Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

plete list of Teaching Unit Codes and their Subject Code equivalents can be found on the Web at www.mcgill.ca/students-information.

The three numbers following the Subject Code refer to the course itself, with the first of these indicating the level of the course.

- Courses numbered at the 100, 200, 300, and 400 levels are intended for undergraduate students. In most programs courses at the 300 level and 400 level are normally taken in the student's last two years.
- Courses at the 500 level are intended for graduate students, but may also be open to qualified senior undergraduate students.
- Courses at the 600 and 700 level are intended for graduate students only.

Two additional characters (D1, D2, N1, N2, J1, J2, J3) at the end of the seven-character course number identifies multi-term courses.

2. Multi-term Courses

Most courses at McGill are single term (Fall or Winter or Summer) courses with final grades issued and any credits earned recorded at the end of that term. Single term courses are identified by a seven-character course number.

A unit may, however, decide that the material to be presented cannot be divided into single term courses or it is preferable that the work to be done is carried out over two, or three, terms. Under such circumstances, courses are identified by a two-character extension of the course number.

In some cases, the same course may be offered in various ways: as a single term and/or in one or more multi-term versions. The course content and credit weight is equivalent in all modes, the only difference being the scheduling, and students cannot obtain credit for more than one version.

Courses with numbers ending in D1 and D2

Term(s) offered (Fall, Winter, Summer) may appear after the course credit weight to indicate when a course would **normally** be taught.

Students in the Faculty must comply with the regulations and requirements contained in the Faculty section of this Calendar. Particular notice should be taken of:

Program Requirements, see page69,
Course Requirements, see page69,
Course Registration, see page71.

Education

Some courses will be available in the evenings only, through the Centre for Continuing Education, or will be offered during the Summer term.

Students in the Faculty must comply with the regulations and requirements contained in the Faculty section of this Calendar. Particular notice should be taken of prerequisite and corequisite courses and registration for Field Experience courses.

Engineering

Most courses offered by the Faculty of Engineering are limited to Engineering students only. Non-Engineering students should obtain permission from the Associate Dean of their Faculty, and the Faculty Student Advisor in the Faculty of Engineering Student Affairs Office, to register for Engineering courses.

A limited number of School of Architecture (ARCH) courses are open to students not registered in the School. Please refer to individual course descriptions.

The average division of time for a course is indicated in hours in the course listing after the course credit. For example, (3)(3-0-6) indicates a three-credit course consisting of three lecture hours per week, no other contact hours and six hours of personal study per week.

Students in the Faculty must comply with the regulations and requirements contained in the Faculty section of this Calendar.

Environment, McGill School of

Students in the School's programs must comply with the regulations and requirements of their faculty of registration (Agricultural and Environmental Sciences, Arts, or Science), as contained in the Faculty's section of this Calendar.

Management

Students in the Faculty must comply with the regulations and requirements contained in the Faculty section of this Calendar. Particular notice should be taken of: "B.Com. Program Requirements" on page235, "B.Com. Program Structure" on page237 and, especially for students new to the program, "Management Core" on page238.

Music

Students in the Faculty must comply with the regulations and requirements contained in the Faculty section.

Religious Studies

Students in the Faculty must comply with the regulations and requirements contained in the Faculty section.

Science

All Science courses have limited enrolment.

Term(s) offered (Fall, Winter, Summer) may appear after the course credit weight to indicate when a course would **normally** be taught.

Students in the Faculty must comply with the regulations and requirements contained in the Faculty section of this Calendar. Particular notice should be taken of:

Program Requirements, see page293,
Course Requirements, see page293,
Course Registration, see page295.

6. Course Symbols

The symbols listed below may appear in front of courses described in this Calendar. When used, they represent the following information:

Denotes courses not offered in 2004-05.

Denotes courses taught only in alternate years.

Indicates that departmental approval/permission must be obtained by a student prior to registration.

▭ Denotes courses with limited enrolment.

Faculty of Education symbols:

Denotes courses not available as Education electives.

Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.

Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.

School of Dietetics and Human Nutrition symbol:

‡ Professional Practice (Stage) in Dietetics involving special prerequisites.

Please consult the Class Schedule on the Web at www.mgill.ca/minerva for the most up-to-date information about courses that are being offered in a given term.

Faculty of Agricultural and Environmental Sciences

ABEN – Bioresource Engineering

Offered by: Department of Bioresource Engineering
Former Teaching Unit Code: 336

Note: Instructors may refuse registration in a course to any student who does not have, in their opinion, an adequate background in the area.

Graduate courses available to senior undergraduates with permission of the instructor.

ABEN 103 LINEAR ALGEBRA. (3) (3 lectures and 1 conference) Vectors: equality and inequality, geometric representation, polar form, addition and subtraction, unit vectors, dot product, cross product, triple scaler and vector products, use of vectors in 3-D geometry. Matrices: definition, equality and inequality, addition and subtraction, multiplication, null matrix, identity matrix, triangular 0 (L) Tj 3.75 0 TD -0.168 Td7,4 c7encan0 TD /F1 9.75 Tf 0.2468 Tc 0.0427 Tw ,4 w (g7, identity matrix, trianin9ground) Tj 0 -9 i.roducoresourc

ABEN 416 ENGINEERING FOR LAND DEVELOPMENT. (3) (3 lectures and one 2-hour lab or design problems) (Prerequisite: ABEN 217) The engineering aspects of soil and water conservation, irrigation, water conveyance structures and canals, use of geosynthetics for

AGEC 230 AGRICULT

Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

AGRI 495 SEMINAR AND ASSIGNMENT 1. (1) (Not open to students registered in, or who have taken AGRI 495D1, AGRI 495D2, AGRI 495N1 or AGRI 495N2) Preparation, presentation and discussion of reports upon approved agricultural subjects chosen in consultation with staff members involved in the subject concerned.

AGRI 496 SEMINAR AND ASSIGNMENT 2. (1) (Not open to students registered in, or who have taken AGRI 495D1, AGRI 495D2, AGRI 495N1 or AGRI 495N2) Preparation, presentation and discussion of reports upon approved agricultural subjects chosen in consultation with staff members involved in the subject concerned.

AGRI 519 SUSTAINABLE DEVELOPMENT PLANS. (6) (Corequisites: Enrolment in full "Barbados Field Study Semester"; AGRI 413, AGRI 452 or CIVE 452, URBP 507) (Restrictions: Not open to students who have taken CIVE 519 or URBP 519.) Geared for solving real-world environmental problems related to water at the local, regional and international scale in Barbados. Projects to be designed by instructors in consultation with university, government and NGO partners and to be conducted by teams of 2 to 4 students in collaboration with them.

AGRI 550 SUSTAINED TROPICAL AGRICULTURE. (3) (Prerequisites: HISP 218 or equivalent; MATH 203 or AEMA 310 or equivalent) (Restricted Enrolment. Location in Panama. Student must be registered for a full semester of studies in Panama) Contrast theory and practice in defining agricultural environmental "challenges" in the Neotropics. Indigenous and appropriate technological means of mitigation. Soil management and erosion, water scarcity, water over-abundance, and water quality. Explore agro-ecosystem protection via field trips and project designs. Institutional context of conservation strategies, NGO links, and public participation.

ANSC – Animal Science

Offered by: Department of Animal Science
Former Teaching Unit Code: 342

ANSC 234 BIOCHEMISTRY 2. (3) (Winter) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 211) Metabolism in humans and domestic animals. The chemistry of alimentary digestion, absorption, transport, intermediary metabolism and excretion.

ANSC 250 PRINCIPLES OF ANIMAL SCIENCE. (3) (Fall) (3 lectures and one 2-hour lab) Introduction to the scientific principles underlying the livestock and poultry industries. Emphasis will be placed on the breeding, physiology and nutrition of animals raised for the production of food and fibre.

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ment, the onset of lactation and its cessation. The course will compare the differences in mammalian species in mammary development from embryological, pre- and post-pubertal and pre- and post-partum aspects. Lactation will be discussed at the cellular and biochemical levels.

ANSC 465 APPLIED INFORMATION SYSTEMS. (3) (Winter) (3 lectures and one 2-hour lab) (Prerequisite: ABEN 251 or demonstrated equivalency) Introduction to concepts of an Information System and subsequent application to various scenarios in agriculture. Industry analysis in terms of users, goals, available data/information, communication, delivery structure, decision making, feedback, exploitation of technology and possible improvements using the Internet. Individual case studies and familiarisation with cutting-edge computer applications.

ANSC 490D1 (1.5), ANSC 490D2 (1.5) PROJECT. (Fall and Winter) (Students must register for both ANSC 490D1 and ANSC 490D2.) (No credit will be given for this course unless both ANSC 490D1 and ANSC 490D2 are successfully completed in consecutive terms) A project to be completed under the supervision of a staff member of the Department of Animal Science. An agreement between student and the involved staff member must be reached prior to registration.

ANSC 490N1 PROJECT. (1.5) (Winter) (Students must also register for ANSC 490N2) (No credit will be given for this course unless both ANSC 490N1 and ANSC 490N2 are successfully completed in a twelve month period) A project to be completed under the supervision of a staff member of the Department of Animal Science. An agreement between student and the involved staff member must be reached prior to registration.

ANSC 490N2 PROJECT. (1.5) (Fall) (Prerequisite: ANSC 490N1) (No credit will be given for this course unless both ANSC 490N1 and ANSC 490N2 are successfully completed in a twelve month period) See ANSC 490N1 for course description.

ANSC 495D1 (1), ANSC 495D2 (1) SEMINAR. (Fall and Winter) (1 lecture and 1 lab) (Students must register for both ANSC 495D1 and ANSC 495D2.) (No credit will be given for this course unless both ANSC 495D1 and ANSC 495D2 are successfully completed in consecutive terms) Instruction on the preparation, presentation and discussion of critical reviews of topics important to animal agriculture to be followed by student presentation of above reviews.

ANSC 495N1 SEMINAR. (1) (Winter) (Students must also register for ANSC 495N2) (No credit will be given for this course unless both ANSC 495N1 and ANSC 495N2 are successfully completed in a twelve month period) Instruction on the preparation, presentation and discussion of critical reviews of topics important to animal agriculture to be followed by student presentation of above reviews.

ANSC 495N2 SEMINAR. (1) (Fall) (Prerequisite: ANSC 495N1) (No credit will be given for this course unless both ANSC 495N1 and ANSC 495N2 are successfully completed in a twelve month period) See ANSC 495N1 for course description.

ANSC 501 ADVANCED ANIMAL PRODUCTION SYSTEMS. (3) (Winter) (3 lectures) An advanced course dealing with current world animal production systems (ruminant and monogastric) emphasizing their practices, constraints and relative efficiencies with a view to developing methods of improving productivity.

ANSC 504 POPULATION GENETICS. (3) (Fall) (3 lectures) A consideration of the problems involved in the improvement of animals and the application of genetics in their solution.

ANSC 508 TOOLS IN ANIMAL BIOTECHNOLOGY. (3) (Fall) (Restriction: Permission of instructor.) Essential laboratory techniques in animal biotechnology: extraction of nucleic acids, PCR technology, gel electrophoresis, construction of gene expression vectors, transformation of bacterial and mammalian cells and monitoring gene expression using reporter genes.

ANSC 551 CARBOHYDRATE AND LIPID METABOLISM. (3) (Winter) (3 lectures) Comparative aspects of nutrition and metabolism of carbohydrate and lipid from the cellular level through the multi-organ of the whole organism. Main topics will include biothermodynamics, calorimetry, cellular metabolism and functions of carbohydrate and lipid, digestion, absorption and utilization of dietary carbohydrate and lipid.

ANSC 552 PROTEIN METABOLISM AND NUTRITION. (3) (Fall) (3 lectures) Comparative aspects of nutrition and metabolism of amino acids and proteins from the cellular level on through the multisystem operation of the whole organism. Main topics include cellular metabolism and functions of amino acids and proteins, digestion, absorption and utilization of dietary protein. Comparison between farm animals and humans.

BTEC – Biotechnology

Offered by: Institute of Parasitology

Former Teaching Unit Code: 394

BTEC 501 BIOINFORMATICS. (3) (2 lectures and 1 laboratory per week) This course introduces the application of computer software for analysis of biological sequence information. An emphasis is placed on the biological theory behind analytical techniques, the algorithms used and methods of developing a statistical framework for variouSNTw. (E) Tter) (3

Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

and genetic controls and an introduction to the use of non-toxic biochemical controls (attractants, repellents, pheromones, antimetabolites).

ENTO 425 INSECT ECOLOGY. (3) (Winter) (Not open to students who have taken ENTO 525) (Prerequisites: WILD 205, BIOL 208 or permission of instructor) Study of how insects and their relatives interact with their environment, each other, and other plants and animals. Emphasis on population and community ecology, biodiversity and conservation, plant-insect interactions, and applied insect ecology. Relationships between insects and ecosystem function.

ENTO 440 SYSTEMATIC ENTOMOLOGY. (3) (Winter) (1 lecture, 1 lab and project) (Prerequisite: NRSC 330) Classification of principal orders, suborders and superfamilies of insects; use of keys; collecting methods.

ENTO 446 APICULTURE. (3)

ENTO 515 PARASITOID BEHAVIOURAL ECOLOGY. (3) (Winter) (Not open to students who have taken NRSC 515) The origin and diversity of parasitoid species will be presented. Aspects of behavioural ecology that pertain to host selection, optimal allocation of progeny and sex and host-parasitoid interactions are examined. The importance of these processes is discussed in a biological control perspective.

ENTO 520 INSECT PHYSIOLOGY. (3) (Winter) (Prerequisite: Permission of instructor) (Not open to students who have taken NRSC 520) Organismal approach to insects, emphasizing the physiology and development, and the physiological relations of insects to their environment.

ENTO 535 AQUATIC ENTOMOLOGY. (3)

ENTO 550 VETERINARY AND MEDICAL ENTOMOLOGY. (3) (Winter) (Prerequisite: Permission of instructor) (Not open to students who have taken NRSC 550) Environmental aspects of veterinary and medical entomology. An advanced course dealing with the biology and ecology of insects and acarines as aetiological agents and vectors of disease, and their control. Integrated approaches to problem solving.

EXTM – Extension Methods

Offered by: Department of Natural Resource Sciences
Former Teaching Unit Code: 352

EXTM 300 COMMUNICATIONS-EXTENSION METHODS. (3) (Weekly 3-hour workshops)

FDSC – Food Science

Offered by: Department of Food Science and Agricultural Chemistry and Institute of Parasitology
Former Teaching Unit Code: 333

FDSC 110 INORGANIC CHEMISTRY. (4) (Winter) (3 lectures and one 3-hour lab) The course will be a study of the fundamental principles of atomic structure, valence theory and the periodic table.

FDSC 200 INTRODUCTION TO FOOD SCIENCE. (3) (Fall) (3 lectures) This course enables one to gain an appreciation of the scope of food science as a discipline. Topics include introductions to chemistry, processing, packaging, analysis, microbiology, product development, sensory evaluation and quality control as they relate to food science.

FDSC 211 BIOCHEMISTRY 1. (3) (Fall) (3 lectures) (Corequisite: FDSC 230) Biochemistry of carbohydrates, lipids, proteins, nucleic acids; enzymes and coenzymes. Introduction to intermediary metabolism.

FDSC 212 BIOCHEMISTRY LABORATORY. (2) (Fall) (1 lecture, 1 lab) (Corequisite: FDSC 211) The laboratory use of ionic strength and pH; the chemical properties of carbohydrates, lipids, proteins and enzymes; the instruction of laboratory techniques such as titration, chromatography, the use of the analytical balance and the pH meter.

FDSC 213 ANALYTICAL CHEMISTRY 1. (3) (Fall) (3 lectures and one 3-hour lab) Theoretical aspects of wet chemical techniques including gravimetric and volumetric analyses, redoximetry, and separation techniques.

FDSC 230 ORGANIC CHEMISTRY. (4) (Fall) (3 lectures and one 3-hour lab) Atomic and molecular structure, modern concepts of bonding, overview of functional groups, conformational analysis, stereochemistry, mechanisms and reactions of aliphatic compounds.

FDSC 233 PHYSICAL CHEMISTRY. (3) (Winter) (3 lectures) Introduction to kinetic theory, thermodynamics, properties of liquids and solids, chemical equilibrium and the law of mass action, phase rule, properties of solutions, chemical kinetics.

FDSC 251 FOOD CHEMISTRY 1. (3) (Winter) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 211) A study of the chemistry and functionality of the major components comprising food systems, such as water, proteins, carbohydrates and lipids. The relationship of these components to food stability will be studied in terms of degradative reactions and processing.

