical theory to controversial public issues such as abortion, affirmative action and euthanasia, among others.

AS/PHIL 2080 3.0 Perception, Knowledge and Causality. This course provides an introduction to philosophical discussion about what exists, or what is most real, the subject of metaphysics, and what we can truly know about such things. What are the most basic things and how do they interact with each other?

Cross-listed to: AK/PHIL 2080 3.0.

AS/PHIL 2090 3.0 Philosophy of Religion. Can we prove God's existence or must we experience God directly? Is faith opposed to reason? Are miracles and revelations really possible? Do a mystic's claims count as knowledge?

Cross-listed to: AK/PHIL 2090 3.0.

AS/PHIL 2100 3.0 Introduction to Logic. Logic, in the philosophical tradition, is the study of what makes arguments valid. That is, it aims to distinguish correct reasoning from faulty reasoning. Modern symbolic logic begins this project by giving two complementary analyses of validity. This course presents the basic elements of modern symbolic logic for the beginning student.

AS/PHIL 2110 3.0 Truth, Theory and Superstition. There are diverse views on how to improve one's understanding or to do research, even in the case of science. This course investigates the possibility of a method of science and also recent contributions to its theory.

Cross-listed to: AK/PHIL 2110 3.0.

AS/PHIL 2120 3.0 Existentialism. This course is an introduction to some of the central themes of existentialism, for example, the individual, being, the absurd, freedom, moral choice. These themes are explored in the work of philosophers such as Kierkegaard, Nietzsche, Camus, Sartre, de Beauvoir.

AS/PHIL 2130 3.0 Philosophy of Art and Literature. Is truth relevant to art? What connections are there between art and morality? Are aesthetic judgments purely subjective or is there an objective basis for them? What is the artist's role in society?

Cross-listed to: AK/PHIL 2130 3.0.

AS/PHIL 2150 3.0 Introduction to the Philosophy of Education. Since we disagree about values, can we educate children morally without indoctrinating them? Are sociology and developmental psychology relevant to this problem? How is it connected with issues in scientific, sexual, religious and aesthetic education?

Cross-listed to: AK/PHIL 2150 3.0.

AS/PHIL 2160 3.0 Mind, Brain and Self. An introduction to metaphysical issues about the mind. What is the nature of the mind and what is its relation to the body? What is the self and what is it that makes one the same person over time? What is the nature of consciousness and what is its relation to the brain?

Cross-listed to: AK/PHIL 2160 3.0.

AS/PHIL 2170 3.0 Freedom, Determinism and Responsibility. An investigation of different concepts of freedom, arguments for free will and determinism, people's responsibility for their actions and how it is adjudicated, the justification of punishment and some related moral problems.

AS/PHIL 2200 3.0 Critical Reasoning. A systematic study of practical argument, the analysis of techniques, formal and informal fallacies, the relationship between arguing well and winning an argument. When is argument propaganda? Methods of identifying and undermining specious arguments will be explored and tried.

Cross-listed to: AK/MODR 2410 3.0.

AS/PHIL 2240 3.0 Philosophy and Psychology. What concepts of mind underlie current research on mind in psychology and cognitive science? What methods are used to study it? How much can science tell us about our own subjectivity?

AS/PHIL 2250 3.0 Philosophy of Gender and Sexuality. An examination of some conceptual and normative questions about gender and the nature, forms and regulation of human sexuality.

Cross-listed to: AK/PHIL 2250 3.0.

AS/PHIL 2500 3.0 Introduction to Feminist Philosophy. This course is an introduction to core readings and concepts in feminist philosophy including, but not limited to, essentialism *versus* non-essentialism systemic and overt sexism, and key philosophical writings in feminist philosophy.

Cross-listed to: AK/PHIL 2500 3.0.

AS/PHIL 2550 3.0 Introduction to Islamic Philosophy. This course explores the history and fundamental parameters of Islamic thought. Basic conceptual tools and terms applicable to Islamic philosophy are considered, as well as sociopolitical systems and Islamic responses to contemporary Western thought and postmodernity.

AS/PHIL 2990 3.0/2990 6.0 Special Topics. In any given year an additional number of courses may be offered. Information concerning these will be available at the departmental office.

3000-Level Courses

AS/PHIL 3020 3.0 Ethics. An advanced course treating the major ethical theories in Western thought.

Prerequisite: At least one of the following: AS/PHIL 2050 6.0, AS/PHIL 2060 3.0, AS/PHIL 2070 3.0 or AS/PHIL 2075 3.0.

AS/PHIL 3030 3.0 Metaphysics. Metaphysics concerns such issues as the nature of reality, the existence of contingent and necessary truths, universals, perception and the nature of the external world.

Cross-listed to: AK/PHIL 3030 3.0.

Prerequisite: AS/PHIL 2080 3.0 or at least six credits in philosophy.

AS/PHIL 3035 3.0 Knowledge and Reality. Theories of knowledge, epistemology, are examined in relation to theories of reality. How does our perception of reality relate to our understanding of it? How can we come to know something is true or false?

Prerequisite: AS/PHIL 2080 3.0 or at least six credits in philosophy.

AS/PHIL 3040 3.0 Aesthetics. An examination from a contemporary philosophical perspective of problems concerning aesthetic experience, the nature of art, the structure and properties of works of art, creativity and appreciation, reasons and standards in art criticism.

Prerequisite: AS/PHIL 2130 3.0 or at least six credits in philosophy.

AS/PHIL 3050 3.0 Business Ethics. This course examines the role of ethics in private, public and voluntary sector economic activity, for example, the concept of a free market and the role of government regulation, governance issues, corporate social responsibility, ethics codes, globalization and cross-cultural codes and standards.

Prerequisite: At least one of the following: AS/PHIL 2050 6.0, AS/PHIL 2060 3.0, AS/PHIL 2070 3.0 or AS/PHIL 2075 3.0.

Degree credit exclusions: AS/PHIL 3025 3.0 (prior to Fall/Winter 2000-2001), AS/PHIL 4160 3.0 (prior to Fall/Winter 1988-1989), AK/PHIL 3560 3.0.

AS/PHIL 3080 3.0 Philosophy of Kant. "For the chief question is always simply this: what and how much can the understanding and reason know apart from all experience?" Kant's answer revolutionized philosophy. It is given in the *Critique of Pure Reason,* which will be studied in detail.

Prerequisites: AS/PHIL 2020 3.0 and AS/PHIL 2025 3.0.

AS/PHIL 3095 3.0 Philosophy of Religion. How do theistic philosophies deal with the fact of evil? Is religious language and forms of knowing distinct from other forms? What are the moral and ethical issues inherent in religious propagation?

Cross-listed to: AK/PHIL 3095 3.0.

Prerequisite: AS/PHIL 2090 3.0 or at least six credits in philosophy.

AS/PHIL 3100 3.0 Classical Logic. Classical logic is that well-established part of philosophical logic which is sometimes taken as the foundation for rationality, as well as mathematics. This course begins to explore foundational concepts in metalogic, such as the notion of a logical system and the rigorous definition of a proof. It explores the ideas of the soundness and completeness of a logical system and introduces the incompleteness of arithmetic.

Prerequisite: AS/PHIL 2100 3.0 or permission of the instructor.

AS/PHIL 3101 3.0 Philosophy of Logic. This course studies issues relating the study of symbolic logic to ordinary language, including the nature of truth, the nature of sentences *versus* propositions, semantics for natural language (the Liar paradox, descriptions, reference, demonstratives) syntactical conceptions of inference *versus* semantic conceptions.

Prerequisite: AS/PHIL 2100 3.0 or permission of the instructor.

AS/PHIL 3105 3.0 Deviant Logics. An exploration of several systems of non-standard logic including modal logic, many-valued logic, and relevance logic. The deductive structure, consistency and completeness of the systems will be explored.

Prerequisite: AS/PHIL 2100 3.0 or permission of the instructor.

AS/PHIL 3110 3.0 Political Philosophy. The major contemporary theories of moral justification applied to these two fundamental questions of politics and economies: Is a state (instead of anarchy) morally justified? Is private (instead of communal) property morally justified?

Cross-listed to: AK/PHIL 3110 3.0.

Prerequisite: At least one of the following: AS/PHIL 2050 6.0, AS/PHIL 2060 3.0, AS/PHIL 2070 3.0 or AS/PHIL 2075 3.0.

AS/PHIL 3120 3.0 Early Existentialism. A detailed study of the early existentialist thinkers such as Pascal and Kierkegaard. Emphasis is on their views concerning knowledge and faith, God and humankind, freedom and self-deception.

Prerequisite: AS/PHIL 2120 3.0.

AS/PHIL 3125 3.0 Contemporary Existentialism. The views of such recent philosophers as Sartre, Camus, Nietzche and de Beauvoir have had a great impact on contemporary society. This course will explore their views on self, freedom, action and personal relations.

Cross-listed to: AK/PHIL 3125 3.0.

Prerequisite: AS/PHIL 2120 3.0.

AS/PHIL 3130 3.0 Philosophical Issues around Race and Ethnicity. This course examines issues of race and ethnicity such as multiculturalism, social construction, toleration and IQ from the perspective of social and political philosophy and the philosophy of the social sciences.

Prerequisite: At least one of the following: AS/PHIL 2050 6.0, AS/PHIL 2060 3.0, AS/PHIL 2070 3.0 or AS/PHIL 2075 3.0.

Degree credit exclusion: AS/PHIL 3025 3.0 (prior to Fall/Winter 2000-2001).

AS/PHIL 3140 3.0 Russell and Logical Positivism. The contribution of Bertrand Russell is extensive. This course examines his philosophy along with that of the early Wittgenstein and the Vienna Circle Positivists such as Carnap, Schlick and Ayer.

Prerequisite: At least six credits in philosophy.

AS/PHIL 3145 3.0 Wittgenstein's Philosophical Investigations. A critical examination of the philosophic writings of the later Wittgenstein through an examination of his most crucial work, *The Philosophical Investigations*.

Prerequisite: At least six credits in philosophy.

AS/PHIL 3170 3.0 Philosophy of Science. The philosophy of science explores the fundamental assumptions and methodologies of science, as well as examining its history. Topics to be discussed may include the nature of scientific theories, the problem of induction and theories of probability, the demarcation and growth of scientific knowledge.

Prerequisite: At least six credits in philosophy.

AS/PHIL 3180 3.0 Conversations with African Philosophy. This course examines the development of African philosophy in the 20th century. It focuses on the debates among African philosophers regarding the nature of philosophical problems, and studies the emergence of various schools of thought in ethics, epistemology and ontology.

AS/PHIL 3200 3.0 Philosophy of Language. This course provides an introduction to basic notions of the philosophy of language. Questions to be discussed may include: How is communication in language possible? What is a language? What makes words and phrases meaningful? What is truth?

Cross-listed to: AK/PHIL 3200 3.0.

Prerequisite: At least six credits successfully completed in philosophy.

Recommended: AS/PHIL 2100 3.0.

AS/PHIL 3220 3.0 Argumentation Theory. Dispute and argument have been studied by philosophers since ancient times. This course examines the nature of dispute in the context of both the history of philosophy and modern research.

Recommended: AS/PHIL 2100 3.0.

AS/PHIL 3260 3.0 Philosophical Foundations of Cognitive Science. An introduction to philosophical issues in the foundations of cognitive science, an interdisciplinary field made up of psychology, neuroscience, computer science and artificial intelligence, linguistics and philosophy. The course covers the main philosophical issues and debates associated with this field.

Cross-listed to: AK/PHIL 3635 3.0.

Prerequisite: At least six credits in philosophy including one of: AS/PHIL 2160 3.0 or AS/PHIL 2240 3.0.

Degree credit exclusion: AS/PHIL 3260 3.0.

AS/PHIL 3265 3.0 Philosophy of Mind. How can we understand the relation between mind and body? How do mental states get their meaning? What is consciousness? Other topics may be discussed, such as: human agency, self-knowledge, unity of self, rationality of emotion, language and mind.

Prerequisite: At least six credits in philosophy including one of: AS/PHIL 2160 3.0 or AS/PHIL 2240 3.0.

Degree credit exclusion: AS/PHIL 3260 3.0 (prior to Fall/Winter 2000-2001).

AS/PHIL 3270 3.0 Philosophy of Social Science. This course provides an introduction to central ideas in the philosophy of social science. Topics for discussion may include: the debate concerning naturalism in social science, human rationality, scientism and functionalism.

Prerequisite: At least six credits in philosophy.

AS/PHIL 3280 3.0 Mind and Nature: The Philosophy of Biology. This course concerns philosophical issues arising from the life sciences, in particular evolutionary theory and neuroscience. Topics examined may include:

What is it that makes something living? What does the Darwinian theory of evolution mean for the understanding of human nature? Are religion and the theory of evolution compatible or irreconcilable?

Prerequisite: At least six credits in philosophy.

Recommended: At least one of AS/PHIL 2160 3.0 or AS/PHIL 2240 3.0.

AS/PHIL 3500 6.0 Philosophy and Feminism. This course studies the history of feminist philosophical thought about the place women are to occupy in a man's world, and examine some contemporary feminist writings on reason, morality, scientific methodology and/or political theory.

Prerequisite: At least six credits in philosophy.

AS/PHIL 3595 3.0 International Ethics. This course examines the roll of norms in the analysis of international relations, in particular as they apply to foreign actor involvement in conflicts within states, thus, issues such as massive human rights violations, ethnic cleansing, genocide and the norms governing intervention by international, state and non-state actors. Extensive case study material is used rooted in the civil wars of the nineties.

Cross-listed to: AK/PHIL 3595 3.0.

Prerequisites: At least three credits chosen from AS/PHIL 2050 6.0, AS/PHIL 2060 3.0, AS/PHIL 2070 3.0 or AS/PHIL 2075 3.0.

AS/PHIL 3600 3.0 Ancient Philosophy. This course involves a careful reading from selected texts in ancient philosophy. Writings are drawn from the Pre-Socratics, Plato, Aristotle and others.

Prerequisite: At least one of: AS/PHIL 2010 3.0 or AS/PHIL 2015 3.0.

AS/PHIL 3620 3.0 Empiricism and Rationalism. The empiricists and rationalists include such eminent philosophers as Hume, Descartes, Berkely and Locke, among others. This course examines selected readings from one or more representative of each tradition.

AS/PHIL 3640 3.0 German Philosophy. German philosophy has had a profound impact on Western philosophy. In this course philosophers such as Hegel and Hursserl, to mention but two, are examined in some detail.

Cross-listed to: AK/PHIL 3640 3.0.

Prerequisite: At least six credits successfully completed in philosophy.

AS/PHIL 3990 3.0/3990 6.0 Special Topics. In any given year an additional number of courses may be offered. Information concerning these are available at the departmental office.

4000-Level Courses

Note: All 4000-level philosophy courses have a general prerequisite of at least nine credits in philosophy. Please refer to the course descriptions for specific course prerequisites.

AS/PHIL 4000 3.0/4000 6.0 Directed Readings. A full-year (or half-year course in either term) course of independent reading under the direction of a member of the faculty. This course is only considered when a student has completed all listed courses in the area of study. Agreement of the supervising faculty member must be obtained prior to registration.