FDSC 300 FOOD ANALYSIS 1. (3) (Fall) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 251) The theory and methodologies for the analysis of food products for moisture, fat, protein, ash and fibre (proximate analysis). The quantitative aspects of colour measurement and infrared spectroscopy are also developed in relation to the analysis of food systems.

FDSC 305 FOOD CHEMISTRY 2.

hour lab) (Prerequisite: FDSC [illegible])

PLNT 211 PRINCIPLES OF PLANT SCIENCE. (3) (3 lectures and one 2-hour lab) A study of major world crop species with emphasis on their adaptation and distribution in relation to the economic botany of the plants.

PLNT 215 ORIENTATION IN PLANT SCIENCE. (1)

PLNT 220 INTRODUCTION TO VASCULAR PLANTS. (1) (Four 4-hour field labs plus project, given during the first 4 weeks of semester) (First 4 weeks of term only) Field survey of different habitats to introduce major groups of vascular plants (ferns, horsetails, club-

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tribution to discussions, laboratory reports and an individualized project.

PLNT 535 PLANT BREEDING. (3) (Undergraduate prerequisite: CELL 204, PLNT 201 or PLNT 211) (Given in alternate years) Principles and practices of plant breeding, including reporduction of crop plants; plant hybridization; sources of genetic variation; selection methods used for self- and cross-pollinated crops and for clonally reproduced crops; breeding for diseases and pest resistance; applications of biotechnology in plant breeding.

SOIL – Soil Science

Offered by: Department of Natural Resource Sciences
Former Teaching Unit Code: 372

SOIL 200 INTRODUCTION TO EARTH SCIENCE. (3) (Winter) (3 lectures, one 3-hour lab) Introductory concepts of geology and geomorphology will be presented including: rocks and minerals, surface deposits, history and structure of the earth.

RINCIRLE

ANTH 222 LEGAL ANTHROPOLOGY. (3)

ANTH 227 MEDICAL ANTHROPOLOGY. (3) (Fall) Beliefs and practices concerning sickness and healing are examined in a variety of Western and non-Western settings. Special attention is given to cultural constructions of the body and to theories of disease causation and healing efficacy. Topics include international health, medical pluralism, transcultural psychiatry, and demography.

ANTH 301 NOMADIC PASTORALISTS. (3) (Prerequisite: ANTH 202, or ANTH 205, or ANTH 206, or ANTH 212)

ANTH 302 NEW HORIZONS IN MEDICAL ANTHROPOLOGY. (3) (Prerequisite: ANTH 227) (Restricted to Anthropology Major Con., Honours, and Jt. Honours students.)

ANTH 303 ETHNOGRAPHY OF POSTSOCIALISM. (3) (Winter) (Prerequisites: ANTH 202 and one other 200-level anthropology course or permission of instructor.) Understanding postsocialism through engagement with ethnography that explores how markets interact with political rule, social forms, and the production of cultural values across different geographies and histories. This course focuses primarily on the former Soviet Union, East Germany, and China.

ANTH 306 NATIVE PEOPLES' HISTORY IN CANADA. (3) (Prerequisites: HIST 202 or HIST 203 or ANTH 202 or ANTH 205 or ANTH 206, or permission of instructor)

ANTH 312 ZOOARCHAEOLOGY. (3) (Fall) (Prerequisites: ANTH 201 and Honours/Major status in Anthropology) A systematic investigation into current methodological and theoretical concerns in archaeological faunal analysis. Topics to be examined include sampling and quantification, butchery, seasonality, subsistence, taphonomy, and paleoecology.

ANTH 313 EARLY CIVILIZATIONS. (3) (Prerequisite: ANTH 201 or ANTH 202)

ANTH 314 PSYCHOLOGICAL ANTHROPOLOGY. (3) (Prerequisite: ANTH 204 or permission of instructor) (Not open to students who have taken ANTH 214)

ANTH 315 SOCIETY/CULTURE: EAST AFRICA. (3) (Winter) (Open only to students in the Study in Africa program, a full-term field study program in East Africa) Overview of the history, languages and cultures of the region. Examination of the social institutions, cultural patterns, subsistence practices and environmental settings of major social groups, including hunter-foragers, fishers, pastoralists, agro-pastoralists, and cultivators. Discussion of current theoretical and ethnological issues in the study of culture and social change.

ANTH 320 SOCIAL EVOLUTION. (3) (Fall) (Prerequisites: ANTH 202, or ANTH 205, or ANTH 206, or ANTH 212, and Honours/Major/Minor status in Anthropology, or permission of instructor) The evolution of human social organization, with a focus on pre-industrial societies (hunter-gatherers, small-scale sedentary societies, complex chiefdoms and small scale states).

ANTH 321 PEOPLE AND CULTURES OF AFRICA. (3) (Prerequisite: ANTH 202, or ANTH 204, or ANTH 205, or ANTH 206, or ANTH 209 or ANTH 212, or permission of instructor)

ANTH 322 SOCIAL CHANGE IN MODERN AFRICA. (3) (Winter) (Prerequisite: ANTH 202, or ANTH 204, or ANTH 205, or ANTH 206, or ANTH 209, or ANTH 212, or ANTH 227 or permission of instructor) The impact of colonialism on African societies; changing families, religion, arts; political and economic transformation; migration, urbanization, new social categories; social stratification; the social setting of independence and neo-colonialism; continuity, stagnation, and progressive change.

ANTH 324 ECONOMIC ANTHROPOLOGY. (3) (Prerequisite: ANTH 202, or ANTH 205, or ANTH 206, or ANTH 212, or permission of instructor)

ANTH 327 PEOPLES OF SOUTH ASIA. (3) (Fall) (Prerequisite: ANTH 202, or ANTH 205, or ANTH 206, or ANTH 212, or permission of instructor) An exploration of the dominant social institutions, cultural themes and perspectives, and psychological patterns found in India and greater South Asia.

ANTH 329 MODERN CHINESE SOCIETY AND CHANGE. (3) (Winter) (Prerequisites: ANTH 202, or ANTH 205, or ANTH 206, or ANTH 212, or East Asian Studies Honours/Major, or permission of instructor) A study of 20th Century Chinese economic, social and cultural institutions, their transformations and continuities. Topics include village economic development and social change; gender, family and kinship organization, regional differences and minority groups; urban-industrial change; and the effects of revolution and reform.

ANTH 331 PREHISTORY OF EAST ASIA. (3) (Fall) (Prerequisite: ANTH 201 or permission of instructor)

ANTH 333 CLASS AND ETHNICITY. (3) (Prerequisite: ANTH 202, or ANTH 205, or ANTH 206, or ANTH 212, or permission of instructor)

ANTH 335 ANCIENT EGYPTIAN CIVILIZATION. (3) (Prerequisite: ANTH 201, or ANTH 202, or permission of instructor)

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ANTH 482 SPECIAL TOPICS. (3) (Prerequisite: Completion of all available courses relevant to the topic and consent of the instructor) Supervised reading in advanced special topics under direction of a member of staff.

ANTH 483 SPECIAL TOPICS. (3) (Prerequisite: Completion of all available courses relevant to the topic and consent of the instructor) Supervised reading in advanced special topics under direction of a member of staff.

ANTH 484 SPECIAL TOPICS. (3) (Prerequisite: Completion of all available courses relevant to the topic and consent of the instructor) Supervised reading in advanced special topics under direction of a member of staff.

ANTH 485 SPECIAL TOPICS. (3) (Prerequisite: Completion of all available courses relevant to the topic and consent of the instructor) Supervised reading in advanced special topics under direction of a member of staff.

ANTH 490 HONOURS THESIS 1. (6) (Prerequisites: U3 Honours status and permission of instructor) Supervised reading and preparation of a research report under the direction of a member of staff.

ANTH 491 HONOURS THESIS 2. (6) (Prerequisites: U3 Honours status and permission of instructor) Supervised reading and preparation of a research report under the direction of a member of staff.

ANTH 492 HONOURS THESIS. (6) (Prerequisites: U3 Honours status and permission of instructor)

ANTH 492D1 (3), ANTH 492D2 (3) HONOURS THESIS. (Students must register for both ANTH 492D1 and ANTH 492D2.) (No credit will be given for this course unless both ANTH 492D1 and ANTH 492D2 are successfully completed in consecutive terms) (ANTH 492D1 and ANTH 492D2 together are equivalent to ANTH 492)

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492D2 are successfully completed in consecutive terms) (ANTH
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Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

CLAS 309 THE GREEK AND ROMAN NOVEL. (3)

CLAS 311 CATULLUS/OVID. (3) (Prerequisite: CLAS 210 or CLAS 211 or CLAS 212 or permission of the Department)

CLAS 312 INTERMEDIATE LATIN: POETRY. (3) (Prerequisite: CLAS 210 or CLAS 211 or CLAS 212 or permission of the Department) (Topic for 2004-05: Selections from Martial)

CLAS 313 INTERMEDIATE LATIN: CICERO. (3) (Prerequisite: CLAS 210 or CLAS 211 or CLAS 212 or permission of the Department)

CLAS 314 INTERMEDIATE LATIN: HISTORIANS. (3) (Prerequisite: CLAS 210 or CLAS 211 or CLAS 212 or permission of the Department)

CLAS 315 INTERMEDIATE LATIN: SELECTIONS. (3) (Prerequisite: CLAS 210 or CLAS 211 or CLAS 212 or permission of the Department) (Topic for 2004-05: Selections for Caesar "de Bello Gallico")

CLAS 316 INTERMEDIATE LATIN: MEDIEVAL. (3) (Prerequisite: CLAS 210 or CLAS 211 or CLAS 212 or permission of the Department)

CLAS 321 INTERMEDIATE GREEK: PLATO/XENOPHON. (3) (Prerequisite: CLAS 220 or permission of the instructor)

CLAS 322 INTERMEDIATE GREEK: ORATORS. (3) (Prerequisite: CLAS 220 or permission of the instructor)

CLAS 323 INTERMEDIATE GREEK: HOMER. (3) (Prerequisite: CLAS 220 or permission of the instructor) (Selections)

CLAS 324 INTERMEDIATE GREEK: POETRY. (3) (Prerequisite: CLAS 220 or permission of the instructor)

CLAS 325 INTERMEDIATE GREEK: LATER PROSE. (3) (Prerequisite: CLAS 220 or permission of the instructor)

CLAS 326 INTERMEDIATE GREEK: SELECTIONS. (3) (Prerequisite: CLAS 220 or permission of instructor)

CLAS 331 INTERMEDIATE MODERN GREEK LANGUAGE. (3) (Prerequisite: CLAS 230 or CLAS 235 or CLAS 237 or permission of the instructor)

CLAS 332 THE MODERN GREEK NOVEL. (3) (Prerequisite: CLAS 220 or permission of instructor)

CLAS 333 MODERN GREEK POET

this course unless both EAST 230D1 and EAST 230D2 are successfully completed in consecutive terms) (EAST 230D1 and EAST 230D2 together are equivalent to EAST 230) Introduction to the basic structures of Mandarin Chinese, Pin-yin romanization and 750 characters for reading and writing. Emphasis on developing aural and oral skills through communication games and interaction activities. Animated films are used as part of teaching materials.

EAST 240 FIRST LEVEL JAPANESE. (9) (Summer) (Requires departmental approval.)

EAST 240D1 (4.5), EAST 240D2 (4.5) FIRST LEVEL JAPANESE. (Requires Departmental approval) (Students must register for both EAST 240D1 and EAST 240D2.) (No credit will be given for this course unless both EAST 240D1 and EAST 240D2 are successfully completed in consecutive terms) (EAST 240D1 and EAST 240D2 together are equivalent to EAST 240) Introduction to the basic grammar and sentence patterns of the Japanese language in both oral and written forms. In reading and writing skills students will be introduced to katakana, hiragana and kanji.

EAST 303 CURRENT TOPICS: CHINESE STUDIES 1. (3) (Fall) (Departmental approval required)

EAST 304 CURRENT TOPICS: CHINESE STUDIES 2. (3) (Winter) (Departmental approval required) Consideration of important issues in Chinese Studies. Content of the course will vary from year to year.

EAST 305 CURRENT TOPICS: JAPANESE STUDIES 1. (3) (Fall) (Departmental approval required) Consideration of important issues in Japanese studies. The content of the course will vary from year to year.

EAST 306 CURRENT TOPICS: JAPANESE STUDIES 2. (3) (Winter) (Departmental approval required) Consideration of important issues in Japanese studies. The content of the course will vary from year to year.

EAST 307 TOPICS: CHINESE LANGUAGE AND LITERATURE. (3) (Fall) (Prerequisite: EAST 211 or permission of instructor) (Departmental approval required) Consideration of selected topics and 3) (Wi081r)

EAST 307 TOPICS: CHINESE LANGUAGE AND LITERATURE. (3)

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their impact on that field's methodological assumptions, self-definition, and institutional practices.

EAST 529 CONTEMPORARY CHINA: ANALYSIS OF CHANGE. (3)
(No credit to students who have taken ANTH 329)

open to students who have taken or are taking ECON 330 or ECON 352) A university-level introduction to national income determination, money and banking, inflation, unemployment and economic policy.

ECON 219 CURRENT ECONOMIC PROBLEMS: TOPICS. (3) (This course will also be of interest to students outside of Economics) This course will deal with topical issues of importance to the Canadian economy.

ECON 223 POLITICAL ECONOMY OF TRADE POLICY. (3) (Prerequisite: ECON 208) The course introduces students to the economics of international trade, what constitutes good trade policy, and how trade policy is decided. The course examines Canadian trade policy since 1945, including the GATT, Auto Pact, the FTA and NAFTA, and concludes with special topics in trade policy.

ECON 225 ECONOMICS OF THE ENVIRONMENT. (3) (Not open to students who have taken 154-325 or 154-425) A study of the application of economic theory to questions of environmental policy. Particular attention will be given to the measurement and regulation of pollution, congestion and waste and other environmental aspects of specific economies.

ECON 227 ECONOMIC STATISTICS. (6) (You may not be able to receive credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) Distributions, averages, dispersions, sampling, testing, estimation, correlation, regression, index numbers, trends and seasonals.

ECON 227D1 (3), ECON 227D2 (3) ECONOMIC STATISTICS. (Students must register for both ECON 227D1 and ECON 227D2.) (No credit will be given for this course unless both ECON 227D1 and ECON 227D2 are successfully completed in consecutive terms) (ECON 227D1 and ECON 227D2 together are equivalent to ECON 227) (You may not be able to receive credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) Distributions, averages, dispersions, sampling, testing, estimation, correlation, regression, index numbers, trends and seasonals.

ECON 230D1 (3), ECON 230D2 (3) MICROECONOMIC THEORY. (Students must register for both ECON 230D1 and ECON 230D2.) (No credit will be given for this course unless both ECON 230D1 and ECON 230D2 are successfully completed in consecutive terms) The introductory course for Economics Major students in microeconomic theory. In depth and critical presentation of the theory of consumer behaviour, theory of production and cost curves, theory of the firm, theory of distribution, welfare economics and the theory of general equilibrium.

ECON 250D1 (3), ECON 250D2 (3) INTRODUCTION TO ECONOMIC THEORY: HONOURS. (MATH 139 and MATH 141 are corequisites) (Students must register for both ECON 250D1 and ECON 250D2.) (No credit will be given for this course unless both ECON 250D1 and ECON 250D2 are successfully completed in consecutive terms) An intermediate level microeconomics course. Includes theory of exchange, theory of consumer behaviour, theory of production and cost curves, theory of the firm, theory of distribution;

fiction as prosody, diction, voice, tone, imagery, figurative language, point of view, narrative form, and character.

ENGL 314 20TH CENTURY DRAMA. (3) A study of selected representative works in modern drama and theatre.

ENGL 315 SHAKESPEARE. (3) A study of the major works of Shakespeare.

ENGL 316 MILTON. (3)

ENGL 317 THEORY OF ENGLISH STUDIES 1. (3) (Limited to students in English Major and Honours Programs) Philosophical approaches.

ENGL 318 THEORY OF ENGLISH STUDIES 2. (3) (Limited to students in English Major and Honours Programs) Socio-Historical approaches.

ENGL 319 THEORY OF ENGLISH STUDIES 3. (3) (Limited to students in English Major and Honours Programs) Approaches to textuality, authorship, and performance.

ENGL 320 POSTCOLONIAL LITERATURE. (3)

ENGL 321 CARIBBEAN

may include gender and sexuality; modernism and post-modernism; new social movements; social action.