Prerequisite: 84 credits, at least 30 of which are in philosophy.

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

Note: All fourth-year level courses are topics courses. Please consult the departmental annual mini-calendar for specifics.

AS/PHIL 4010 3.0/4010 6.0 Topics in Historical Philosophy. An intensive examination of problems and historical issues in philosophy. Topics vary from year to year.

Prerequisite: At least nine credits in philosophy.

AS/PHIL 4020 3.0/4020 6.0 Topics in Medieval Philosophy. A seminar course in medieval epistemology and metaphysics. Texts may include selections from St. Augustine, St. Anselm and St. Thomas.

Prerequisite: At least nine credits in philosophy.

AS/PHIL 4030 3.0/4030 6.0 Topics in Ancient Philosophy. A seminar course in ancient epistemology and metaphysics. Texts may include *Selected Dialogues from Plato*, Aristotle's *Organon and Metaphysics*.

Prerequisite: At least nine credits in philosophy.

AS/PHIL 4040 3.0/4040 6.0 Topics in Contemporary Philosophy. An intensive examination of problems and contemporary issues in philosophy. Topics vary from year to year.

Prerequisite: At least nine credits in philosophy.

AS/PHIL 4050 3.0/4050 6.0 Topics in the Philosophy of History. The course discusses some of the central philosophical problems arising out of historical knowledge: truth, objectivity, facts, explanation. The main emphasis will be on the controversy over "covering laws" and on that between realists and Idealists.

Prerequisite: At least nine credits in philosophy.

Recommended: AS/PHIL 3270 3.0.

AS/PHIL 4070 3.0/4070 6.0 Topics in Moral Philosophy. An intensive examination of particular problems in moral philosophy, or intensive studies of the writings of individual moral philosophers. Topics vary from year to year.

Prerequisite: At least nine credits in philosophy including at least three credits from the following: AS/PHIL 3020 3.0, AS/PHIL 3025 3.0, AS/PHIL 3050 3.0, AS/PHIL 3110 3.0 or AS/PHIL 3130 3.0.

AS/PHIL 4080 3.0/4080 6.0 Topics in the Philosophy of Mind. A selection of the following topics are discussed: mind and body, thinking, intention, emotions, desires, motives, reasons, dispositions, memory, the unconscious and the concept of a person.

Prerequisite: At least nine credits in philosophy including AS/PHIL 3260 3.0.

AS/PHIL 4090 3.0/4090 6.0 Topics in Metaphysics. An intensive investigation into issues concerning the nature of reality and existence. Focus is on selected issues or the work of particular metaphysicians. Topics vary from year to year.

Prerequisite: At least nine credits in philosophy including three credits from: AS/PHIL 3030 3.0 or AS/PHIL 3035 3.0.

AS/PHIL 4110 3.0/4110 6.0 Topics in the Philosophy of Science. The course deals with situations in science and in the history of science that give rise to the basic problems of the philosophy of science. The role of observation in science. The criteria of truth in science.

Prerequisite: At least nine credits in philosophy.

Recommended: AS/PHIL 3170 3.0 or AS/PHIL 3270 3.0 or AS/PHIL 3280 3.0.

AS/PHIL 4120 3.0/4120 6.0 Topics in Existentialism. An intensive study of selected works of such thinkers as Pascal, Kierkegaard and Sartre. Topics include idealism and realism, freedom, the self and others.

Prerequisite: At least nine credits in philosophy including one of: AS/PHIL 3120 3.0 or AS/PHIL 3125 3.0.

AS/PHIL 4130 3.0/4130 6.0 Topics in the Philosophy of Nature. Topics in the history of concepts of nature in Western philosophy going back from Kant's *Critique of Judgment* to aspects of Greek thought and forward to Hegel's philosophy of nature and to contemporary conceptions, particularly systems theory.

Prerequisite: At least nine credits in philosophy.

Recommended: AS/PHIL 3170 3.0 or AS/PHIL 3270 3.0 or AS/PHIL 3280 3.0.

AS/PHIL 4140 3.0/4140 6.0 Topics in Aesthetics: Imitation and Representation in Art. A critical examination of recent problems in aesthetics concerning the representative function of works of art. Specific topics include the semantic theory of representation; transcription, translation and the making of equivalent structures in art; picturing, symbolizing and artistic vision.

Prerequisite: At least nine credits in philosophy.

Recommended: AS/PHIL 3040 3.0.

AS/PHIL 4150 3.0 Professional Ethics. The course focuses on a theme such as justice, diversity, identity, resources or rights, which will be explored as it impacts on some areas in professional ethics such as international ethics, health ethics, business ethics, and environmental ethics.

Cross-listed to: AK/PHIL 4150 3.0, GS/PH 5250 3.0.

Prerequisites: 78 credits or permission of the coordinator of philosophy.

Degree credit exclusion: AS/PHIL 4150 3.0 (Fall/Winter 2001-2002).

AS/PHIL 4180 3.0/4180 6.0 Topics: Political Philosophy. An intensive study of some selected normative and conceptual problems in contemporary political philosophy.

Prerequisite: At least nine credits in philosophy including at least three credits from the following: AS/PHIL 3020 3.0, AS/PHIL 3025 3.0, AS/PHIL 3050 3.0, AS/PHIL 3110 3.0 or AS/PHIL 3130 3.0.

AS/PHIL 4190 3.0 Topics in the Philosophy of Law. An advanced seminar on some contemporary theories of the nature of law and legal reasoning.

Prerequisite: AS/PHIL 2050 6.0 and at least three credits from the following: AS/PHIL 3020 3.0, AS/PHIL 3025 3.0, AS/PHIL 3050 3.0, AS/PHIL 3110 3.0 or AS/PHIL 3130 3.0.

Integrated with: GS/PHIL 5020E 3.0.

AS/PHIL 4200 3.0/4200 6.0 Topics in Semantics. The study of semantics is at the root of philosophical logic, as well as the philosophy of language and linguistics. This course studies a topic in this central area of philosophical inquiry.

Prerequisite: At least nine credits in philosophy.

Integrated with: GS/PHIL 5320 3.0.

AS/PHIL 4220 3.0/4220 6.0 Topics: Argumentation Theory. An intensive examination of one or more theories of argument. These may include field theory, critical thinking and pragma-dialectic approaches.

Prerequisite: At least nine credits in philosophy including AS/PHIL 3220 3.0.

AS/PHIL 4230 3.0/4230 6.0 Topics: Epistemology. Selected topics in the theory of knowledge are explored in depth.

Prerequisite: At least nine credits in philosophy including three credits from: AS/PHIL 3030 3.0 or AS/PHIL 3035 3.0.

AS/PHIL 4240 3.0/4240 6.0 Topics: Continental Philosophy. An intensive investigation of the work of such writers as Husserl, Heidegger and Sartre as well as their offshoots and modern formulations.

Prerequisite: At least nine credits in philosophy.

AS/PHIL 4250 3.0/4250 6.0 Topics in the Philosophy of Film. This course is concerned with the aesthetics and ontology of film as a form of art and human expression. Particular concentration varies from year to year.

Prerequisite: At least nine credits in philosophy.

AS/PHIL 4350 3.0 Topics in the Philosophy of Language. This course explores a topic in the philosophy of language. The topic will vary from year to year.

Prerequisite: At least nine credits in philosophy including one of: AS/PHIL 3200 3.0 or AS/PHIL 2040 3.0 (prior to Fall/Winter 1999-2000).

AS/PHIL 4450 3.0 Topics in Philosophical Logic. This course provides an intensive examination of a selected area of philosophical logic. Topics will vary from year to year.