ENGL 393 CANADIAN CINEMA 1. (3)

ENGL 395 CULTURAL STUDIES AND THE ARTS. (3) (Prerequisite: ENGL 275)

ENGL 400 EARLIER ENGLISH RENAISSANCE. (3) Topic for 2004-05: Middleton, Jonson, Donne and the Field of Cultural Production)

ENGL 401 STUDIES IN THE 17TH CENTURY. (3)

ENGL 403 STUDIES IN THE 18TH CENTURY. (3)

ENGL 404 STUDIES IN 19TH CENTURY LITERATURE 1. (3)

ENGL 405 STUDIES IN 19TH CENTURY LITERATURE 2. (3)

ENGL 407 THE 20TH CENTURY. (3) (Topic for 2004-05: Women and Modernism.)

ENGL 408 THE 20TH CENTURY. (3) (Topic for 2004-05: Ernest Hemingway.)

ENGL 409 STUDIES IN A CANADIAN AUTHOR. (3) (Prerequisite: previous work in Canadian Literature)

ENGL 410 THEME OR MOVEMENT CANADIAN LITERATURE. (3) (Prerequisite: previous work in Canadian Literature) (Topic for 2004-05: Klein, Layton and Cohen.) Advanced study of a significant theme or movement in Canadian Literature.

ENGL 411 STUDIES IN CANADIAN FICTION. (3) (Prerequisite: Permission of instructor, based on previous work in Canadian fiction)

ENGL 414 STUDIES IN 20TH CENTURY LITERATURE 1. (3)

ENGL 415 STUDIES IN 20TH CENTURY LITERATURE 2. (3) (Topic for 2004-05: British Modernism in the 1930's.)

ENGL 416 STUDIES IN SHAKESPEARE. (3)

ENGL 418 A MAJOR MODERNIST WRITER. (3) (Topic for 2004-05:Ezra Pound for a New Era.) Intensive study of a writer important for Modernism, such as James Joyce, T.S. Eliot, Ezra Pound, Gertrude Stein.

ENGL 419 STUDIES IN 20TH CENTURY LITERATURE. (3) (Topic for 2004-05: Inuit Literature and Media.)

ENGL 422 STUDIES IN 19TH CENTURY AMERICAN LITERATURE. (3) (Topic for 2004-05: American Autobiography.)

ENGL 423 STUDIES IN 19TH CENTURY LITERATURE. (3) (Topic for 2004-05: Henry James and Jamesians.)

ENGL 424 IRISH LITERATURE. (3)

ENGL 430 STUDIES IN DRAMA. (3) (Topic for 2004-05: Modernism and the Theatre.)

ENGL 431 STUDIES IN DRAMA. (3) (Topic for 2004-05: Canadian Shakespeare.)

ENGL 434 INDEPENDENT THEATRE PROJECT. S

n’en conserver qu’un seul.) (Maximum de 25 étudiants) Le cours a pour but d’initier l’étudiant à la recherche dans le domaine de la littérature française par l’étude des grands mouvements littéraires et des principaux auteurs. L’étudiant devra se familiariser avec les outils de recherche en travaillant sur un domaine de recherche bien précis.

FREN 201 COMPOSITION 1. (3) (Fall) (Préalable: test. Effectifs contingentés. Autorisation départementale requise.) (Les étudiants qui ont suivi le cours 125-200 ou 125-202 ne seront pas admis) Révision grammaticale et enrichissement des moyens d’expression par la composition et l’étude de textes littéraires.

FREN 203 COMPOSITION 2. (3) (Winter) (Préalable: FREN 201 ou test. Effectifs contingentés. Autorisation départementale requise) (Les étudiants qui ont suivi le cours 125-204 ne seront pas admis) Enrichissement de la langue, délimitation des faits d’expression; étude systématique des ressources expressives du français. Rédactions.

FREN 210 FRANCOPHONIE 1. (3)

FREN 221 CIVILISATION FRANÇ ... ressources expressi Tj 5.276eTj 4.5 0 -0.0825 TUique des ressources expressi Tj 5.276

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Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

FREN 396; Option Lettres et traduction: FREN 251, FREN 353. Cours conjoints: Option Lettres: FREN 252, FREN 397; Option Lettres et traduction: FREN 252) Littérature québécoise des origines à nos jours: lecture d'un choix de textes (30) d'après une liste proposée par le Département.

FREN 375 THÉÂTRE QUÉ

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FREN 375 T

FREN 497 TRAVAUX PRATIQUES 4. (3) (Winter) (Cours réservé aux étudiants du Département de l'Option Lettres. Préalables: FREN 374, FREN 252, FREN 397. Cours conjoints: FREN 490) Analyse descriptive des textes littéraires selon les méthodes, notions et modèles théoriques.

FREN 498 QUESTIONS DE LITTÉRATURE 3. (3) (Cours réservé aux étudiants en Spécialisation du Département. Préalables: Options Lettres: FREN 251, FREN 353, FREN 396; Option Lettres et traduction: FREN 251, FREN 353.) Cours à contenu variable: un thème de théorie ou de critique.

FREN 499 QUESTIONS DE LITTÉRATURE 4. (3) (Cours réservé aux étudiants en Spécialisation du Département. Préalables: Options Lettres: FREN 251, FREN 353, FREN 396; Option Lettres et traduction: FREN 251, FREN 353.) Cours à contenu variable : un Thème de création littéraire.

FREN 550 LECTURES GUIDÉES 1. (3) (Fall) (Réservé aux étudiants du Département) Lectures personnelles ayant pour but de permettre à l'étudiant de combler une lacune ou de satisfaire un intérêt personnel. Admission sur autorisation spéciale.

FREN 551 LECTURES GUIDÉES 2. (3) (Winter) Identique au précédent.

FRSL – French Second Language

Offered by: English and French Language Centre
Former Teaching Unit Code: 127

All FRSL courses require placement tests and departmental permission. Registration is on a first come, first served basis.

400-level courses are classes in functional French.

FRSL 101D1 (3), FRSL 101D2 (3) BEGINNERS' FRENCH. (3 hours, plus language laboratory and oral practice with a French monitor) (Prerequisite: Placement test) (Not open to students who have taken FRSL 201 or FRSL 205) (Students must register for both

FRSL 332 INTERMEDIATE FRENCH: GRAMMAR. (3) (Fall) (3 hours) (Prerequisite: Placement test. For those who have attained relative fluency but lack accuracy in speaking and writing) Grammar review, using both a theoretical and a practical approach. Reading materials, in addition to their cultural interest, are selected to illustrate grammatical usage, provide models of writing techniques and aid in vocabulary development.

FRSL 333 INTERMEDIATE FRENCH: GRAMMAR. (3) (Winter) (3 hours) (Prerequisite: FRSL 332 or Placement test) Second part of FRSL 332.

FRSL 407 COMPRÉHENSION ET EXPRESSION ORALES. (3) (Fall) (3 heures par semaine) (Préalable: test de classement. S'adresse aux étudiants qui ont déjà une bonne maîtrise du français écrit) Identification des niveaux de langue et prononciation du français familier; amélioration de la compréhension auditive par l'écoute d'une variété de documents audio-visuels du Québec et d'ailleurs.

FRSL 408 FRANÇAIS ORAL: TEXTES ET EXPRESSIONS. (3) (3 heures par semaine) (Préalable: test de classement) Suite du cours FRSL 407. Cours de perfectionnement de l'expression orale et écrite: amélioration de la production orale (intonation, débit, spontanéité); enrichissement du vocabulaire idiomatique relié à des fonctions socio-culturelles de la langue par le biais de techniques orales (jeux de rôles, discussions, simulations) et d'un journal.

FRSL 431D1 (3), FRSL 431D2 (3) FRANÇAIS FONCTIONNEL AVANCÉ. (3 heures par semaine) (Préalable: test de classement) (Les étudiants qui ont suivi le cours FRSL 400, FRSL 402 ou FRSL 432 ne seront pas admis) (Students must register for both FRSL 431D1 and FRSL 431D2.) (No credit will be given for this course unless both FRSL 431D1 and FRSL 431D2 are successfully completed in consecutive terms) (FRSL 431D1 and FRSL 431D2 together are equivalent to FRSL 431) Destiné aux étudiants de niveau avancé qui veulent approfondir leurs connaissances lexicales, syntaxiques et culturelles afin de pouvoir exprimer avec clarté leurs opinions sur une variéte de sujets. Par l'étude de journaux, revues et textes littéraires, les étudiants se familiariseront avec la réalité québécoise contemporaine.

FRSL 432 FRANÇAIS FONCTIONNEL. (3) (Fall) (3 heures par semaine) (Préalable: test de classement) Première moitié du programme du cours FRSL 431. Seulement avec la permission spéciale du département.

FRSL 445 FRANÇAIS FONCTIONNEL, ÉCRIT 1. (3) (Fall) (3 heures par semaine) (Préalable: test de classement) Destiné aux étudiants dont le français oral est d'un niveau fonctionnel, mais dont le français écrit est nettement inférieur. Travaux écrits hebdomadaires, analyse de textes divers, exercices et tests en classe. But: corriger l'orthographe, la grammaire et les anglicismes, enrichir le vocabulaire, améliorer l'expression écrite.

FRSL 446 FRANÇAIS FONCTIONNEL, ÉCRIT 2. (3) (Winter) (3 heures par semaine) (Préalable: test de classement) (Prépare aux cours du Département de langue et littérature françaises. Même format que le cours FRSL 445, à un niveau plus avancé) Rédactions de types variés. But: améliorer le style, développer les compétences telles que l'organisation et la présentation d'arguments ou l'identification des registres de langue.

FRSL 449 LE FRANÇAIS DES MÉDIAS. (3) (3 heures par semaine) (Préalable: test de classement) Cours de perfectionnement mettant l'accent sur l'enrichissement de la langue à l'oral comme à l'écrit. Analyse d'émissions de télévision ou de radio et lecture d'articles de journaux ou de revues. Activités variées portant sur des sujets d'actualité (reportages, débats, etc.) qui reflètent la société et la culture du Québec d'aujourd'hui.

FRSL 455 GRAMMAIRE ET CRÉATION. (3) (3 heures par semaine) (Préalable: test de classement) Perspective analytique et approche inductive et visuelle se combinent pour permettre une meilleure maîtrise du code grammatical. L'étude de textes de niveau soutenu met en relief la richesse des ressources lexicales et stylistiques du français et rend accessible la création littéraire aux étudiants non francophones.

GERM – German (Arts)

Offered by: Department of German Studies
Former Teaching Unit Code: 129

GERM 197 FYS: IMAGES OF OTHERNESS. (3) (Fall) (Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) (Maximum 25) (Given in English) The seminar examines images and narratives of the foreign, alien, and uncanny Other in major works of German literature, film, music, and art from Romanticism to the present. Works discussed include Wagner's Lohengrin, expressionist art, and texts by authors such as ETA Hoffmann, Kleist, Freud, Nietzsche, Kafka, and Thomas Mann.

GERM 200 GERMAN LANGUAGE, INTENSIVE BEGINNERS'. (6) (Fall) (6 hours, plus 1 hour laboratory) An intensive language course designed to develop communicative skills; covers the first level (GERM 202D1/GERM 202D2) in one term. Required for program students.

GERM 202D1 (3), GERM 202D2 (3) GERMAN LANGUAGE, BEGINNERS. (Fall and Winter) (Students must register for both GERM 202D1 and GERM 202D2.) (No credit will be given for this course unless both GERM 202D1 and GERM 202D2 are successfully completed in consecutive terms) A comprehensive first level course designed to develop communicative skills.

GERM 259 INDIVIDUAL AND SOCIETY IN GERMAN LITERATURE 1. (3) (Fall) (Given in English) This course provides an overview of the history of German literature and culture from the Middle Ages to Goethe through a study of representative texts in English translation.

GERM 260 INDIVIDUAL AND SOCIETY IN GERMAN LITERATURE 2. (3) (Winter) (Given in English) This course provides a continuation of the overview of the history of German literature and culture from Goethe to the present through a study of representative texts in English translation.

GERM 300 GERMAN LANGUAGE INTENSIVE INTERMEDIATE. (6) (Winter) (6 hours, plus 1 hour laboratory) (Prerequisite: GERM 200 or GERM 202 or equivalent, or permission of Department) (Required for program students) Continuation of GERM 200; covers the second level (GERM 307D1/GERM 307D2) in one term.

GERM 307D1 (3), GERM 307D2 (3) GERMAN LANGUAGE - INTERMEDIATE. (Fall and Winter) (Prerequisite: GERM 202 or GERM 200, or equivalent,or permission of Department) (Students must register for both GERM 307D1 and GERM 307D2.) (No credit will be given for this course unless both GERM 307D1 and GERM 307D2 are successfully completed in consecutive terms) Review of grammar, further development of basic skills; literary and cultural readings.

GERM 325 GERMAN LANGUAGE - INTENSIVE ADVANCED. (6) (Fall and Winter) (6 hours) (Prerequisite: GERM 300 or GERM 307, or equivalent, or permission of Department.) (Required for program students.) This course aims at developing post-intermediate proficiency in listening, speaking, reading, and writing skills, with emphasis on oral and written expression. Special attention is given to word formation and to the proper choice of grammatical structures, vocabulary, and phraseology.

GERM 330 LANDESKUNDE. (3) (Winter) (Given in German) (Prerequisite: GERM 325 or equivalent, or permission of Department.)

GERM 331 GERMANY AFTER REUNIFICATION. (3) (Given in German) (Prerequisite: GERM 325 or equivalent, or permission of the Department) The events which led to the fall of the Berlin Wall, the reuncGuncGuncGuncGuncGuncGuncGuncGuncGuncGuncGunc(4.5 0 TD

of basic German grammar. The course can be taken concurrently with a language course at the third level.

GERM 341 ESSAY WRITING. (3) (Winter) (Given in German) (Prerequisite: GERM 325 or equivalent, or permission of Department) This course is designed to further develop the writing skills of students having attained the 325-level. The rhetorical strategies of writing will be studied and analyzed with different text genres: letters, curriculum vitae, summaries, book reviews, expository and argumentative essays, minutes, feature stories, term papers, etc. Particular attention will be paid to argumentation, vocabulary, and style.

GERM 342 TRANSLATION. (3) (Winter) (Given in German) (Prerequisite: GERM 325 or equivalent, or permission of Department)

GERM 345 BUSINESS GERMAN 1. (3) (Fall) (Given in German) (Prerequisite: GERM 325 or equivalent, or permission of the Department) This course introduces students to the terminology and syntax of Business German in contrast with English to ensure

plares, the Entremeses and other theatrical works. Some account of outstanding critical works on Cervantes.

HISP 453 20TH CENTURY SPANISH-AMERICAN POETRY. (3) (Fall) A study of representative trends and authors (Darío, Martí, Huidobro, Mistral, Vallejo, Neruda, Paz).

HISP 458 GOLDEN AGE DRAMA. (3)

HIST 234 GERMAN HISTORY TO 1648. (3) (Fall) (Not open to students who have taken 101-235D)

HIST 235 GERMAN HISTORY SINCE 1648. (3) (Winter) (Prerequisite: HIST 214 or HIST 234) (Not open to students who have taken 101-235D)

HIST 236 RUSSIA FROM 1801 TO 1991. (3)

HIST 292 HISTORY AND THE ENVIRONMENT. (3)

HIST 300 NATIONALISM IN CANADA. (3) (Prerequisite: HIST 203 or permission of instructor.) (Restriction: Not open to students who took CANS 300 (106-300A) before September 2002.)

HIST 301 U.S. PRESIDENTIAL CAMPAIGNING. (3) (Prerequisite: any course in U.S. history or consent of instructor)

HIST 303 HISTORY OF QUEBEC. (3) (Prerequisite: HIST 202/HIST 203) (The ability to read French is helpful but not mandatory) Covering Quebec history from New France to contemporary times, this course will include themes like ethnic relations, citizenship, gender and material culture. It is of particular interest to students in Education who foresee teaching about Quebec.

E203) (The ability to read French is hkC84brs80.2769 Tc -0.13gbo5 42 0 TD3is of part4s o9 Tc -"0.13gbo5 42 0 7c (H) Tj 4.5 0 TD -0.252 T

tions, Canadian-Imperial relations, the growth of Canadian diplomatic autonomy and participation in the League of Nations.

HIST 343 WOMEN IN POST-CONFEDERATION CANADA. (3) (Prerequisite: HIST 203) This course examines women's contribution to the economic and social development of Canada as well as the changes in the image and status of women. Special emphasis will be on the relationship between women's roles in the private sphere and the public domain.

HIST 344 POLICE INSTITUTIONS. (3) (Prerequisite: One course in British, Canadian or American history) The origins of law enforcement from Saxon juries through Norman justices of the peace, to

HIST 377 THE UNITED STATES, 1940-1965. (3) (Prerequisite: any course in U.S. history or consent of instructor) Major events in politics and international affairs, culture and society, and the economy in the U.S. during and after World War II. Topics include: The War and American society; the origins of the Cold War; economic prosperity and social change; the civil rights movement; Vietnam to 1965.

HIST 378 THE LATE ANTIQUE ROMAN WORLD. (3) (Prerequisite: HIST 209 or permission of instructor)

HIST 379 CLASSICAL GREEK DEMOCRACY. (3) (Prerequisite: HIST 205 or HIST 214 or any course in politics or permission of instructor)

HIST 380 WESTERN EUROPE: THE MIDDLE AGES. (3) (Not open to students who have taken 101-380D) History of Western Europe from the later Roman Empire through the 15th century: sub-roman and Carolingian civilization, feudal monarchy; the Church and the laity; domestic life and social institutions; cultural developments.

HIST 381 COLONIAL AFRICA: HE

course unless both HIST 464D1 and HIST 464D2 are successfully completed in consecutive terms)

HIST 465D1 (3), HIST 465D2 (3) SEMINAR: ITALIAN RENAISSANCE. (Prerequisite: HIST 214 or consent of instructor) (Students must register for both HIST 465D1 and HIST 465D2.) (No credit will be given for this course unless both HIST 465D1 and HIST 465D2 are successfully completed in consecutive terms)

HIST 466 SEMINAR: MEDIEVAL MEDICINE (3)

HIST 468D1 (3), HIST 468D2 (3) TOPICS: 19TH CENTURY U.S. HISTORY. (Prerequisite: any course in U.S. history or permission of instructor) (Students must register for both HIST 468D1 and HIST 468D2.) (No credit will be given for this course unless both HIST 468D1 and HIST 468D2 are successfully completed in consecutive terms)

HIST 469D1 (3), HIST 469D2 (3) TOPICS IN CANADIAN RELIGIOUS HISTORY. (Prerequisite: HIST 202 and HIST 203, plus HIST 357. A reading knowledge of French is highly recommended) (Students must register for both HIST 469D1 and HIST 469D2.) (No credit will be given for this course unless both HIST 469D1 and HIST 469D2 are successfully completed in consecutive terms)

HIST 470D1 (3), HIST 470D2 (3) TOPICS: HISTORICAL INTERPRETATION. (Students must register for both HIST 470D1 and HIST 470D2.) (No credit will be given for this course unless both HIST 470D1 and HIST 470D2 are successfully completed in consecutive terms)

HIST 476D1 (3), HIST 476D2 (3) SEMINAR: TOPICS IN RUSSIAN HISTORY. (Students must register for both HIST 476D1 and HIST 476D2.) (No credit will be given for this course unless both HIST 476D1 and HIST 476D2 are successfully completed in consecutive terms) Topic for 2004-05: Khrushchev, Perestroika, and the Gulag.

HIST 477D1 (3), HIST 477D2 (3) SEMINAR IN JEWISH HISTORY. (Students must register for both HIST 477D1 and HIST 477D2.) (No credit will be given for this course unless both HIST 477D1 and HIST 477D2 are successfully completed in consecutive terms)

HIST 480D1 (3), HIST 480D2 (3) CAPITALISM AND EMPIRE: EUROPEAN DOMINATION. (Students must register for both HIST 480D1 and HIST 480D2.) (No credit will be given for this course unless both HIST 480D1 and HIST 480D2 are successfully completed in consecutive terms)

HIST 483D1 (3), HIST 483D2 (3) HISTORY OF MONTREAL. (Prerequisite: HIST 202 and HIST 203 and other courses on French Canada or consent of instructor) (Students must register for both HIST 483D1 and HIST 483D2.) (No credit will be given for this course unless both HIST 483D1 and HIST 483D2 are successfully completed in consecutive terms) (Topic for 2004-05: H.B. Ames and the Montreal Reformers.)

HIST 485D1 (3), HIST 485D2 (3) SEMINAR IN JAPANESE HISTORY. (Prerequisite: HIST 208 or HIST 218 or consent of instructor) (Students must register for both HIST 485D1 and HIST 485D2.) (No credit will be given for this course unless both HIST 485D1 and HIST 485D2 are successfully completed in consecutive terms)

HIST 486D1 (3), HIST 486D2 (3) TOPICS: A **IEreq6.3353 Tw (den 1.5 0 TD -0.2520 (E) Tj) T79(I) Tj 2.25D /F2 7.5 Tf 0.2939 n TD /F2SS**

HIST 566 MODERN BRITAIN: SEMINAR 2. (3) (Prerequisite: HIST 565) (Restrictions: Not open to students who have taken HIST 484D1/D2 and/or HIST 634D1/D2.)

HIST 579 THE ARTS OF HEALING IN CHINA. (3) (Undergraduate Prerequisite: At least two courses at the 300-level or above in East Asian history or permission of instructor)

HIST 580D1 (3), HIST 580D2 (3) EUROPEAN AND NATIVE-AMERICAN ENCOUNTERS. (Undergraduate Prerequisite: permission of instructor.) (Priority is given to Graduate students) (Students must register for both HIST 580D1 and HIST 580D2.) (No credit will be given for this course unless both HIST 580D1 and HIST 580D2 are successfully completed in consecutive terms) This seminar will examine European and Native encounters throughout the Americas, from the late 15th century to the mid-nineteenth century. The aim is to introduce students to key primary sources related to contact, and to the methods used to interpret them.

HIST 581 THE ART OF WAR IN CHINA. (3) (Undergraduate Prerequisite: at least two 300-level or above courses in East Asian history, or permission of instructor)

HIST 582 EUROPEAN INTELLECTUAL HISTORY. (3) (Undergraduate Prerequisite: a previous course in European History or permission of instructor)

HIST 585 THEORY FOR HISTORICAL STUDIE

Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

ITAL – Italian (Arts)

Offered by: Department of Italian Studies
Former Teaching Unit Code: 132

Courses taught in English are clearly indicated. For courses taught in Italian, students must have completed at least ITAL215D1/ ITAL215D2 or ITAL216 (Intermediate Italian), Intermediate Italian in CEGEP or have equivalent knowledge. It is highly recommended that students complete at least one Intermediate Level I course before proceeding to Intermediate Level II and Advanced Level I. Advisers are available to help with the choice of courses.

Unless otherwise specified, all courses are given in Italian.

ITAL 199 FYS: ITALY'S LITERATURE

JWST 327 A BOOK OF THE BIBLE. (3) (Fall) (Prerequisite: Knowledge of Hebrew) One book of the Bible will be studied in its H

LING 555 LANGUAGE ACQUISITION 2. (3) (Winter) (Prerequisites: LING 355 and LING 371 and permission of instructor) A detailed overview of recent experimental work on first language acquisition of syntax within the principles and parameters framework, concentrating on both theoretical and methodological issues.

LING 560 FORMAL METHODS IN LINGUISTICS. (3) (Fall) (Prerequisite: LING 370 and permission of instructor) (Not open to students who have taken MATH 240) This course presents the formal methods used in the study of language (namely, the theories of sets, relations, functions, partial orders, and lattices, as well as the principle of mathematical induction).

LING 565 PRAGMATICS. (3) (Winter) (Prerequisites: LING 370 and PHIL 210 or permission of the instructor)

LING 571 SYNTAX 2. (3) (Fall) (Prerequisite: LING 371) This course extends and refines the theory of grammar developed in LING 371, while introducing some primary literature and developments (in certain modules of the grammar such as phrase struc-

PHIL 421 METAPHYSICS. (3) (Prerequisites: PHIL 210 or equivalent and one intermediate course in philosophy) An examination of central questions in metaphysics in their historical and contemporary forms. Topics may be chosen from such issues as: personal identity, the nature of space and time, the nature of events and properties, possible worlds, and the problem of realism.

PHIL 432 PHILOSOPHY OF RELIGION 2. (3)

PHIL 434 ETHICS 2. (3) (Prerequisite: PHIL 334 or written permission of the instructor) Advanced discussion of one or more themes in ethics. Topics will vary from year to year but may include such issues as the nature of rights and duties, moral realism and anti-realism, or the place of reason in morality.

PHIL 436 AESTHETICS 2. (3) (Prerequisite: PHIL 336 or written permission of the instructor)

PHIL 440 PHILOSOPHY OF SOCIAL SCIENCES 2. (3) (Prerequisite: PHIL 340 or written permission of the instructor) An advanced course on such topics as methodology of, or explanation, in the social sciences or models of rationality. Topics will vary from year to year.

PHIL 441 PHILOSOPHY OF SCIENCE 2. (3) (Prerequisite: PHIL 341 or written permission of the instructor) An analysis of some key philosophical ideas in science and technology, e.g. problem, explanation, forecast, testability and truth.

PHIL 442 TOPICS IN FEMINIST THEORY. (3) (Prerequisite: PHIL 242 and one intermediate course in philosophy)

PHIL 445 19TH CENTURY POLITICAL THEORY. (3) (Prerequisite: at least one course in political philosophy) (Not open to students who have taken POLI 434) An examination of various strands of political theory since Rousseau, concentrating on such themes as the understanding of modernity and theories of liberal society.

PHIL 446 CURRENT ISSUES IN POLITICAL PHI

PHIL 511 SEMINAR: PHILOSOPHY OF LOGIC AND MATHEMATICS. (3) (Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department.)

PHIL 515 SEMINAR: PHILOSOPHY OF LANGUAGE. (3) (Prerequisite: PHIL 415 or written permission of the instructor) (Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a topic in the philosophy of language.

PHIL 519 SEMINAR: EPISTEMOLOGY. (3) (Prerequisite: PHIL 420 or written permission of the instructor) (Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department.) An advanced course devoted to a topic in the theory of knowledge. Subject varies from year to year.

PHIL 521 SEMINAR: METAPHYSICS. (3) (Prerequisite: PHIL 421 or written permission of the instructor) (Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department.)

PHIL 534 SEMINAR: ETHICS. (3) (Prerequisite: PHIL 334 or written permission of the instructor) (Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department)

PHIL 540 SEM:

written permission of the instructor) Political change in South Asia in late colonial and post-colonial periods. Issues covered include social and cultural history; colonial rule, nationalism and state formation; democratic and authoritarian tendencies; economic policies and consequences; challenges to patterns of dominance and national boundaries; prospects for democracy, prosperity and equality.

POLI 323 DEVELOPING AREAS/CHINA AND JAPAN. (3) (Winter) (Prerequisite: A basic course in Comparative Politics or a course on the region or written permission of the instructor) A survey of traditional and modern political society in China and Japan. Special emphasis is placed on governmental policy and institutions in relation to ideology in the Peoples' Republic of China and post-1945 Japan.

[illegible]

POLI 324 DEVELOPING AREAS/AFRICA. [illegible]

Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

dents in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) (Maximum 25)

RUSS 210 ELEMENTARY RUSSIAN LANGUAGE 1. (3) (Fall) Reading, grammar, translation, oral practice.

RUSS 211 ELEMENTARY RUSSIAN LANGUAGE 2. (3) (Winter) (Prerequisite: RUSS 210 or equivalent) Russian Language; continuation of RUSS 210.

RUSS 215 ELEMENTARY RUSSIAN LANGUAGE INTENSIVE 1. (6) (Fall) (Not open to students who are taking or have taken RUSS 210, RUSS 211 or equivalent) An intensive introduction to the Russian language which covers the first year of the normal level, i.e. RUSS 210/RUSS 211 in one semester. The basic grammatical structures are covered.

RUSS 217 RUSSIA'S ETERNAL QUESTIONS. (3) (Permission of the instructor)

RUSS 218 RUSSIAN LITERATURE IN REVOLUTION. (3) (Winter) (Prerequisite: None, but some background in Russian 20C history is helpful) (Conducted in English)

RUSS 219 RUSSIAN LITERATURE IN RECOVERY. (3) (Fall) (Prerequisite: None, but some background in Russian 20C history is helpful) (Conducted in English) Rediscovering the Russian literary heritage, both traditional and avant-garde, after Stalin's death (1953). The Thaw, Soviet beatniks, Solzhenitsyn-style dissidents against cultural iconoclasts, the challenge and decline of perestroika, raising the literary Iron Curtain to include women writers, emigrés, Western influence and the angst of pluralism.

RUSS 223 RUSSIAN WRITERS - 19TH CENTURY. (3) (Fall) (Conducted in English) Designed for students interested in Russian literature and its authors. A broad overview acquainting them with the main Russian literary currents of the 19th century and with the

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Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

interactions; embodied experience; politics and policies of gender and health.

SOCI 418 HUMAN RIGHTS AND HUMANITARIANISM. (3) (Prerequisites: SOCI 210 or POLI 211) Human rights and humanitarian actors are increasingly important players in transnational and local politics. This course will study their motivations, methods of operation, and effectiveness. Whose interest do they serve - victims of war and repression, or the interests of powerful Western nations?

SOCI 420 ORGANIZATIONS. (3) (Prerequisites: SOCI 210 or SOCI 235) A survey of theories of organization with particular reference to problems of growth, technology, centralization and decentralization, and organizational environments.

SOCI 424 NETWORKS AND SOCIAL STRUCTURES. (3)

SOCI 435 POPULAR CULTURE. (3) A seminar exploring the nature of popular culture, tracing historical beginnings and contemporary changes in film, TV, comics, magazines, and rock music content. Emphasis on developing theoretical perspectives and methodologies for analysing genres and themes, and for making distinctions between so-called folk and popular art.

SOCI 440 CURRENT PROBLEMS. (3) (Prerequisite: permission of instructor. Open to U2 and U3 students only) Intended for students who are adequately prepared to undertake advanced work and have an explicit proposal to submit.

SOCI 441 CURRENT PROBLEMS IN SOCIOLOGY. (3) (Prerequisite: permission of instructor. Open to U2 and U3 students only) Intended for students who are adequately prepared to undertake advanced work and have an explicit proposal to submit.

SOCI 442 INDEPENDENT READING AND RESEARCH. (3) (Prerequisite: permission of instructor. Open to U2 and U3 students only) Intended for students who are adequately prepared to undertake advanced work and have an explicit proposal to submit.

SOCI 443 INDEPENDENT READING AND RESEARCH. (3) (Prerequisite: permission of instructor. Open to U2 and U3 students only) Intended for students who are adequately prepared to undertake advanced work and have an explicit proposal to submit.

SOCI 444 THE SOCIOLOGY OF LABOUR FORCE. (3) (Prerequisite: SOCI 235 or SOCI 333 or SOCI 312 or ECON 306, or permission

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on Quebec, in the fields of income and health care. Policy issues surrounding the programs are raised.

SWRK 353 INTRODUCTION R

SWRK 485 TUTORIAL: SOCIAL WORK PRACTICE. (3) (Fall and Winter and Summer) (Limited to B.S.W. U3 and Special B.S.W. students.) An individual or small group tutorial in which students will work independently in conjunction with the instructor. The student will undertake a project related to the area of specialization.

SWRK 486 TUTORIAL IN SOCIAL POLICY. (3) (Fall and Winter and Summer) (Limited to B.S.W. U3 and Special B.S.W. students.) An individual or small group tutorial in which students will work independently in conjunction with the instructor. The student will undertake a project related to the area of specialization.

SWRK 492 VIOLENCE AGAINST WOMEN AND CHILDREN. (3) (Winter) (Limited to B.S.W. U3, Special B.S.W., and Women's Studies Major/Minor Concentration students) Through a feminist theoretical lens, this course examines a range of male-perpetrated sexual and physical abuses of women and children. Such an examination includes critical appraisals of "common knowledge", research findings, dominant modes of intervention, and social welfare policies and legislation.

SWRK 493 SEMINAR ON CHILD PROTE

WMST 513 GENDER, RACE AND SCIENCE. (3) This course is a philosophical exploration of the nature of science concerning sex, gender, race and racial stereotypes, and the construction of "womanhood". The social history/biography of women and minorities in science will be studied to develop a critique of biological determin-

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sis on philosophical issues of music teaching at the secondary level.

EDEA 407 FINAL YEAR PROFESSIONAL SEMINAR MUSIC. (3)
(Corequisite: EDFE 407) (Restriction: Students in B.Ed. in Music

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Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

EDEC 241 CREE LANGUAGE 1. (3) Students will learn their own phonology and see how the phonological system is reflected in dialects. They will learn the spelling rules and develop their literacy skills in syllabics. Finally, they will derive Cree grammatical terms and begin to study Cree morphology and syntax.