Prerequisite: At least nine credits in philosophy including three credits chosen from: AS/PHIL 3100 3.0 or AS/PHIL 3105 3.0.

AS/PHIL 4500 3.0/4500 6.0 Topics in Feminist Philosophy: Critique and Construct. An intensive study of recent feminist writings in one or more of the following areas: aesthetics, epistemology, ethics, political philosophy, philosophy of science, philosophy of the social sciences, theories of subjectivity, philosophy of language, theories of rationality.

Prerequisite: At least nine credits in philosophy.

Recommended: AS/PHIL 3500 6.0.

AS/PHIL 4900 3.0/4900 6.0 Honours Seminar.

Prerequisites: 18 credits in philosophy.

General Certificate in Practical Ethics

York University students may earn a General Certificate in Practical Ethics in addition to fulfilling the requirements for a bachelors degree. Practical ethics is an exciting new area of multidisciplinary study and research which provides the opportunity to apply ethical concepts and principles to contemporary social issues. The courses offered as part of the General Certificate in Practical Ethics enable students to address questions of applied ethics and public policy in the fields of anthropology, economics, environmental studies, humanities, philosophy, political science, social science and sociology.

To qualify for the General Certificate in Practical Ethics, students must complete 24 credits and the cumulative grade point average on these 24 credits must be at least 5.0 (C+).

Students must register for the certificate and written approval of a member of the advisory group for the certificate must be obtained. Such approval is conditional on the student submitting an acceptable written justification of their intended course selection. Equivalent courses must be approved by the coordinator. Students must indicate their intention to pursue the certificate by completing an enrolment form available from the Philosophy Department.

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

Courses of Instruction (vertical sidebar)

Required Courses:

AS/PHIL 2070 3.0 Introductory Ethics.
AS/PHIL 2075 3.0 Introduction to Applied Ethics.

Designated Courses in Practical Ethics:

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.

Anthropology

AS/ANTH 3020 6.0 Race, "Racism" and Popular Culture.
AS/ANTH 3080 6.0 Modes of Enablement: A Cultural Perspective on Physical Disability.
AS/ANTH 3090 6.0 Gender, Science and Society.
AS/ANTH 3160 6.0 Family and Kinship in Comparative Perspective.
AS/ANTH 3230 6.0 Women, Culture and Society.
AS/ANTH 3280 6.0 Psychiatric Anthropology and Social Stress.
AS/ANTH 3330 6.0 Health and Illness in Cross-Cultural Perspective.
AS/ANTH 3360 6.0 The Politics of Power.
AS/ANTH 3410 6.0 Ethnicity and Nationalism.
AS/ANTH 4030 6.0 Intercultural Training Skills.

Economics

AS/ECON 4259 3.0 Health Economics.
AS/ECON 4309 3.0 Law and Economics.
AS/ECON 4379 3.0 Regulatory Economics.
AS/ECON 4399 3.0 Topics in Law and Economics.

Environmental Studies

ENVS 2300 3.0 Foundations of Global Development, Peace and Justice.
ENVS 2400 3.0 Foundations of Environmental Policy and Action.
ENVS 3000 3.0 Environmental Ethics.
ENVS 3420 3.0 Environmental Law.
ENVS 3440 3.0 Resource Management.
ENVS 4140 3.0 Environmental Thought.
ENVS 4311 3.0 Global Justice and the Environment (cross-listed to: AS/POLS 4311 3.0).
ENVS 4410 3.0 Environmental Policy II.

Humanities

AS/HUMA 1810 6.0 Good and Evil.
AS/HUMA 1820 6.0 Ideology and Morality.
AS/HUMA 2740 6.0 Film, Television and Society (cross-listed to: FA/FILM 2401 6.0).
AS/HUMA 2840 6.0 Perspectives on Contemporary Moral Issues.
AS/HUMA 3450 6.0 Queer Desire, Gay Representation.
AS/HUMA 3850 6.0 The Final Solution: Perspectives on the Holocaust.
AS/HUMA 3950 6.0 Gender and Morality: Feminist Challenges to the Tradition.
AS/HUMA 3960 6.0 Mothering and Motherhood.
AS/HUMA 3970 6.0 Science and Gender in Modern Western Society.
AS/HUMA 4225C 6.0 Eugenics in Cultural Context.
AS/HUMA 4890C 6.0 Women in Islamic Literatures.

Philosophy

AS/PHIL 2050 6.0 Philosophy of Law.
AK/AS/PHIL 2060 3.0 Social and Political Philosophy.
AS/PHIL 2250 3.0 Philosophy of Gender and Sexuality (cross-listed to: AK/PHIL 2250 3.0).
AS/PHIL 3020 3.0 Ethics.
AS/PHIL 3050 3.0 Business Ethics.
AK/AS/PHIL 3110 3.0 Political Philosophy.
AS/PHIL 3130 3.0 Philosophical Issues around Race and Ethnicity.
AS/PHIL 3220 3.0 Augmentation Theory.
AS/PHIL 3500 6.0 Philosophy and Feminism.
AS/PHIL 3595 3.0 International Ethics.
AS/PHIL 4070 3.0/4070 6.0 Topics in Moral Philosophy.
AK/AS/PHIL 4150 3.0 Professional Ethics.

Political Science

AS/POLS 2040 6.0 Introduction to Political Theory.
AS/POLS 3065 3.0 Political Culture of Race and Racism.
AS/POLS 3230 3.0 Global Issues in Foreign Policy.
AS/POLS 3280 3.0 Canada and World Affairs.
AS/POLS 3450 3.0 Women and Politics (cross-listed to: AS/SOSC 3170 3.0, AK/AS/GL/WMST 3516 3.0.)
AS/POLS 3455 3.0 Topics in Women and Politics (cross-listed to: SOSC 3175 3.0).
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 4000 3.0 Politics of Cyberspace.
AS/POLS 4004A 3.0 The Philosophy of Toleration.
AS/POLS 4045 3.0 Ecology, Politics and Philosophy.
AS/POLS 4125 3.0 Women and Current Public Policy Issues.
AS/POLS 4210 3.0 Peace Research.
AS/POLS 4311 3.0 Global Justice and the Environment (cross-listed to: ES/ENVS 4311 3.0).
AS/POLS 4440 3.0 Human Rights in Europe and 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 4810 3.0 Social Justice and Political Activists.

Social Science

AS/SOSC 2350 6.0 Law and Society.
AS/SOSC 3030 6.0 Crime and Punishment in Selected Western Societies.
AS/SOSC 3050 6.0 Methodological and Ethical Issues.
AS/SOSC 3090 6.0 Medicine and North American Society in Historical Perspective.
AS/SOSC 3111 3.0/3110 6.0 Special Topics in Health and Society.
AS/SOSC 3170 3.0 Women and Politics (cross-listed to: AS/POLS 3450 3.0, AK/AS/GL/WMST 3516 3.0).
AS/SOSC 3175 3.0 Topics in Women and Politics (cross-listed to: AS/POLS 3455 3.0).
AS/SOSC 3300 6.0 The Mass Media, Culture and Society: The Canadian Case.
AS/SOSC 3360 6.0 Canadian Charter of Rights and Freedoms.
AS/SOSC 3370 6.0 Social Justice and Law.
AS/SOSC 4050 6.0 Animals and People.
AS/SOSC 4350 6.0 Law and Society Seminar.

Sociology

AS/SOCI 3420 6.0 Population and Society.
AS/SOCI 3430 6.0 Race and Ethnic Relations in Western Society.
AS/SOCI 3450 6.0 Sociology of "Race" and Racism.
AS/SOCI 3630 6.0 Sociology of Education.
AS/SOCI 3660 6.0 Sociology of the Family.
AS/SOCI 3690 6.0 Sociology of Gender.
AS/SOCI 3710 6.0 Environmental Sociology.
AS/SOCI 3810 6.0 Sociology of Crime and Delinquency.
AS/SOCI 4072 3.0 Sociology of Human Reproduction.
AS/SOCI 4300 3.0 Sociology of Health Care Delivery.
AS/SOCI 4420 6.0 Contemporary Issues of North American Native Peoples.
AS/SOCI 4430 3.0 Canada and Refugees.
AS/SOCI 4440 6.0 Race, Minorities and the Legal Order.
AS/SOCI 4810 6.0 Women and the Criminal Justice System.

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Physics and Astronomy – Pure and Applied Science

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R.W. Nicholls
Professors:
N. Bartel, J.J. Caldwell, W.H. Cannon, J.W. Darewych, M.M. De Robertis, H.S. Freedhoff, E.A. Hessels, M. Horbatsch, K.A. Innanen, R.G. Koniuk, J.G. Laframboise, M.L. McCall, J.R. Miller, R.H. Prince, A.D. Stauffer, W.A. van Wijngaarden
Professors Emeriti:
A.I. Carswell, C.H. Dugan, W.R. Frisken, G.R. Hébert, R.P. McEachran
Associate Professors:
S. Bhadra, S. Jeffers, R.A. Koehler, A. Kumarakrishnan, S. Menary, F.J. Morgan
Associate Professor Emeritus:
J.A. Burt
Senior Lecturers:
P.A. Delaney, S. Jerzak, S.B. Joshi

Physics and astronomy are quantitative sciences which employ the scientific method of observation, experiment and systemization of the results of experiment. Their objectives are to seek to understand the ways in which the most fundamental or elementary systems in nature really operate.

Courses in the Department of Physics and Astronomy cover basic elements of the major topics delineated during the last 200 years in

these rapidly developing fields of knowledge. There are certain required courses (see the program of study requirements in the Faculty of Pure and Applied Science Programs of Study section of this Calendar) which expose each student to the broad spectrum of physical phenomena and in an elementary way to the techniques of the theoretical physicist or astronomer in numerical analysis and modelling and of the experimental physicist or observational astronomer in measurement, observation and the apparatus of experiment. In developing programs of 3000- and 4000-level courses, students may concentrate their interests around experimental physics, theoretical physics, or astronomy and astrophysics. There are opportunities to develop Honours Double Major and Honours Major/Minor programs with other disciplines in the Faculty of Pure and Applied Science or in other Faculties.

The department offers Specialized Honours Applied Science Streams in Applied Physics and in Space and Communication Sciences, developed to meet the needs of rapidly expanding technologies in these fields. The requirements for these streams are found in the Faculty of Pure and Applied Science Programs of Study section of this Calendar.

A brochure giving detailed course descriptions and typical program prescriptions for all programs involving physics and astronomy is available on request from the department office.

Courses in Physics and Astronomy

Admission to any course beyond the 1000 level requires consultation with a member of the departmental admissions committee. Normally, entry to courses at the 3000 and 4000 levels requires successful completion of all lower-level courses that are required for degree programs in Physics and Astronomy. The prerequisites and corequisites stated for certain courses indicate the standard of background preparation deemed necessary for those not taking bachelor or Honours Physics and Astronomy programs. The course director should be consulted by potential entrants who have not completed the normal entry requirements of the department.

Unless otherwise specified, courses whose numbers end in "6.0" (i.e. six-credit courses) have three lecture hours per week for two terms when taught in a fall/winter session; those whose numbers end in "3.0" (i.e. three-credit courses) have three lecture hours per week for one term. Courses offered in the evening and/or in a summer session may have different formats and scheduling, though they will be equivalent in credit value.

SC/PHYS 1010 6.0 Physics. Topics include linear, rotational and oscillatory motion; Newtonian mechanics; electrostatics; magnetostatics; electric current and induction; heat; geometrical and physical optics and sound. Differential and integral calculus and vector algebra are used. This course covers fewer topics than SC/PHYS 1410 6.0, but

covers them in greater depth. It should be taken by all those likely to enrol in 2000-level PHYS courses. Three lecture hours per week in the first term, two lecture hours per week in the second term; three laboratory hours in alternate weeks in both terms; one tutorial hour each week in both terms.

Prerequisite: OAC physics or SC/PHYS 1510 4.0.

Corequisite(s): AS/SC/MATH 1013 3.0 and AS/SC/MATH 1014 3.0 and AS/SC/MATH 1025 3.0, or AS/SC/MATH 1505 6.0, or equivalents.

Degree credit exclusions: SC/PHYS 1410 6.0, AK/PHSI 2000 6.0.

SC/PHYS 1070 3.0 Astronomy. An introduction to astronomy for science majors. The course gives an overview of basic astronomical knowledge from the solar system to the edge of the Milky Way and basic astronomical concepts from white dwarfs to black holes.

Prerequisite: OAC physics or SC/PHYS 1510 4.0.

Prerequisite or corequisite: AS/SC/MATH 1013 3.0 or AS/SC/MATH 1505 6.0 or equivalent.

Degree credit exclusion: SC/PHYS 1070 4.0.

SC/PHYS 1410 6.0 Physical Science.
Topics include kinematics, dynamics, momentum and energy for linear and rotational motion; elementary kinetic theory and thermodynamics; static and current electricity; waves and physical and geometrical optics, elements of modern physics. Recommended for students unlikely to enrol in 2000-level PHYS courses. Three lecture hours per week in the first term, two lecture hours per week in the second term; three laboratory hours in alternate weeks in both terms; one tutorial hour each week in both terms.

Prerequisite: OAC physics or SC/PHYS 1510 4.0. This is a calculus-based course making use of elementary differential and integral calculus. While not mandatory, a first-year mathematics course involving calculus, such as AS/SC/MATH 1013 3.0 and AS/SC/MATH 1014 3.0 or AS/SC/MATH 1505 6.0, is normally taken concurrently. Coregistration in AS/SC/ MATH 1515 3.0 or AS/SC/MATH 1505 6.0 is strongly recommended for students lacking OAC calculus.

Degree credit exclusions: SC/PHYS 1010 6.0, AK/PHSI 2000 6.0.

SC/PHYS 1510 4.0 Introduction to Physics.
An introductory course for students lacking adequate preparation for SC/PHYS 1010 6.0 or SC/PHYS 1410 6.0. Topics involve Newton's laws applied to linear and angular motion, force, inertia, torque, impulse, momentum, centre of mass, work, energy, oscillatory motion, geometric optics (including lenses and mirrors). No calculus is used, but vectors are used extensively. Three lecture hours per week, a laboratory session alternating weekly with a tutorial session. One term.

Prerequisite: Ontario Grade 12 advanced mathematics.

Degree credit exclusions: AK/PHSI 1500 3.0. May not be taken by any student who has taken or is currently taking another university course in physics.

SC/PHYS 2010 3.0 Classical Mechanics.
Translational motion of point masses and rigid bodies under the influence of both constant and varying forces (e.g. fluid drag, surface gravity on Earth). Rotational motion of point masses and rigid bodies, including cyclical motion and precession.

Prerequisites: SC/PHYS 1010 6.0, or a minimum grade of C in SC/PHYS 1410 6.0; AS/SC/MATH 1014 3.0 or equivalent; AS/SC/MATH 1025 3.0 or equivalent.

Corequisite: AS/SC/MATH 2015 3.0.

SC/PHYS 2020 3.0 Electricity and Magnetism. The elements of electric and magnetic fields are developed together with DC and AC circuit theory and an introduction to electromagnetic waves.