EDEC 242 CREE LANGUAGE 2. (3) (Prerequisite: EDEC 241) Students will study the morphology and syntax analysis of Cree at a more advanced level and begin the study of word generation conventions. In addition, features of Cree that are difficult in first language acquisition will be highlighted and implications for classroom practice discussed.

EDEC 243 TEACHING: MULTIGRADE CLASSROOMS. (3) This course introduces students to concepts and strategies for organizing, teaching, and evaluating learning in classes in which there are students from 2, 3 or 4 grade levels.

EDEC 244 ISSUES IN ABORIGINAL EDUCATION. (3) The content of this course changes depending on the needs and interests of the students and the educational communities participating in programs administered by the Office of First Nations and Inuit Education. It always addresses issues related to Aboriginal education

EDEC 500 TUTORING WRITING. (3) Theory and practice of teaching writing through one-on-one conferencing. Focus on composition theory and research, rules of English usage, and tutorial teaching strategies. Practical experience offered through work in Writing Tutorial Service. Relevant for anyone who teaches or will teach in English at any level in any subject.

EDEE 290 COOPERATIVE LEARNING. (3) Principles of cooperative learning and how they may be applied in First Nations and Inuit schools to the creation of team-building classroom activities and to the development of culturally appropriate learning materials.

EDEE 291 CULTURAL VALUES AND SOCIALIZATION. (3) An introduction to the educational implications of cultural values and patterns of socialization of children. Topics will include a description of the cultural values of Aboriginal peoples, home styles of communication, learning and discipline and intercultural educational issues.

EDEE 292 USING INSTRUCTIONAL RESOURCES. (3) Students will learn to find, assess, and use a variety of instructional resources. Specifically, they will learn how to evaluate the instructional value of software packages and other established audio-visual materials; how to make and use simple audio-visual materials; and how to find additional resource material in the library.

EDEE 294 ALGONQUIN LANGUAGE 1. (3) Students will learn the Algonquin phonological system. They will focus on animate/inanimate and inflections for agreement, aspect, tense and number. They will analyze word generation conventions and derive Algon-

EDEM 405D1 (1.5), EDEM 405D2 (1.5) POLICY ISSUES IN QUEBEC EDUCATION. (Students must register for both EDEM 405D1 and EDEM 405D2.) (No credit will be given for this course unless both EDEM 405D1 and EDEM 405D2 are successfully completed in consecutive terms) (EDEM 405D1 and EDEM 405D2 together are equivalent to EDEM 405)

EDEM 450 CURRICULUM ALTERNATIVES. (3) (Offered through Summer Studies)

EDER – Religious Studies

Offered by: Department of Integrated Studies in Education

Former Teaching Unit Codes: 415 Catholic Studies, 421Protestant Studies, 422 Jewish Studies, 423Philosophy of Education

EDER 203 PHILOSOPHY OF RELIGION. (3)

EDER 204 MAN BEFORE REALITY. (3)

EDER 207 'WHO IS CHRIST?' (3) (Offered through Continuing Education)

EDER 208 PHILOSOPHY OF HUMAN NATURE. (3) (This course integrates theoretical material as well as contemporary film, [illegible] poetry, literature and ex[illegible]

EDER 523 TEACHING JUDAISM: BIBLE. (3) (Not open to students who have taken 422-401 / EDER 401) (Prerequisite: Knowledge of Hebrew, with permission of instructor)

EDER 525 TEACHING JUDAISM: HOLIDAYS. (3) (Not open to students who have taken 422-250 / EDER 252) An exploration of the rituals, customs, values and historical development of Jewish holidays. Methods of applying this material to the Jewish studies classroom are examined.

EDER 526 TEACHING JUDAISM: LITURGY. (3) (Not open to students who have taken 422-400 / EDER 407) (Prerequisite: Knowledge of Hebrew, with permission of instructor.)

EDER 528 TEACHING JUDAISM:THE HOLOCAUST. (3) (Not open to students who have taken 422-421 / EDER 421) An exploration of approaches and techniques for the teaching of the Holocaust. Strategies for using Holocaust education as a basis for discussing prejudice and moral responsibility are examined.

EDES – Secondary Education

Offered by: Department of Integrated Studies in Education
Former Teaching Unit Code: 425

EDES 303 PLANNING FOR TEACHING. (3)

EDES 350 CLASSROOM PRACTICES (SECONDARY). (3) Competency-based discipline skills and methods of classroom management, emphasizing the relationship between theory and practice; the rationale for various approaches to classroom management; strategies for developing instruction that focus attention and reduce off-task behaviour.

EDES 353 SECONDARY SCHOOL MATHEM PH EDES 353 S

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about ten days. Observations will include the use of observation schemes designed to capture information about second language classrooms and programs.

EDFE 246 F

Nations and Inuit) Students will teach a specific number of weeks in an elementary school environment.

EDFE 423 ABORIGINAL EDUCATION PRACTICUM 2. (3) (Restricted to students registered in the Certificate in Education for First Nations and Inuit) Students will teach a specific number of weeks in an elementary school environment.

EDFE 444 FIELD EXPERIENCE - ELEMENTARY SCHOOL. (3)

EDFE 444D1 (1.5), EDFE 444D2 (1.5) FIELD EXPERIENCE - ELEMENTARY SCHOOL. (Students must register for both EDFE 444D1 and EDFE 444D2.) (No credit will be given for this course unless both EDFE 444D1 and EDFE 444D2 are successfully completed in consecutive terms) (EDFE 444D1 and EDFE 444D2 together are equivalent to EDFE 444)

EDFE 451 FOURTH YEAR FIELD EXPERIENCE (SECONDARY). (7) (Prerequisites: EDFE 351, EDEC 351. Corequisite: EDEC 404 or EDSL 400 or EDSL 401) (Open to B.Ed. Secondary students only) This major field experience of about 35 days of student teaching will provide the opportunity to further enhance and develop teaching skills under the tutelage of school personnel. Students will be expected to assume more responsibility for student learning, classroom management and formative and summative evaluation.

EDFE 459 FOURTH YEAR FIELD EXPERIENCE (ESL/FSL). (7) (Prerequisites: EDSL 309 and EDFE 359. Corequisites: EDSL 409 and EDSL 458) The fourth-year field experience will consist of about 35 days of student teaching under the tutelage of experienced school personnel at the secondary level.

EDFE 460 ENSEIGNEM N7)

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leadership in fitness. Work will be in a community placement under a qualified sponsor selected with the approval of the Department.

EDKP 252 RACQUET SPORTS. (2) (Not open to students who have taken EDKP 226 and EDKP 235) Basic stroke techniques, rules and strategies, and teaching skills appropriate for various types of racquet sports.

EDKP 253 GYMNASTICS. (2) (Not open to students who have taken EDKP 216 and EDKP 210) Gymnatics skills, risk and safety concerns, discovery and direct teaching techniques, and evaluation strategies for the elementary and secondary school curricula.

EDKP 254 PRINCIPLES OF DANCE. (2) (Not open to students who have taken EDKP 202 and EDKP 243) Basic dance skills, dance as a movement form, dance curriculum content and dance teaching skills, and resources to support dance instructional programs.

EDKP 261 MOTOR DEVELOPMENT. (3) Changes apparent in motor behaviour from conception to old age. Two perspectives are emphasized: 1) contemporary and historical theories of human development, 2) development of motor behaviour and influences of physical growth, sensori-perceptual development, information processing and socio-cultural factors.

EDKP 292 NUTRITION AND WELLNESS. (3) (Not open to students who have taken EDKP 392) This course will examine the role of carbohydrates, fats, proteins, vitamins, minerals and water in a balanced diet. Students will be introduced to the affects of nutrition on exercise, sport performance and wellness. The validity of claims concerning nutrient supplements will be studied.

EDKP 293 ANATOMY AND PHYSIOLOGY. (3) (Not open to students who have taken EDKP 205 and EDKP 331) Basic foundations of structural, neuromuscular and visceral anatomy extending to the basic elements of the neuromuscular, circulatory and respiratory systems with emphasis on applications in instructional and coaching settings.

EDKP 300 SPECIAL TOPICS. (3) Content will vary from year to year and will be announced prior to registration. The course will be given by a single instructor or by a group, as the occasion warrants.

EDKP 303 ADVANCED BIOMECHANICS. (3) (Prerequisites: EDKP 205, EDKP 206.)

EDKP 307 EVALUATION IN PHYSICAL EDUCATION. (3) (Prerequisite: EDFE 246) (Not open to students who have taken EDKP 207) Measurement and evaluation techniques designed to assess progress in physical education settings.

EDKP 311 ATHLETIC INJURIES. (3) (Prerequisite: EDKP 205) (Offered through Continuing Education) This course is designed to educate students about the prevention, immediate care, and minor rehabilitation of athletic injuries. The course will focus on specific situations encountered in elementary, high school and fitness centers. An intensive academic program is coupled with practical lab sessions and field experience.

EDKP 314 BASKETBALL 2. (1)

EDKP 330 PHYSICAL ACTIVITY AND HEALTH. (3) This course introduces students to literature on the role of physical activity and general health and well-being. Students will examine issues of exercise adherence, exercise prescription and the economic impact of physical fitness programs in the workplace.

EDKP 331 HOMEOSTATIC PHYSIOLOGY. (3) (Prerequisite: EDKP 205)

EDKP 332 PHYSICAL EDUCATION CURRICULUM AND INSTRUCTION. (3) (Not open to P.E. Majors) Principles, programs and procedures that an elementary teacher may use to promote the designing and teaching of elementary school P.E.

EDKP 342 PHYSICAL EDUCATION METHODS. (3) This course is a prerequisite for all field experience and practice. Designed to prepare students for a teaching/leadership role in physical education. They will examine teaching/leadership effectiveness as it relates to organization and observation techniques, planning, instruction and evaluation of physical activity.

EDKP 350 PRACTICUM 2. (3) (Prerequisite: EDKP 250)

EDKP 350D1 (1.5), EDKP 350D2 (1.5) PRACTICUM 2. (Students must register for both EDKP 350D1 and EDKP 350D2.) (No credit will be given for this course unless both EDKP 350D1 and EDKP 350D2 are successfully completed in consecutive terms) (EDKP 350D1 and EDKP 350D2 together are equivalent to EDKP 350) A laboratory experience with a focus on fitness assessment, which is part of the test needed to become a Professional Fitness and Lifestyle Consultant.

EDKP 371 ALTERNATIVE FIELD EXPERIENCE. (3) (Prerequisite: EDFE 246)

EDKP 371D1 (1.5), EDKP 371D2 (1.5) ALTERNATIVE FIELD EXPERIENCE. (Students must register for both EDKP 371D1 and EDKP 371D2.) (No credit will be given for this course unless both EDKP 371D1 and EDKP 371D2 are successfully completed in consecutive terms) (EDKP 371D1 and EDKP 371D2 together are equivalent to EDKP 371)

EDKP 391 ERGO-PHYSIOLOGY. (3) (Prerequisite: EDKP 331) Emphasis is on human organic adaptability; acute and chronic adaptive mechanisms to exercise and other environmental stresses are analysed. A laboratory program is included to evaluate (measure and predict) adaptive capacity and assess factors affecting it.

EDKP 393 SKILL LEARNING AND EXPERTISE. (3) (Prerequisite: EDKP 261) (Not open to students who have taken EDKP 492) Cognitive perspective on sport skill learning and the development of expertise, and the roles of innate talent, practice and instruction.

EDKP 394 HISTORICAL PERSPECTIVES. (3)

EDKP 396 ADAPTED PHYSICAL ACTIVITY. (3) (Not open to students who have taken EDKP 496) Assessment, instruction and evaluation in physical activity for special populations. Emphasis on inclusion of people labelled intellectually disabled, learning disabled, physically awkward, autistic, visually or hearing impaired and physically disabled. Weekly lectures plus practical teaching lab.

EDKP 400 SPECIAL TOPICS. (3)

EDKP 442 PHYSICAL EDUCATION PEDAGOGY. (3) (Prerequisites: EDKP 342, EDFE 246 and EDFE 373) This pedagogy course builds on physical education methods and field experiences. It focuses on the developing teacher, the establishment of the learning environment, and the implementation of the varied teaching strategies. Principles of research on teaching in physical education are translated into practical techniques for application in the field.

EDKP 443 RESEARCH METHODS. (3) (Prerequisites: PSYC 204 or equivalent.)

EDKP 444 ERGONOMICS. (3) (Prerequisites: EDKP 205, EDKP 206, EDKP 331.)

EDKP 445 EXERCISE METABOLISM. (3) (Prerequisites: PHGY 201, PHGY 202, EDKP 391.)

EDKP 446 PHYSICAL ACTIVITY I. Y VC Tc 0 Tw (R) Tj -0.1978 Tw (EDKP 444
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work-study experience with a focus on administration and program development in fitness. Work will be in a community placement under a qualified sponsor selected with the approval of the Department.

EDKP 451 PERSONAL TRAINER PRACTICUM. (3)

EDKP 451D1 (1.5), EDKP 451D2 (1.5) PERSONAL TRAINER PRACTICUM. (Students must register for both EDKP 451D1 and EDKP 451D2.) (No credit will be given for this course unless both EDKP 451D1 and EDKP 451D2 are successfully completed in consecutive terms) (EDKP 451D1 and EDKP 451D2 together are equivalent to EDKP 451)

EDKP 452 FITNESS & LIFESTYLE CONSULTING. (3) (Prerequisites: EDKP 201, EDKP 249 and EDKP 350D1/D2.) This course prepares Kinesiology and Physical Education students for Professional Fitness and Lifestyle Consultant Certification from the Canadian Society of Exercise Physiology. Core competencies in ten subject domains as outlined in the certification guide will be reviewed. The certification process includes both theoretical and practical examinations.

EDKP 453 RESEARCH PRACTICUM IN KINESIOLOG

EDPC 542 COUNSELLING ROLE OF THE TEACHER. (3) (Offered through Continuing Education or Summer Studies.) Theory and practice in interpersonal communication, interviewing, group dynamics, group leadership management, and referral criteria and procedures for students with developmental problems who experience trauma or crisis. Addressed primarily to elementary and secondary teachers who combine instructional responsibilities with a supportive role in school guidance and counselling activities.

EDPC 562 CAREER EDUCATION AND GUIDANCE. (3) (Offered through Continuing Education or Summer Studies.) A review of career education and guidance programs that refer to the subject matter and related methods and techniques designed to foster the intellectual development of career awareness, career planning, career decison-making, and the necessary career-resilient employability skills for the school-to-work transition.

EDPE – Ed Psych & Couns (Psychology)

Offered by: Department of Educational & Counselling Psychology
Former Teaching Unit Code: 416

EDPE 208 PERSONALITY AND S 6

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EDSL 255 SECOND PROFESSI

EDSL 361 TESL/TFSL PRACTICUM - SECONDARY. (3) (Corequisites: EDSL 472 for TFSL students; EDSL 458 for TESL students) (Offered through Continuing Education)

EDSL 391 DIDACTIQUE DU FRANÇAIS EN ACCUEIL 1 uisite: EDSL 301.)

EDSL 392 GESTION DE CLASSE EN LANGUES SECONDES. (3) (Not open to students who have taken UdeM: PPA 3222.)

EDSL 393 ADOLESCENT ET EXPÉRIENCE SCOLAIRE. (3) (Not open to students who have taken UdeM: PPA 1210.)

EDSL 394 SÉMIM

ARCH 202 ARCHITECTURAL GRAPHICS AND ELEMENTS OF DESIGN. (6) (2-10-6) (Prerequisite: ARCH 201) Introduction to architectural design; consideration of building form in relation to program, structural system, material selection, site and climate; further development of skills in model making, conventional architectural drawing, axonometric and perspective drawing, sketching and architectural rendering. The course is based in the studio and includes lectures, seminars and field trips.

ARCH 217 FREEHAND DRAWING 1. (1) (0-2-1) Development of skills in drawing and observation through a series of exercises based on the study of the human figure in a studio setting. Media include pencil, charcoal, conte crayon, and pen and ink.

ARCH 218 FREEHAND DRAWING 2. (1) (0-2-1) (Prerequisite: ARCH 217) Continuation of ARCH 217. Development of graphic skills and visual literacy through exercises in life drawing. Introduction to basic colour theory: hue, intensity/dilution, temperature and emotional power. Additional media include coloured chalk and gouache.

ARCH 240 ORGANIZATION OF MATERIALS IN BUILDINGS. (3) (2-3-4) The characteristics of basic building materials: wood, steel, masonry and concrete. How building materials are shaped into building components, and how these components are integrated into the building envelope. Problems, laboratory projects and field trips to illustrate principles.

ARCH 250 ARCHITECTURAL HISTORY 1. (3) (3-0-6) The study of architecture in relation to landscape, urban form and culture, from Antiquity to the end of the Middle Ages.

ARCH 251 ARCHITECTURAL HISTORY 2. (3) (3-0-6) (Prerequisite: ARCH 250) Overview of early 20th century architecture with emphasis on a thematic approach to buildings and cities, architects and ideologies. The lectures will examine the origins, development and impact of canonical figures and buildings of Modernism.

ARCH 303 DESIGN AND CONSTRUCTION 1. (6) (2-10-6) (Prerequisite: ARCH 202) An exploration of the design of buildings. Projects emphasize the major social, technological, environmental, and symbolic aspects of the design process. Introduction to specific modelling, presentation, and documentation techniques. Discussions, readings, field trips and practical exercises.

ARCH 304 DESIGN AND CONSTRUCTION 2. (6) (2-10-6) (Prerequisite: ARCH 303) Continuation of Design and Construction I with projects of increasing complexity. Projects deal with particular aspects of architectural design and/or explore approaches to design methodology. Discussions, readings, field trips and practical exercises.

▭ **ARCH 319 THE CAMERA AND PERCEPTION.** (3) (2-4-3) (Prerequisite: ARCH 202) (Departmental permission required) An intensive study of man and the urban environment. Through the use of still photography, the relationship of time, motion, space, place and light are explored in order to gain insights into the urban environment. Topics include: "photographic seeing", light, survey of masters, history of photography, camera and darkroom techniques, tonal control, composition, etc.

ARCH 321 FREEHAND DRAWING 3. (1) (0-2-1) (Prerequisite: ARCH 218) Continuation of ARCH 218. Refinement of graphic skills and visual literacy through exercises in life drawing. Introduction to the materials and methods of watercolour painting.

ARCH 322 FREEHAND DRAWING 4. (1) (0-2-1) (Prerequisite: ARCH 321) Synthesis of ARCH 217, 218 and ARCH 321. Further refinement of graphic skills and visual literacy through exercises in life drawing. Students select and combine various media and apply them to diverse drawing and painting surfaces.

ARCH 324 SKETCHING SCHOOL 1. (1) (0-0-3) (Prerequisite: ARCH 218) An eight-day supervised field trip in the late summer to sketch places or things having specific visual characteristics. Students are required to include Sketching School I in the B.Sc.(Arch.) program.

▭ **ARCH 352 ART AND THEORY OF HOUSE DESIGN.** (3) (2-2-5) (Prerequisite: ARCH 202 or permission of instructor) An examination of the art and theory of the design of houses by architects who developed the form to perfection. Lectures and field trips will focus on the work of selected house architects from antiquity to the present.

ARCH 354 ARCHITECTURAL HISTORY 3. (3) (3-0-6) (Prerequisite: ARCH 250 and Arch 251) General introduction to Modern Architecture in Western Europe from the Renaissance to the end of the 19th century. The course uses a thematic approach and sources on specific ideas and works drawn particularly from Italy, France, England and Germany.

ARCH 355 ARCHITECTURAL HISTORY 4. (3) (3-0-6) (Prerequisite: ARCH 250 and ARCH 251) The study of architecture and cities in the postwar period. Emphasis placed on themes and approaches to architectural history, as opposed to traditional survey.

▭ **ARCH 372 HISTORY OF ARCHITECTURE IN CANADA.** (2) (2-0-4) (Prerequisite: ARCH 202) (Given alternate years, alternating with ARCH 388) French, British and American influences in the Maritime Provinces, Quebec and Ontario.

ARCH 375 LANDSCAPE. (2) (2-2-2) (Prerequisite: ARCH 202) Land form, plant life, microclimate; land use and land preservation; elements and methods of landscape design.

ARCH 377 ENERGY, ENVIRONMENT AND BUILDINGS. (2) (2-0-4) (Prerequisite: ARCH 202 or permission of instructor) Exploration of the interrelationship between energy, the environment, buildings, and people; case studies drawn from both contemporary and historical architectural precedents; principles of sustainable design; consideration of energy and environmental awareness as essential parameters in architectural design.

ARCH 378 SITE USAGE. (3) (2-0-7) (Prerequisite: ARCH 202 or permission of instructor) The study of the creation, form and usage of the exterior space generated in various patterns of low-rise housing. Socio-cultural aspects of patterns; exterior space as a logical extension of the living unit; social control of the use of urban and suburban land; comparative model for low-rise housing patterns.

▭ **ARCH 379 SUMMER COURSE ABROAD.** (3) (0-0-9) (Prerequisite: ARCH 202 or permission of instructor) (Departmental permission required) Study of a distinct urban environment and its key buildings; graphic recording and analysis of physical configuration, constructional peculiarities and present use. Excursions to neighbouring sites of special architectural interest.

ARCH 383 GEOMETRY AND ARCHITECTURE.(3) (2-0-7) (Prerequisite: ARCH 202 or permission of instructor) Geometry in the formal structure of design. Grids, lattices, polygons and polyhedra; proportional systems. Evidence of these figures and structures in natural objects and phenomena. Graphical and physical models. Application to architecture and the human environment. Case studies.

ARCH 388 INTRODUCTION TO HISTORIC PRESERVATION. (2) (2-2-2) (Prerequisite: ARCH 303) (Given alternate years, alternating with ARCH 372) Historic attitudes and terminologies of conservation; historic research techniques. Restoration technology of building materials and principles of interior design in the 19th and 20th centuries; current preservation planning.

ARCH 405 DESIGN AND CONSTRUCTION 3. (6) (2-10-6) (Prerequisite: ARCH 304) A structured investigation of architectural concepts; program interpretation with respect to relevant cultural, social and environmental contexts; applications of appropriate formal languages and building technologies in integrated proposals for a variety of building forms.

ARCH 406 DESIGN AND CONSTRUCTION 4. (6) (2-10-6) (Prerequisite: ARCH 405) A detailed study and comprehensive development of architectural proposals for complex building types and site conditions; the exploration of coherent initial concepts with respect to programmatic requirements, image and form; subsequent elaboration leading to meaningful and technologically viable designs for the built environment.

Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

ARCH 447 ELECTRICAL SERVICES. (2) (2-2-2) (Prerequisite: ARCH 304) Production, measurement and control of light; design of lighting systems; electrical distribution in residential and commercial buildings; Canadian Electrical Code.

ARCH 451 BUILDING REGULATIONS AND SAFETY. (2) (2-2-2) (Prerequisite: ARCH 405) The study of building codes with specific emphasis on the National Building and National Fire Codes of Canada. Examples of existing buildings with assignments to illustrate regulations. Development of a systematic approach to the implementation of codes during the preliminary design stage of an architectural project.

ARCH 461 FREEHAND DRAWING AND SKETCHING. (1) (0-3-0) (Prerequisite: ARCH 324) Drawing and sketching in pencil, charcoal and other media both in the studio and out-of-doors.

ARCH 471 COMPUTER-AIDED BUILDING DESIGN. (2) (2-2-2) (Prerequisite: ARCH 202 or equivalent) An introduction to selected applications of interactive computing in architecture; emphasis on development of simple algorithms in graphic, as well as non-graphic, modes in hands-on situations in the lab; field trips to several in use installations.

ARCH 490 SELECTED TOPICS IN DESIGN. (2) (2-0-4) (Prerequisite: ARCH 202 or permission of instructor) A course to allow the introduction of special topics in related areas of design.

ARCH 512 ARCHITECTURAL MODELLING. (3) (Prerequisites: ARCH 304 and ARCH 471 or equivalent.) (Restrictions: Not open to students who have taken ARCH 364.) Architectural modelling using advanced applications in digital media. Topics include: 3-D modelling and rendering; image editing; digital animation; hypertext and the World Wide Web; issues of representation and methodology; comparison of publishing applications. Projects complement design studio courses and independent studies that are student or instructor initiated.

ARCH 520 MONTREAL: URBAN MORPHOLOGY. (3) (2-1-6) (Prerequisite: ARCH 251)

ARCH 521 STRUCTURE OF CITIES. (3) (2-0-7) (Prerequisite: ARCH 202 or permission of instructor)

ARCH 522 HISTORY OF DOMESTIC ARCHITECTURE IN QUEBEC. (3) (2-0-7) (Prerequisite: ARCH 251) (Departmental permission required) The architecture of houses in Quebec from 1650 to the present. Distinguished buildings are reviewed from the point of view of form, style, siting and material, as influenced by climate, culture and architectural antecedents in France, England and the United States. The course material is presented through alternating bi-weekly lectures and seminars.

ARCH 523 SIGNIFICANT TEXTS AND BUILDINGS. (3) (2-0-7) (Prerequisite: ARCH 251) (Alternating with ARCH 524) (Departmental permission required) Critical study of significant architectural thought since 1750 as it has been expressed in buildings and texts (treatises, manifestos, criticisms). A specific theme will be addressed every year to allow in-depth interpretations of the material presented and discussed.

ARCH 524 SEMINAR ON ARCHITECTURA TD 0.2631 Tc -68 Tc (mate,) Tj T* 0.2735 Tc -0.1085 Tw 0 TD -0.252 Tc (S) Tj 4.5 0 2(H) Tj 4.5 TD -0.168 Tc (I) Tj 2.25 0 TD 0.084 T

presented and discussed.

ARCH 524 SEMINAR ON NXTS N R E

BMDE – Biomedical Engineering

Offered by: Department of Biomedical Engineering
Former Teaching Unit Code: 399

BMDE 500D1 (1.5), BMDE 500D2 (1.5) SEMINARS IN BIOMEDICAL ENGINEERING. (Students must register for both BMDE 500D1 and BMDE 500D2.) (No credit will be given for this course unless both BMDE 500D1 and BMDE 500D2 are successfully completed in consecutive terms)

BMDE 501 SELECTED TOPICS IN BIOMEDICAL ENGINEERING. (3) (3-0-6) An overview of how techniques from engineering and the physical sciences are applied to the study of selected physiological systems and biological signals. Using specific biological examples, systems will be studied using: signal or finite-element analysis, system and identification, modelling and simulation, computer control of experiments and data acquisition.

BMDE 502 BME MODELLING AND IDENTIFICATION. (3) (Prerequisites: Undergraduate basic statistics and: either BMDE 519, or Signals and Systems (e.g., ECSE 303 & ECSE 304) or equivalent) Methodologies in systems or distributed multidimentional processes. System themes include parametric vs non-parametric system representations; linear/non-linear; noise, transients and time variation; mapping from continuous to discrete models; and relevant identification approaches in continuous and discrete time formulations.

BMDE 503 BIOMEDICAL INSTRUMENTATION. (3) (2-1-6) The principles and practice of making biological measurements in the laboratory, including theory of linear systems, data sampling, computer interfaces, basic electronic circuit design and machining.

BMDE 504 BIOMATERIALS AND BIOPER

Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

CHEE 496 ENVIRONMENTAL RESEARCH PROJECT. (3) (1-6-2) (Prerequisite: CHEE 393 or permission of instructor.) Independent study and experimental work on an environmental topic chosen by consultation between the student and Departmental staff.

CHEE 496D1 (1.5), CHEE 496D2 (1.5) ENVIRONMENTAL RESEARCH PROJECT. (Students must register for both CHEE 496D1 and CHEE 496D2.) (No credit will be given for this course unless both CHEE 496D1 and CHEE 496D2 are successfully completed in consecutive terms) (CHEE 496D1 and CHEE 496D2 together are equivalent to CHEE 496) Independent study and experimental work on an environmental topic chosen by consultation between the student and Departmental staff.

CHEE 571 SMALL COMPUTER APPLICATIONS: CHEMICAL ENGINEERING. (3) (3-0-6) (Prerequisite: CHEE 458 or permission of the instructor.) The use of small computers employing a high level language for data acquisition and the control of chemical processes. Real-time system characteristics and requirements, analog to digital, digital to analog conversions and computer control loops are examined. Block level simulation.

CHEE 581 POLYMER COMPOSITES ENGINEERING. (3) (3-0-6) (Undergraduate Prerequisite: CHEE 481 or permission of instructor)

CHEE 591 ENVIRONMENTAL BIOREMEDIATION. (3) (3-0-6) The presence and role of microorganisms in the environment, the role of microbes in environmental remediation either through natural or human-mediated processes, the application of microbes in pollution control and the monitoring of environmental pollutants.

transportation systems, including vehicle motion and performance, pavements, geometric design of roadbeds, vehicle flow and capacity, traffic control, demand, supply and cost concepts.

CIVE 320 NUMERICAL METHODS. (4) (3-3-6) (Prerequisites: COMP 208, MATH 264 or MATH 265.) Numerical procedures applicable to civil engineering problems: integration, differentiation, solution of initial-value problems, solving linear and non-linear systems of equations, boundary-value problems for ordinary-differential equations, and for partial-differential equations.

CIVE 323 HYDROLOGY AND WATER RESOURCES. (3) (3-2-4) (Prerequisite: CIVE 302) Precipitation, evaporation and transpiration. Streamflow, storage reservoirs. Groundwater hydrology. Morphology of river basins. Statistical analysis in hydrology, stochastic modelling and simulation. Case studies in hydroelectric power development, flood damage mitigation, irrigation and drainage.

CIVE 324 CONSTRUCTION PROJECT MANAGEMENT. (3) (3-1-5) (Prerequisites: MIME 310 and CIVE 208) Construction fundamentals; procedures and responsibilities; tender documents, specifications, proposals, contracts; construction project organization, estimating, planning, scheduling, control; liability, claims procedures, arbitration; job safety; security and loss control; case histories, site visits.

CIVE 326 FLUIDS & HYDRAULICS LABORATORY. (1) (Not open to students who have take or have taken CIVE 327.) (Prerequisite: Course equivalent to CIVE 327 without laboratory component.) Laboratory experiments in fluid mechanics and hydraulics.

CIVE 327 FLUID MECHANICS AND HYDRAULICS. (4) (3-6-3) (Prerequisites: CIVE 206, MATH 264 or MATH 265.) Fluid properties; hydrostatics; dimensional analysis and similitude, fluxes of mass, momentum and energy; Bemoulli's equation; method of control volume; streamline curvature; potential flow and boundary layers; pipe flow, hydraulic machinery and introduction to open-channel

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out and a technical paper prepared under the supervision of a member of staff. The project must be established with the consent of the Staff Supervisor, and must be approved by the Department before registration. May be taken in conjunction with the required course CIVE 418 and the project therefore can be carried out through two semesters.

CIVE 492 STRUCTURES. (2) (2-2-2) (Prerequisites: CIVE 385 and CIVE 388) A study of structural systems in concrete, steel, timber; a philosophy of structure; choice of structure; economic factors in design; recent developments and trends in structure; lateral stability by frame action, bracing shear walls; mechanics of certain structural forms.

CIVE 512 ADVANCED CIVIL ENGINEERING MATERIALS. (3) (3-3-3) (Prerequisite: CIVE 202)

CIVE 514 STRUCTURAL MECHANICS. (3) (3-1-5) Stress, strain, and basic equations of linear elasticity. General and particular solutions of plane and axisymmetric problems. Stress concentration and failure criteria. Unsymmetrical bending of beams; shear centres; torsion of thin-walled structural members. Curved beams. Formulation and applications of energy principles, and their connection to finite-element method.

CIVE 519 SUSTAINABLE DEVELOPMENT PLANS. (6) (Corequisites: Enrolment in full "Barbados Field Study Semester"; AGRI 413, AGRI 452 or CIVE 452, URBP 507) (Restrictions: Not open to students who have taken AGRI 519 or URBP 519. Permission of the Coordinator of the Field Semester required.) Geared for solving real-world environmental problems related to water at the local, regional and international scale in Barbados. Projects to be designed by instructors in consultation with university, government and NGO partners and to be conducted by teams of 2 to 4 students in collaboration with them.

CIVE 526 SOLID WASTE MANAGEMENT. (3) (3-2-4) (Prerequisite: CIVE 225)

CIVE 527 RENOVATION AND PRESERVATION: INFRASTRUCTURE. (3) (3-2-4) (Undergraduate Prerequisites: CIVE 202 and CIVE 318) Maintenance, rehabilitation, renovation and preservation of infrastructure; infrastructure degradation mechanisms; mechanical, chemical and biological degradation; corrosion of steel; condition surveys and evaluation of buildings and bridges; repair and preservation materials, techniques and strategies; codes and guidelines; case studies.