Prerequisites: SC/PHYS 1010 6.0, or a minimum grade of C in SC/PHYS 1410 6.0; AS/SC/MATH 1025 3.0 or equivalent; AS/SC/MATH 2015 3.0.

SC/PHYS 2030 3.0 Symbolic Computation in Physics. The Maple symbolic computing environment is used to solve problems from classical and modern physics, fluids, heat and electromagnetics at a level comparable to and above that of SC/PHYS 1010 6.0 or SC/PHYS 1410 6.0.

Prerequisites: SC/PHYS 1010 6.0 or SC/PHYS 1410 6.0; AK/AS/SC/COSC 1540 3.0; AS/SC/ MATH 1014 3.0 or equivalent.

Corequisite: AS/SC/MATH 2015 3.0 or equivalent.

SC/PHYS 2040 3.0 Special Relativity and Modern Physics. This course introduces the two pillars of modern physics - the special theory of relativity and quantum mechanics. The relativistic concepts of space, time and energy are derived from first principles. The quantum nature of radiation and matter is introduced.

Prerequisites: SC/PHYS 1010 6.0, or a minimum grade of C in SC/PHYS 1410 6.0; AS/SC/MATH 1025 3.0 or equivalent; AS/SC/MATH 2015 3.0.

Prerequisites or corequisites: It is strongly recommended that SC/PHYS 2010 3.0 and SC/ PHYS 2020 3.0 be taken in the same year as this course.

SC/PHYS 2060 3.0 Optics and Spectra.   An introductory course in optics covering the following topics: wave nature of light, reflection, refraction, spherical mirrors and lenses, interference, diffraction, polarization, introduction to lasers.

Prerequisites: SC/PHYS 1010 6.0, or a minimum grade of C in SC/PHYS 1410 6.0; AS/SC/MATH 1014 3.0 or equivalent; AS/SC/MATH 1025 3.0 or equivalent.

SC/PHYS 2070 3.0 Galaxies and the Universe. An introduction to the structure, evolution and origin of galaxies, aggregates of galaxies and the universe as a whole. Frontier

topics such as quasars, the great attractor, the cosmic web, gravitational lensing, primeval galaxies and black holes are included.

Prerequisite: SC/PHYS 1070 3.0, or SC/NATS 1740 6.0 and permission of the instructor.

SC/PHYS 2211 1.0 Experimental Physics. An introductory course for second-year students. The course consists of 10 experiments covering basic concepts of electromagnetism. Normally three laboratory hours per week. One term. One credit.

Prerequisite: SC/PHYS 1010 6.0 or a minimum grade of C in SC/PHYS 1410 6.0.

Corequisite(s): At least one of SC/PHYS 2010 3.0, SC/PHYS 2020 3.0, SC/PHYS 2060 3.0.

Degree credit exclusions: SC/PHYS 2210 1.0, SC/PHYS 2210A 1.0.

SC/PHYS 2212 1.0 Experimental Physics. An introductory laboratory course based on lasers and modern optics. Includes different experiments than those completed in SC/PHYS 2211 1.0. Normally three laboratory hours per week. One term. One credit.

Prerequisite: SC/PHYS 2211 1.0.

Corequisite(s): At least one of SC/PHYS 2010 3.0, SC/PHYS 2020 3.0, SC/PHYS 2060 3.0.

Degree credit exclusion: SC/PHYS 2210M 1.0.

SC/PHYS 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.

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

SC/PHYS 3010 3.0 Classical Mechanics. Intermediate classical mechanics, including dynamics of particles and systems of particles. Lagrange's equations and Hamilton's equations.

Prerequisites: SC/PHYS 2010 3.0; AS/SC/MATH 2015 3.0; AK/AS/SC/MATH 2270 3.0.

SC/PHYS 3020 3.0 Electromagnetics I. Vector calculus; electrostatic and magnetostatic fields, derived from charge and current distributions studied in vacuum and in material media.

Prerequisites: SC/PHYS 2020 3.0; AS/SC/MATH 2015 3.0; AK/AS/SC/MATH 2270 3.0.

Prerequisite or corequisite: AS/SC/MATH 3271 3.0.

SC/PHYS 3030 3.0 Statistical and Thermal Physics. Statistical mechanics of systems of large numbers of elements. Probability, ensembles, fluctuations. Applications: spin magnetism, electrons in metals, radiation, specific heats of solids. Transport theory.

Prerequisites: SC/PHYS 2010 3.0; SC/PHYS 2020 3.0.

SC/PHYS 3040 6.0 Modern Physics. Survey of the basis of contemporary physics: introduction to quantum theory of light, atoms, molecules, solids, nuclei, elementary wave mechanics and elementary particles.

Prerequisites: SC/PHYS 2010 3.0; SC/PHYS 2020 3.0; SC/PHYS 2040 3.0; SC/PHYS 2211 1.0; AK/AS/SC/MATH 2270 3.0.

SC/PHYS 3050 3.0 Electronics I. Introduction to physical electronics including DC and AC circuit theory and network analysis; bandpass filters; introduction to the p-n junction and semiconductor devices: diodes, DC power supplies, transistors, analysis and design of basic amplifiers, operational amplifiers. With laboratory exercises. Two lecture hours, three laboratory hours. One term.

Prerequisites: SC/PHYS 2020 3.0; SC/PHYS 2211 1.0.

SC/PHYS 3070 3.0 Planets and Planetary Systems. Survey of planetary astrophysics. Specific emphases vary, but an overview of planetary observations and current knowledge concerning the atmospheres and interiors of planets and the formation and evolution of planets and planetary systems is presented. Normally offered in alternate years.

Prerequisite: At least one of SC/PHYS 1070 3.0, SC/EATS 1010 6.0 (or both SC/EATS 1010 3.0 and SC/EATS 1011 3.0), SC/EATS 2030 3.0; or permission of the instructor.

Prerequisite(s) or corequisite: AS/SC/MATH 2015 3.0; AK/AS/SC/MATH 2270 3.0; or permission of the instructor.

SC/PHYS 3080 3.0 Atmospheric Radiation and Thermodynamics. Applications of basic thermodynamic principles to dry and moist atmospheric situations. Aerological diagrams illustrating vertical structure. Solar (short wave) and terrestrial (long wave) radiation with respect to absorption and scattering processes involving atmospheric atoms, molecules, aerosol particles and clouds.

Cross-listed to: SC/EATS 3030 3.0.

Prerequisites: SC/PHYS 1010 6.0 or a minimum grade of C in SC/PHYS 1410 6.0; AS/SC/MATH 2015 3.0; AK/AS/SC/MATH 2270 3.0.

Degree credit exclusion: SC/EATS 3030 3.0.

SC/PHYS 3090 3.0/3090 6.0 Special Topics. Supervised study, lectures, seminars and laboratory work on specific topics of contemporary interest.

SC/PHYS 3150 3.0 Electronics II. The concept of feedback and its use in circuits employing operational amplifiers; analysis/design of such circuits, including amplifiers, filters, oscillators, pulse generators; digital concepts and logic circuits with applications to data manipulation (computers) and storage. Laboratory exercises and project. Two lecture hours, three laboratory hours. One term.

Prerequisite: SC/PHYS 3050 3.0.

SC/PHYS 3210 6.0 Experimental Physics. Experiments are performed in fluid mechanics, electromagnetism, optics, atomic and nuclear physics. Error analysis of the data and detailed write-ups of at least nine experiments are required. Students are required to present a seminar on a research topic to the class. One lecture/seminar hour per week, open laboratory hours. Two terms.

Prerequisites: SC/PHYS 2211 1.0; SC/PHYS 2212 1.0.