CIVE 540 URBAN TRANSPORTATION PLANNING. (3) (3-1-5) (Prerequisite: CIVE 319 or permission of instructor.) Process and techniques of urban transportation engineering and planning, including demand analysis framework, data collection procedures, travel demand modelling and forecasting, and cost-effectiveness frame-

functions, expectation; statistical independence, laws of large numbers, central limit theorem; introduction to random processes and random signal analysis.

ECSE 321 INTRODUCTION TO SOFTWARE ENGINEERING. (3) (3-1-5) (Prerequisite: COMP 202 or COMP 208) (Tutorials assigned by instructor.) Design, development and testing of software systems. Software life cycle: requirements analysis, software architecture and design, implementation, integration, test planning, and maintenance.The course involves a group project.

ECSE 322 COMPUTER ENGINEERING. (3) (3-0-6) (Prerequisites: ECSE 200 or MECH 383, and ECSE 221) (Not open to students who have taken ECSE 222) (Tutorials assigned by instructor.) Data structures (arrays, lists, stcks, queues, dequeues and trees) and their machine representation and simple algorithms. Peripheral devices: printers, keyboards, magnetic type drives, magnetic disc drives. Peripheral interfacing and busses. Introduction to operating systems. System integration. Computer systems and networks.

ECSE 323 DIGITAL SYSTEM DESIGN. (5) (3-6-6) (Prerequisites: ECSE 221, ECSE 291 and EDEC 206) (Tutorials and lab hours assigned by instructor.) Minimization and synthesis of combinational logic and finite state machines. Synthesis of synchronous and asynchronous sequential circuits. Principles of control design. Basic concepts in design for testability. The laboratory experiments involve the design and testing of digital systems using small and medium scale integrated circuits. CAD software is used in the

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ECSE 424 HUMAN-COMPUTER INTERACTION. (3) (3-4-2) (Prerequisite: ECSE 322) The course highlights human-computer interaction strategies from an engineering perspective. Topics include user interfaces, novel paradigms in human-computer interaction, affordances, ecological interface design, ubiquitous computing and computer-supported cooperative work. Attention will be paid to issues of safety, usability, and performance.

ECSE 425 COMPUTER ORGANIZATION AND ARCHITECTURE. (3) (3-0-6) (Prerequisites: ECSE 322 and ECSE 323) (Tutorials assigned by instructor.) Trends in technology. CISC vs. RISC architectures. Pipelining. Instruction level parallelism. Data and Control Hazards. Static prediction. Exceptions. Dependencies. Loop level parallelism. Dynamic scheduling, branch predicition. Branch target buffers. Superscalar and N-issue machines. VLIW. ILP techniques. Cache analysis and design. Interleaved and virtual memory. TLB translations and caches.

ECSE 426 MICROPROCESSOR SYSTEMS. (3) (1-3-5) (Prerequisites: ECSE 323 and EDEC 206) (This course may be counted as a technical complementary or a lab complementary.) (Limited Enrolment (50)) (Lab hours assigned by instructor.) Introduction to current microprocessors, their architecture, programming, interfacing and operating systems. The course includes lectures, use of crossassemblers, and simulators as well as laboratory experiments on actual microprocessor hardware.

ECSE 427 OPERATING SYSTEMS. (3) (3-3-3) (Prerequisite: ECSE 322 or COMP 273) (Tutorials assigned by instructor.) Operating system services, file system organization, disk and cpu scheduling, virtual memory management, concurrent processing and distributed systems, protection and security. Aspects of the DOS and UNIX operating systems and the C programming language. Programs that communicate between workstations across a network.

ECSE 428 SOFTWARE ENGINEERING PRACTICE. (3) (3-4-2) (Prerequisite: ECSE 321 or COMP 335) Software engineering practice in industry, related to the design and commissioning of large software systems. Ethical, social, economic, safety and legal issues. Metrics, project management, costing, marketing, control, standards, CASE tools and bugs. The course involves a large team project.

ECSE 429 SOFTWARE VALIDATION. (3) (3-0-6) (Prerequisite: ECSE 321) Correct and complete implementation of software requirements. Verification and validation lifecycle. Requirements analysis, model based analysis, and design analysis. Unit and system testing, performance, risk management, software reuse. Ubiquitous computing.

ECSE 430 PFW

junctions, selective area PN junctions and MOSFETs. Design and fabrication of simple MOS circuits. Electrical characterization of devices and circuits.

ECSE 486 POWER LABORATORY. (2) (1-3-2) (Prerequisites: EDEC 206, ECSE 334, and ECSE 361) (Limited Enrolment - 14) (Lab hours assigned by instructor.) Techniques of electric power, efficiency, torque, speed measurements. Starting, running and control of electric machines: dc, synchronous, induction types. Power electronic controllers. Each group of students has access to a compact experiment bench containing a set of micro-machines and all the necessary equipment.

ECSE 487 COMPUTER ARCHITECTURE LABORATORY. (2) (0-3-3) (Prerequisite: EDEC 206. Corequisite: ECSE 425 or ECSE 525) (Limited enrollment -50) (Requires Permit to Register. See Department web site.) (Lab hours assigned by instructor.) Basic software tools used in the design, synthesis and analysis of computer and communication systems such as data-paths, switching circuits, and arithmetic and logic circuits. Behavioral and structural modeling of hardware designs in the IEEE standard hardware description language VHDL. Synthesis and implementation of hardware designs using Programmable Logic Devices.

ECSE 488 HIGH

face finish, threaded fasteners, standard mechanical components: motors, cylinders, bearings, gears and other elements. Sections and pictorials. Bills of material and cataloging. Computer lab exercises are assigned.

MECH 292 DESIGN 1. (3) (1-3-5) (Prerequisites: MECH 260 and MECH 291. Pre-/Co-requisite: CIVE 207) Introduction to design. Problem formulation; idea generation; feasibility study; preliminary design; design; analysis, design evaluation, project management, and optimal design.

MECH 309 NUMERICAL METHODS IN MECHANICAL ENGINEERING. (3) (3-1-5) (Prerequisites: MATH 261 or MATH 263, MATH 266 or MATH 271, COMP 208.) Numerical techniques for problems commonly encountered in Mechanical Engineering are presented. Chebyshev interpolation, quadrature, roots of equations in one or more variables, matrices, curve fitting, splines and ordinary differential equations. The emphasis is on the analysis and understanding of the problem rather than the details of the actual numerical program.

MECH 314 DYNAMICS OF MECHANISMS. (3) (3-1-5) (Prerequisite: MECH 210) First principles of analysis; motion; position; displacement; velocity; acceleration; force; inertia and its effects. Kinematic and dynamic analysis of rigid bodies in pure rotation and in pin-connected systems; dynamic balance. Rigid bodies in rolling contact; planetary gear-trains. Bodies in sliding contact; lower and higher sliding pairs.

MECH 315 MECHANICS 3. (4) (4-1-7) (Prerequisites: MECH 220 and (MATH 266 or MATH 271). Pre-/Co-requisite: CIVE 207.) Single-degree-of-freedom systems; free vibrations; effect of damping; response to harmonic, periodic and arbitrary excitation. Lagrange's equations of motion. Vibrations of multi-degree-of-freedom systems. Continuous systems.

MECH 321 MECHANICS OF DEFORMABLE SOLIDS. (3) (3-1-5) (Prerequisite: CIVE 207) Modern phenomenological theories of the behaviour of engineering materials. Stress and strain concepts and introduction to constitutive theory. Applications of theory of elasticity and thermoelasticity. Introduction to finite element stress analysis methods.

MECH 331 FLUID MECHANICS 1. (3) (3-1-5) (Prerequisite: MECH 210. Pre-/Co-requisites: MECH 220, MECH 240 and (MATH 266 or MATH 271).) Physical properties of fluids. Kinematics and dynamics of fluid flow: stress in a continuum, rates of strain, rotation. Control volume analysis; conservation of mass, linear momentum and energy; Euler and Bernoulli equations; Flow measurement. Dimensional analysis and dynamical similarity. Laminar and turbulent flow in pipes and boundary layers.

MECH 341 THERMODYNAMICS 2. (3) (4-0-5) (Prerequisite: MECH 240) Generalized thermodynamics relations. Real gas effects, gas tables, dense gas equations of state and generalized compressibility, enthalpy, and entropy charts. Vapour and gas power cycles (coal/nuclear power plants). Refrigerators and heat pumps. Psychrometry and air conditioning processes. Thermodynamics of reactive gas mixtures.

MECH 346 HEAT TRANSFER. (3) (3-1-5) (Prerequisites: MECH 240 or ABEN 301, MECH 331 or ABEN 305, MATH 266 or MATH 271 or ABEN 319.) Basic concepts and overview. Steady and unsteady heat conduction. Fin Theory. Convective heat transfer: governing equations; dimensionless parameters; analogy between momentum and heat transfer. Design correlations for forced, natural, and mixed convection. Heat exchangers. Radiative heat transfer: black- and gray-body radiation; shape factors; enclosure theory. Thermal engineering design project.

MECH 362 MECHANICAL LABORATORY 1. (2) (0-3-3) (Prerequisite: MECH 261 or MECH 262 or ABEN 216) Experiments will be performed in four areas: MECH 240 Thermodynamics, MECH 315 Vibrations, MECH 331 Fluid Mechanics 1, and MECH 346 Heat Transfer. Students should sign up to do experiments in one or more areas the term following the completion of one or more of the above courses. Students will not formally register for this course until the term in which they will complete all of the experiments.

MECH 383 APPLIED ELECTRONICS AND INSTRUMENTATION. (3) (3-2-4) (Prerequisites: MECH 261 or MECH 262, and (MATH 261 or MATH 263).) Discrete and integrated components, both analogue and digital. Characteristics of passive elements. Semiconductors, amplifiers, filters, oscillators, modulators, power supplies and nonlinear devices. Introduction to digital electronics. Transducer/signal conditioner interfacing considerations.

MECH 393 DESIGN 2. (3) (3-3-3) (Prerequisites: MECH 292 and EDEC 206. Pre-/co-requisites: MECH 314 and MIME 260) The design of machine elements for strength requirements in consideration of various methods of manufacture. Synthesis of mechanical systems to fulfill performance requirements, following the engineering design process. Static and fatigue failure prevention. Students form groups to work on a design project.

MECH 403D1 (3), MECH 403D2 (3) THESIS (HONOURS). (0-6-12) (Prerequisite: Candidates must have completed courses in the Mechanical Engineering Program weighted at a minimum of 60 credits.) (Students must register for both MECH 403D1 and MECH 403D2.) (No credit will be given for this course unless both MECH 403D1 and MECH 403D2 are successfully completed in consecutive terms) This course, together with course MECH 404 involves a research project containing an explicit component of design, encompassing interrelated aspects of engineering theory and requiring a theoretical and/or experimental investigation. Students will work under the supervision of one or more staff members; completed work will be submitted in the form of a thesis.

MECH 403N1 THESIS (HONOURS). (3) (Students must also register for MECH 403N2) (No credit will be given for this course unless both MECH 403N1 and MECH 403N2 are successfully completed in a twelve month period) This course, together with course MECH 404 involves a research project containing an explicit component of design, encompassing interrelated aspects of engineering theory and requiring a theoretical and/or experimental investigation. Students will work under the supervision of one or more staff members; completed work will be submitted in the form of a thesis.

MECH 403N2 THESIS (HONOURS). (3) (Prerequisite: MECH 403N1) (No credit will be given for this course unless both MECH 403N1 and MECH 403N2 are successfully completed in a twelve month period) See MECH 403N1 for course wiD T* 0.2656 bhB0 -9. TD /F2 7.

Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

MIME 209 MATHEMATICAL APPLICATIONS. (3) (3-2-4) Introduction to stochastic modelling of mining and metallurgical engineering processes. Description and analysis of data distributions observed in mineral engineering applications. Modelling with linear regression analysis. Taylor series application to error and uncertainty propagation. Metallurgical mass balance adjustments.

MIME 212 ENGINEERING THERMODYNAMICS. (3) (3-1-5) Macro versus microscopic approach: patterns of Nature. First and second laws and their uses. Property relationships: free energies, chemical potentials, activities, heat capacity. Chemical equilibrium. Reaction kinetics. Phase equilibrium for a pure substance. Experimental methods. Engineering applications: high-temperature metallurgical reactors, turbines, mixtures and solutions, phase diagrams, superconductivity.

MIME 221 ENGINEERING PROFESSIONAL PRACTICE. (2) (3-1-2) Introduction to the engineering profession. Rights and code of conduct for students. Regulation of the engineering profession. Law/liability. Principles of engineering ethics. Ethical problems of engineers in industry, management, and private practice. The engineer's duty to society and the environment. Occupational health and safety. Engineering case histories.

MIME 260 MATERIALS SCIENCE AND ENGINEERING. (3) (2-2-5) Structure properties and fabrication of metals, polymers, ceramics, composites; engineering properties: tensile, fracture, creep, oxidation, corrosion, friction, wear; fabrication and joining methods; principles of materials selection.

MIME 261 STRUCTNGINSEES

Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

approved by an academic advisor. A comprehensive report and a seminar presentation are required for the project.

MIME 494 INDUSTRIAL WORK PERIOD 4. (2) (Prerequisites: MIME 419, MIME 426, MPMC 328 and MPMC 421) A four-month industrial work period after which the student must submit a report.

MIME 515 ADVANCED METALLURGICAL AND MATERIALS THERMODYNAMICS. (3) (2-2-5) (Prerequisite: MIME 212)

MIME 520 STABILITY OF ROCK SLOPES. (3) (3-0-6) (Prerequisite: permission of instructor.) The properties of rock masses and of

ENVR 380 TOPI

ACCT 431 EXTERNAL AUDITING. (3) (Prerequisite: ACCT 413)

ACCT 434 TOPICS IN ACCOUNTING. (3) (Open to advanced students only) Topics will be selected from current issues in the Accounting Area.

ACCT 453 ADVANCED FINANCIAL ACCOUNTING. (3) (Prerequisites: ACCT 352, ACCT 362 and ACCT 385) (Open only to Accounting Honours students) Reporting relevant financial information subsequent to long term intercorporate investments. The preparation of consolidated financial statements with emphasis on their economic substance rather than legal form.

ACCT 454 FINANCIAL REPORTING. (3) (Prerequisites: ACCT 352, ACCT 362 and ACCT 385) (Open only to Accounting Honours students)

ACCT 455 DEVELOPMENT OF ACCOUNTING THOUGHT. (3) (Prerequisites: ACCT 352, ACCT 362 and ACCT 385) (Open only to Accounting Honours students) The conceptual underpinning of accounting thought, including its historical development and the modifications that have occurred over time. A review of accounting literature and its relevance to practice.

ACCT 463 ADVANCED MANAGEMENT ACCOUNTING. (3) (Prerequisites: ACCT 362, Tc (H) b0.168 Tc 0 10 -9.75 243-118396 eft ACCT 362 and ACCT 385) (Open only to rlgi0nrnn0 TD 0urs students) RTc (Oei03

FINE – Finance

Offered by: Management
Former Teaching Unit Code: 274

FINE 342 FINANCE 2. (3) (For Finance Concentration/Major/Honours) (Prerequisites: MGCR 341 and MGCR 272) (Only one of FINE 342 or FINE 343 can be counted for credit) A second course in Finance for students pursuing the Finance Concentration. In

sion of the existing institutional stucture, the historical and recent developments in these systems, the role of multi-national corporations, as well as the current economic and political context.

INDR 492 PUBLIC POLICY IN INDUSTRIAL RELATIONS. (3) (Prerequisite: INDR 294) Development and structure of legislative framework governing labour-management relations. Court cases, arbitration precedents, labour relations board activities, and public attitudes; the formation of a public policy for labour relations. Major issues in shaping labour policy, and the linkages between policy and experience in labour management relations. The federal and Quebec jurisdictions.

INDR 494 LABOUR LAW. (3) (Prerequisite: INDR 294) (Management: Open to Labour-Management Relations Major students in U3) Introduction to the basic concepts of labour law relevant to the practice of industrial relations. Historical development of labour law in certain social and legal systems and the culmination in the legislative enactments and jurisprudence of Canadian jurisdictions and certain comparative foreign models.

INDR 495 LABOUR RELATIONS: PUBLIC SECTOR. (3) (Prerequisite: INDR 294) Labour relations in federal, provincial, municipal, and quasi-public services such as hospitals, schools, government agencies and boards. Contentious current issues in public service labour relations and compare and analyze the alternative methods that have been evolved to deal with them.