Corequisite: SC/PHYS 3040 6.0.

Degree credit exclusion: SC/PHYS 3220 3.0.

SC/PHYS 3220 3.0 Experimental Physics. A three-credit version of SC/PHYS 3210 6.0 comprising a selection of the experiments in the latter course. These are chosen in consultation with the course director to reflect the student's particular program and background. One lecture/seminar hour per week, open laboratory hours. One term or equivalent.

Prerequisite: SC/PHYS 2211 1.0; SC/PHYS 2212 1.0 is recommended.

Corequisite: SC/PHYS 3040 6.0.

Degree credit exclusion: SC/PHYS 3210 6.0.

SC/PHYS 3250 3.0 Introduction to Space Communications. The course covers all aspects of communications between spacecraft and ground stations. Topics include orbits, perturbations and launching methods, the essential characteristics and components of satellites, interplanetary spacecraft and ground stations, transmission, reception and link equations and access to a satellite.

Prerequisite: SC/PHYS 2020 3.0.

Prerequisite or corequisite: SC/PHYS 3050 3.0.

SC/PHYS 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.

Cross-listed to: SC/EATS 3280 3.0.

Prerequisites: SC/PHYS 2020 3.0; SC/PHYS 2040 3.0.

Degree credit exclusion: SC/EATS 3280 3.0.

SC/PHYS 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/COSC 4001 6.0, SC/EATS 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/EATS 4001 6.0.

SC/PHYS 4010 3.0 Quantum Mechanics. (formerly half of SC/PHYS 4010 6.0 — before 2000-2001) Physical concepts and mathematical foundations of quantum mechanics. Emphasis on approximation methods, treatment of angular momentum, spin and their couplings. Introduction to relativistic quantum mechanics and scattering theory.

Prerequisite: SC/PHYS 3040 6.0.

Prerequisite(s) or corequisite(s): SC/PHYS 3020 3.0; AS/SC/MATH 3271 3.0.

Degree credit exclusion: SC/PHYS 4010 6.0.

SC/PHYS 4011 3.0 Atomic and Molecular Physics. (formerly half of SC/PHYS 4010 6.0 — before 2000-2001) Application of quantum mechanics to atomic and molecular structure. One-electron systems, many electron atoms, Hartree-Fock approximation, fine structure, hyperfine structure, atom-laser interactions.

Prerequisite: SC/PHYS 4010 3.0.

Degree credit exclusion: SC/PHYS 4010 6.0.

SC/PHYS 4020 3.0 Electromagnetics II. Time-dependent electric and magnetic fields, Maxwell's differential equations in linear, isotropic, homogeneous conductors and dielectrics; the radiation and transmission of electromagnetic energy; relativistic transformation; scalar diffraction theory.

Prerequisites: SC/PHYS 3020 3.0; AS/SC/ MATH 3271 3.0.

SC/PHYS 4040 3.0 Nuclear and Fundamental Particle Physics. The properties of fundamental particles (quarks and leptons), and the forces between them, are studied. Topics include the interactions of particles with matter, symmetry principles and experimental techniques. Properties of nuclear matter (e.g. radioactive decays, fission, fusion) are also investigated.

Prerequisites: SC/PHYS 3010 3.0; SC/PHYS 3020 3.0; SC/PHYS 4010 6.0 or SC/PHYS 4010 3.0.

SC/PHYS 4050 3.0 Solid State Physics. The structural, mechanical, thermal, electrical and magnetic properties of crystalline solids are studied.

Prerequisites: SC/PHYS 3030 3.0; SC/PHYS 4010 6.0 or SC/PHYS 4010 3.0.

SC/PHYS 4060 3.0 Time Series and Spectral Analysis. Treatment of discrete sampled data by linear optimum Wiener filtering, minimum error energy deconvolution, auto-correlation and spectral density estimation, discrete Fourier transforms and frequency domain filtering and the Fast Fourier Transform algorithm.

Cross-listed to: SC/EATS 4020 3.0, AS/SC/ MATH 4830 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, SC/ EATS 4020 3.0, AS/SC/MATH 4130B 3.0, AS/ SC/MATH 4830 3.0, AS/SC/MATH 4930C 3.0.

SC/PHYS 4070 3.0 Stars and Nebulae. The astrophysics of radiating matter in the universe. The course covers radiation processes, radiative transfer, interstellar matter, stellar atmospheres and stellar interiors.

Prerequisites: SC/PHYS 1070 3.0; SC/PHYS 3030 3.0; SC/PHYS 3040 6.0; AS/SC/MATH 3271 3.0.

SC/PHYS 4100 3.0/4100 6.0 Special Topics. Supervised study, lectures, seminars and laboratory work on specific topics of contemporary interest.

SC/PHYS 4110 3.0 Dynamics of Space Vehicles. The dynamics of spacecraft in the near Earth and deep space environments, including the classical theory of orbits, the effects of perturbations on satellite orbits, rocket propulsion, orbital manoeuvres and satellite attitude control.

Prerequisites: SC/PHYS 2010 3.0 or SC/EATS 2470 4.0 or SC/EATS 2470 3.0; AS/SC/MATH 2015 3.0; AK/AS/SC/MATH 2270 3.0; AS/SC/ MATH 3271 3.0 is strongly recommended.

SC/PHYS 4120 3.0 Gas and Fluid Dynamics. Fundamental laws; conservation of mass, momentum and energy; vortex motion; incompressible, compressible and viscous flows; turbulent flow; surface waves.

Cross-listed to: AS/SC/MATH 4470 3.0.

Prerequisites: SC/PHYS 2010 3.0 or SC/EATS 2470 4.0 or SC/EATS 2470 3.0; AS/SC/MATH 2015 3.0; AK/AS/SC/MATH 2270 3.0.

Degree credit exclusion: AS/SC/MATH 4470 3.0.

SC/PHYS 4210 3.0 Experimental Physics. Advanced experiments in physics related to topics in solid state physics, optical and microwave spectroscopy, and nuclear physics. Six open laboratory hours. One term.

Prerequisites: SC/PHYS 3210 6.0; registration in an Honours Program in Physics and Astronomy.

Note: Students whose programs require six credits of 4000-level experimental physics take both SC/PHYS 4210 3.0 and SC/PHYS 4211 3.0, including different experiments as determined by the course coordinator.

SC/PHYS 4211 3.0 Experimental Physics. Advanced experiments in physics related to topics in solid state physics, optical and microwave spectroscopy, and nuclear physics. Six open laboratory hours. One term.

Prerequisites: SC/PHYS 3210 6.0; registration in an Honours Program in Physics and Astronomy.

Note: Students whose programs require six credits of 4000-level experimental physics take both SC/PHYS 4210 3.0 and SC/PHYS 4211 3.0, including different experiments as determined by the course coordinator.

SC/PHYS 4250 3.0 Signal and Communications Theory. Signal representation using orthogonal functions; Fourier series and transforms as applied to signals; ideal and physically realizable filters; the sampling theorem; definitions and characterizations of energy, power and their spectral densities; the modulation theorem; various kinds of modulation and bandwidth requirements.

Prerequisites: SC/PHYS 3250 3.0; AS/SC/MATH 2015 3.0; AK/AS/SC/MATH 2270 3.0.

Degree credit exclusion: AS/SC/MATH 4130B 3.0.

SC/PHYS 4270 4.0 Astronomical Techniques. An introduction to modern astronomical instrumentation, observational methods, data analysis and numerical methods. In addition to weekly lectures, the course provides students with hands-on experience with both observational and theoretical techniques of modern astronomy. Normally offered in alternate years. One and one-half lecture hours per week, several laboratory exercises. Two terms.

Prerequisites: SC/PHYS 1070 3.0; AS/SC/MATH 2015 3.0; AK/AS/SC/MATH 2270 3.0.

Degree credit exclusion: SC/PHYS 4270 3.0.

SC/PHYS 4310 3.0 Physics or Astronomy Project. A supervised research endeavour, either theoretical or experimental, in physics or astronomy. The project follows consultation with a faculty member who agrees to supervise.

Prerequisite: Open to students in the final year of the Physics, Applied Physics, or Astronomy Stream of an Honours Physics and Astronomy Program.

SC/PHYS 4410 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.

Cross-listed to: SC/EATS 4250 3.0.

Prerequisite(s) or corequisite(s): 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/EATS 4250 3.0.

SC/PHYS 4450 3.0 Spacecraft Systems. The course begins with a presentation of the basic principles underlying the design of spacecraft systems to meet the requirements of an orbital environment. It then develops the concepts and current approaches to spacecraft electrical, mechanical and thermal design.

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Prerequisites: SC/PHYS 3050 3.0; SC/PHYS 3250 3.0; SC/PHYS 3280 3.0 or SC/EATS 3280 3.0.

SC/PHYS 4550 3.0 Introduction to Control Systems. An introduction to the analysis and design of automatic control systems for linear time-invariant systems.

Prerequisites: AS/SC/MATH 2015 3.0; AK/AS/SC/MATH 2270 3.0; AK/AS/SC/MATH 3410 3.0 strongly recommended.

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Political Science – Arts

Department Office:
   S672 Ross, 416-736-5265
   www.yorku.ca/polisci/
Chair of Department:
   I. Bakker
Distinguished Research Professor:
   L.V. Panitch
Professors:
   A. Acharya, R. Albritton, A. Bayefsky, D. Dewitt,
   E. Dosman, F.J. Fletcher, M.B. Frolic, S. Gill,
   J. Hellman, S. Hellman, D. Leyton-Brown,
   K. McRoberts, L. North, J. Saul, O. Subtelny
Professors Emeriti:
   N. Black, R. Cornell, R. Cox, M.D. Goldrick,
   R.W. Grant, H. Kaplan, H. Simmons,
   G. Szablowski, D. Verney, R. Whitaker,
   N. Wood
Associate Professors:
   G. Albo, I. Bakker, S. Bell, H.G. Betz,
   G. Comninel, A. Denholm Crosby,
   R.J. Drummond, S. Forsyth, C.I. Greene,
   A. Horowitz, R. MacDermid, D. McNally,
   E. Morera, D. Mutimer, A. Mukherjee-Reed,
   S. Newman, J. Newton, J. Nitzan,
   S. Plekhanov, R.A. Rudolph, D. Shugarman,
   M. Thomas, S.L. Whitworth
Assistant Professors:
   Dobrowolsky, S. Henders, R. Saunders,
   G.W. Swanson
Contractually-Limited Appointments:
   A. Porter

The Political Science Department offers courses in five fields: Canadian politics, comparative politics, international relations, political theory, and empirical theory and methodology. Students may select from a full range of courses in each field, starting with broad survey courses at the 2000 level and advancing to more specialized courses at the 3000 level and Honours BA seminars at the 4000 level. Typical offerings in Canadian politics deal with federal-provincial relations, public law, municipal government and political parties. Comparative politics courses are of two sorts: some examine the political systems of such countries as the United States, the former Soviet Union and China, while others explore entire regions like Latin America, Western Europe and Southern Africa. Offerings in international relations focus particularly upon Canadian foreign and defence policy, strategic studies, international political economy, international organizations and the foreign policies of the superpowers. In political theory, courses provide a detailed survey of the history of Western political thought and take up the concerns of such modern political philosophers as Hannah Arendt,

Albert Camus, C.B. Macpherson and John Rawls. Finally, courses in empirical theory and methodology introduce students to statistics and computer applications in the social sciences and examine more sophisticated questions of political analysis and the philosophy of inquiry. The department offers a 4000-level Honours BA colloquium open by invitation to advanced students. Students interested in independent study may enrol in individual reading and research courses at the upper level. The department participates, as well, in a substantial number of interdisciplinary programs within the Faculty of Arts, including, for example, law and studies, urban studies, and communication studies.

Note: The department also offers Specialized Honours BA degree programs in Public Policy and Administration and Global Political Studies. For details, please consult the Faculty of Arts Programs of Study section of this Calendar.

Courses in Political Science

Note: For specific requirements of programs offered by this department, please consult the Faculty of Arts Programs of Study section of this Calendar.

Courses at the 2000 and 3000 level normally have two lecture hours and one tutorial hour a week. Courses at the 4000 level normally have two consecutive seminar hours a week. Majors registered for the BA degree may, with the permission of the department, count toward the major requirement a maximum of 15 credits in political science taken outside the department. Honours BA majors may count toward the major requirement a maximum of 21 such credits taken outside of the department.

Note: A more detailed description of course offerings is contained in the department's supplementary calendar, which is available from the Political Science Department, S672 Ross; students should consult the supplementary calendar prior to registration.

Note: Not all courses will necessarily be offered in any given year; consult the department's supplementary calendar for details of courses to be offered.

Note: For a list of Atkinson courses which are degree credit exclusions, students should consult the degree credit exclusion/equivalent tables in the Lecture Schedule.

I. 1000-Level Courses

Note: Open to all students. Should be taken in their first or second year (i.e. before successfully completing 54 credits).

AS/POLS 1000 6.0 Introduction to Politics: Exploring the Democratic Experience. This course introduces students to the central concepts of political science. The emphasis is on how individuals participate in politics and on how politics may be changed. Among the topics to be considered are the following: nationalism and nation building, liberalism, communism, fascism, power, war, imperialism and dependency, international organization,

interdependence and integration. Material from municipal, provincial, national and international levels of politics will be included as well as material on current policy issues, such as recent changes in the Ontario Human Rights Code.

Cross-listed to: AK/POLS 2410 6.0.

AS/POLS 1090 6.0 Introduction to Business Government and Society. This course presents an overview of the Canadian and international business environment with particular emphasis on government regulation of business and the social pressures governments respond to when regulating business.

II. 2000-Level Courses

Prerequisites: Open to all students. No prerequisites.

AS/POLS 2040 6.0 Introduction to Political Theory. An introduction to the history of political theory with a focus upon selected theorists in the western tradition.

Note: This course is a prerequisite for most 3000- and 4000-level courses in political theory.

AS/POLS 2100 6.0 Introduction to Canadian Government and Politics. The process of Canadian government is studied through an examination of the institutional framework and socio-economic context of Canadian politics. Topics include federalism, public policy and administration, parties and elections, interest groups, and the structures and operation of parliamentary government.

Cross-listed to: AK/POLS 3420 6.0.

Degree credit exclusion: AS/POLS 2610 6.0.

Note: This course is a prerequisite for most 3000- and 4000-level courses in Canadian politics.

AS/POLS 2210 6.0 Introduction to International Relations. A descriptive and analytical examination of international politics from the development of the nation-state system to the present time.

Note: This course is a prerequisite for most 3000- and 4000-level courses in international relations.

AS/POLS 2300 6.0 Introduction to Empirical Theory. Introduction to the issues, procedures and theories associated with the empirical approach to the study of politics. The course includes an examination of the origins and critical debates of political science and a survey of the major empirical theories of politics.

Note: This course is a prerequisite for most 3000- and 4000-level courses in empirical theory and methodology.

AS/POLS 2510 6.0 Introduction to Comparative Politics. An introduction to the comparative study of political systems, institutions and processes. The second half of the course examines in detail the government and politics of specific countries and regions.