INDR 496 COLLECTIVE BARGAINING. (3) (Prerequisite: INDR 294) Principles of collective bargaining in Canada and abroad. Problem oriented. Mock collective bargaining sessions provide an opportunity for students to apply knowledge gained.

INDR 497 CONTRACT ADMINISTRATION. (3) (Prerequisite: INDR 294) The processes of grievance handling and arbitration under the terms of collective bargaining agreements. Substantive and procedural issues as well as behavioral and policy aspects of contract administration.

INSY – Information Systems

Offered by: Management

Former Teaching Unit Code: 273

INSY 332 ACCOUNTING INFORMATION SYSTEMS. (3) (Prerequisites: MGCR 331 and MGCR 211) Accounting cycles and information flows and the systems that manage those flows. Principals of systems development and data management as relates to accounting information. Relationship between accounting applications and transaction processing systems. Practical experience with accounting packages.

INSY 333 SYSTEMS ANALYSIS AND MODELLING. (3) (Prerequisite: MGCR 331) Techniques for conducting systems requirements analysis and project management using structured analysis for specifying both manual and automated systems. Focuses on the role of the analyst in investigating the current organizational environment, defining information system requirements, working with technical and non-technical staff, and making recommendations for system improvement. Analysis Project.

INSY 334 BUSINESS PROGRAMMING DEVELOPMENT. (3) (Prerequisite: INSY 342)

INSY 341 BUSINESS SYSTEMS DESIGN I. (3) (Prerequisite: MGCR 331) Principals of business systems design applied to a procedural language development environment. Emphasis on modularization and maintainability. Introduction to standard program structures including control, repetition, arrays, procedures and functions, and parameter passing. Hands on projects using a high level procedural language.

INSY 342 BUSINESS SYSTEMS DESIGN 2. (3) (Prerequisite: INSY 341) Continuation of INSY 341. Emphasis on data structures and file design and management in business applications. EN 2. STD EVELS

INSY 422 O LT DEVELstructures includral language development environment. Emphasis on modular-

work structuring and the larger environment. Interdependence of individual, group and organization task and structure.

MGCR 271 STATISTICS 1. (3) (Prerequisite: MATH 131 or equivalent) (Not open to students who have taken or are taking MATH 323, PSYC 204, ECON 227, ECON 257) (You may not be able to receive credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) Statistical concepts and methodology, their application to management problems. Topics include: descriptive statistics; probability theory, random variables, important discrete and continuous probability distributions, sampling and sampling distributions, interval estimation and index numbers.

MGCR 272 STATISTICS 2. (3) (Prerequisite: MGCR 271) (Not open to students who have taken or are taking MATH 324, PSYC 307,

Many critical questions will be explored, such as: why do industries globalize? how do firms expand and grow internationally? what are strategies that firms can use to compete internationally? Many industries will be covered, such as: telecommunications, airlines, footwear, and automobiles.

MGPO 470 STRATEGY AND ORGANIZATION. (3) This course explores how strategic change affects the organization and how the organization can be designed to realize its strategy more effectively. It will examine how strategic choices affect organizational structures, processes, culture, human resource policies, leadership styles, etc. and how the organization can be aligned with the organizational mission.

MGPO 562 SEMINAR IN ORGANIZATIONAL STRATEGY. (3) (U3 standing or permission of the instructor)

MGPO 567 BUSINESS IN SOCIETY. (3) (U2 and U3 students only)

social class, demographic factors and culture, to analyze their effects on purchasing behaviour.

MRKT 453 ADVERTISING MANAGEMENT. (3) (Prerequisite: MRKT

229 and MUSP 231 AND MUSP 170 and MUSP 171. Open only to students in Composition) (Students must register for both MUCO 245D1 and MUCO 245D2.) (No credit will be given for this course unless both MUCO 245D1 and MUCO 245D2 are successfully completed in consecutive terms) 20th Century techniques and approaches. Basic dimensions such as pitch, rhythm and timbre, and their inter-relationship at all structural levels. Notation and score preparation. Performance practice. Analysis of selected 20th Century scores. Writing of short pieces for solo instruments and small ensembles, including voice.

MUCO 260 INSTRUMENTS OF THE ORCHESTRA. (2) (2 hours) (Prerequisite: MUTH 111 or equivalent) An introductory study of the instruments of string, woodwind and brass families, elementary acoustics of the instruments. Techniques of playing including embouchure, fingering, bowing, hand-stopping, transposing instruments. Evo70 3.75 06.5 l 577 73.5 051 pe./051 Tc (E) lw (embouchure, finmbouchu1e657ehlns masifrom 06.51820tc Century to the ps Cece.) Tj 0

MUEN 486 OPERA COACHING. (1) (3-6 hours) (Prerequisite: open to advanced pianists by audition and with the approval of Director of Opera Studies; may be repeated for credit) Supervised playing of Opera McGill scenes and productions; repetiteur and rehearsal pianist responsibilities; playing of performance of operatic scenes.

MUEN 487 CAPPELLA MCGILL. (2) (4 hours) (Prerequisite: Audition) (May be taken instead of Choral Ensemble) An ensemble of 16 voices performing challenging repertoire from the Renaissance to the present day. Since the expection is a level of performance equivalent to a professional chamber ensemble, singers wishing to join this group should have had considerable ensemble experience, and advanced vocal and sight-reading skills.

MUEN 488 ENSEMBLE. (1)

MUEN 489 WOODWIND ENSEMBLES. (1) (2-3 hours) (Prerequisite: audition)

MUEN 490 MCGILL WINDS. (2) (4-6 hours) (Prerequisite: audition)

MUEN 491 BRASS ENSEMBLES. (1) (2-3 hours) (Prerequisite: audition)

MUEN 492 CHAMBER JAZZ ENSEMBLE. (2) (Open to Jazz Performance students only.) This ensemble will deal with the extensive repertoire of music which exists for small jazz orchestra (9-13 instruments).

MUEN 493 CHORAL ENSEMBLES. (2) (4 hours) (Prerequisite: audition) (Section 01 Chamber Singers: a group of approximately 24 mixed voices which explores the a capella repertoire of all periods as well as works with chamber accompaniment) (Section 02 Concert Choir: an ensemble of approximately 60 voices (S.A.T.B.) which performs the repertoire from all periods appropriate to a group of this size) (Section 03 University Chorus: a mixed chorus of approximately 100 which performs a variety of choral material including both traditional and popular selections) (Section 04 Women's Chorale: an ensemble of approximately 40 women stressing the fundamentals of singing and ensemble participation) Students enroling in Choral Ensembles will be assigned to one of the above groups.

MUEN 494 CONTEMPORARY MUSIC ENSEMBLE. (2) (4 hours) (Prerequisite: audition)

MUEN 495 JAZZ ENSEMBLES. (2) (3-4 hours) (Prerequisite: audition)

MUEN 496 OPERA STUDIO. (4) (3-6 hours) (Prerequisites for B.Mus. (Majors & Honours) & L.Mus.: MUHL 184, MUHL 185, MUTH 110, MUTH 111, MUSP 129, MUSP 131. Other prerequisites for B.Mus. (Majors & Honours) only: MUHL 210, MUHL 211, MUSP 229. Open to Voice Performance students by audition and with practical teacher's approval; open to others by special permission; may be repeated for credit.)

MUEN 497 ORCHESTRAL ENSEMBLES. (2) (6-7 hours) (Prerequisite: audition)

MUEN 498 PERCUSSION ENSEMBLES. (1) (2-3 hours)

MUEN 499 STRING ENSEMBLES. (1) (2-3 hours) (Prerequisite: audition) (Guitar ensemble is restricted to Performance Majors only) (Section 01 Chamber Music) (Section 02 Bass Ensemble) (Section 03 Guitar Ensemble)

MUEN 596 OPERA REPETITEUR. (2) (6 hours) (Open by audition to advanced pianists, and to students in conducting, who are interested in training as operatic coaches. Students enrolled for piano instruction at McGill must also have their practical teacher's approval)

MUGT – General Music Techniques

Offered by: Department of Theory
Former Teaching Unit Code: 222

Note: Preference will be given to Music Education students in all MUGT courses.

MUGT 205 PSYCHOLOGY OF MUSIC. (3)

MUGT 215 BASIC CONDUCTING TECHNIQUES. (1) (1 hour) (Prerequisites: MUTH 110, MUTH 111, MUSP 129.) Development of basic manual dexterity and rehearsal skills. Topics include: preparatory posture, establishing tempo, releases, simple duple and triple metre beat patterns, cueing, dynamics, fermata, transposition, terminology, score preparation, and listening.

MUGT 301 TECHNOLOGY AND MEDIA FOR MUSIC EDUCATION. (3) (3 hours)

MUGT 305 INTRODUCTION TO MUSIC THERAPY. (3) (3 hours) (Prerequisites: MUTH 210 and MUSP 229) Introduction to basic principles and techniques of music therapy. Topics will include: definitions of music therapy; identifying and developing an understanding of the individual's special needs; simple social, emotional, and physiological therapeutic applications; and music as a motivational tool. Will include limited field observation.

MUGT 355 MUSIC IN EARLY CHILDHOOD. (3) (3 hours)

MUGT 356 MUSIC FOR CHILDREN 1: PHILOSOPHY AND TECHNIQUES. (3) (3 hours) (Prerequisite: none) Introduction to techniques for cultivating musical understanding and creativity in children from age 6 to 12. Traditional and contemporary approaches such as Orff, Kodaly, Dalcroze, Montessori, Gordon, and Carabo-Cone, plus relevant research will be examined for underlying principles of musical development. Will include guided field observation.

MUGT 357 MUSIC FOR CHILDREN 2: PHILOSOPHY AND TECHNIQUES. (3) (3 hours) (Prerequisite: MUGT 356) Continued exploration of techniques for cultivating musical understanding, with emphasis on needs and musical development of older children, and creativity begun in MUGT 356. Will include guided field observation and planning of activity sequences.

MUGT 358 GENERAL MUSIC FOR ADULTS AND TEENAGERS. (3) (Prerequisite: MUTH 210 and MUSP 131.)

MUGT 401 ISSUES IN MUSIC EDUCATION. (3)

MUGT 402D1 (3), MUGT 402D2 (3) PRINCIPLES AND PROCESSES OF MUSIC EDUCATION. (3 hours and Teaching Lab) (Prerequisites or corequisites: one of MUCT 315, MUGT 356, MUIT 315) (Students must register for both MUGT 402D1 and MUGT 402D2.) (No credit will be given for this course unless both MUGT 402D1 and MUGT 402D2 are successfully completed in consecutive terms)

MUGT 403 SELECTED TOPICS IN MUSIC EDUCATION. (3) (3 hours) (Open only to honours students in Music Education or by permission of instructor) Exploration of a specific issue, topic, or problem in music education through readings of related research and exploration of relevant curriculum materials. Possible topics include: musical attitude and preference, performance anxiety,

and MUSP 231) (Additional prerequisite: one MUHL or MUPP course at the 300 level or higher, or permission of instructor) Survey and critical evaluation of research- and performance-related tools: composers' collected editions, monuments of music, bibliographies of music and music literature, discographies, directories, and databases. Topics will include: developing bibliographies, structuring written arguments, assessing academic and popular writings about music, and understanding the task of the music editor.

MUHL 591D1 (1.5), MUHL 591D2 (1.5) PALEOGRAPHY. (1 hour) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231) (Restricted to U3 honours students in History) (Normally alternates with MUHL 529) (Students must register for both MUHL 591D1 and MUHL 591D2.) (No credit will be given for this course unless both MUHL 591D1 and MUHL 591D2 are successfully completed in consecutive terms)

MUIN – Practical Instrument

Offered by: Department of Performance, Faculty of Music
Former Teaching Unit Code: 224 to 239, 250 to 259, 262 to 265

Note: Registration for MUIN courses (practical instruction and examinations) is not available on Minerva. Students are reminded to submit a Lesson Assignment Card to the Department of Performance by the specified deadlines. MUIN courses will then be added to students' records.

The deadline for withdrawing from practical lessons is the end of the second week of classes in any term.

MUIN 110 ELECTIVE PRACTICAL INSTRUCTION 1. (2)

MUIN 111 ELECTIVE PRACTICAL INSTRUCTION 2 (2)

MUIN 120 PRACTICAL INSTRUCTION 1. (2) (1 hour) (Prerequisite: Admission to the B.Mus. program by audition) (Open to students entering directly from High Schools outside Quebec.)

MUIN 121 PRACTICAL INSTRUCTION 2. (2) (1 hour) (Prerequisite: MUIN 120) (Open to transfer students and high school students entering directly from outside Quebec.)

MUIN 130 PERFORMANCE PRACTICAL INSTRUCTION 1. (4) (1 hour) (Prerequisite: Admission to the B.Mus.) (Performance program by audition) (Open to students entering directly from high schools outside Quebec.)

MUIN 131 PERFORMANCE PRACTICAL INSTRUCTION 2. (4) (1 hour) (Prerequisite: MUIN 130) (Open to transfer students and students entering directly from high schools outside Quebec.)

MUIN 180 FLUTE DOUBLING PROFICIENCY TEST. (0)

MUIN 181 CLARINET DOUBLING PROFICIENCY TEST. (0)

MUIN 182 SAX DOUBLING PROFICIENCY TEST. (0)

MUIN 210 ELECTIVE PRACTICAL INSTRUCTION 3. (2)

MUIN 211 ELECTIVE PRACTICAL INSTRUCTION 4. (2)

MUIN 220 PRACTICAL INST

MUIT 201 STRING TECHNIQUES. (3) (3 hours and 2 hours lab) (Corequisites: MUTH 110 or MUTH 111 AND MUSP 129 or MUSP 131 AND MUHL 184 or MUHL 185.)

MUIT 202 WOODWIND TECHNIQUES. (3) (3 hours and 2 hours lab) (Corequisites: MUTH 110 or MUTH 111 AND MUSP 129 or MUSP 131 AND MUHL 184 or MUHL 185.)

MUIT 203 BRASS TECHNIQUES. (3) (3 hours and 2 hours lab) (Corequisites: MUTH 110 or MUTH 111 AND MUSP 129 or MUSP 131 AND MUHL 184 or MUHL 185.)

MUIT 204 PERCUSSION TECHNIQUES. (3) (3 hours and 2 hours lab) (Corequisites: MUTH 110 or MUTH 111 AND MUSP 129 or MUSP 131 AND MUHL 184 or MUHL 185.)

MUIT 250 GUITAR TECHNIQUES. (3) (3 hours) (Corequisites: MUTH 110 or MUTH 111 AND MUSP 129 or MUSP 131 AND MUHL 184 or MUHL 185.)

MUIT 302 ADVANCED WIND TECHNIQUES. (3) (3 hours and 2 hours lab) (Prerequisites: MUIT 202, MUIT 203.)

MUIT 315 INSTRUMENTAL CONDUCTING. (3) (3 hours and 2 hours lab) (Prerequisites: MUTH 211, MUSP 229, MUGT 215, MUIT 201 or MUIT 250, MUIT 202, MUIT 203, MUIT 204. Open to non-music education students with permission of instructor.)

MUIT 356 JAZZ INSTRUCTION: PHILOSOPHY AND TECHNIQUES. (3) (3 hours) (Prerequisites: MUIT 202, MUIT 203, MUIT 204. May be taken by Jazz Performance students with approval of instructor.)

MUIT 415 ADVANCED INSTRUMENTAL CONDUCTING. (3) (3 hours and 2 hours lab) (Prerequisites: MUIT 315 AND audition.)

MUJZ – Jazz Studies

Offered by: Department of Performance
Former Teaching Unit Code: 240

Note: MUJZ courses are normally open to Music Jazz Majors only. Other students may register only if space exists **and** with permission of the instructor.

MUJZ 160 JAZZ MATERIALS 1. (3) (4 hours) (Prerequisite: none. Open to non-jazz majors, space permitting, but not for elective credit in B.Mus. or Artist Diploma programs) Fundamental aural and theoretical skills associated with the jazz idiom. Nomenclature, chord construction, chord/scale relationships, harmonic progression, circle of 5ths, simple turnarounds, simple substitution, symmetrical scales and chord relationships, voice leading.

MUJZ 161 JAZZ MATERIALS 2. (3) (4 hours) (Prerequisite: MUJZ 160. Open to non-jazz majors, space permitting, but not for elective credit in B.Mus. or Artist Diploma programs) Simple and advanced substitution, borrowed chords, reharmonisation, modes of harmonic minor and melodic minor diatonic systems, unresolved tensions, odd and infrequent modulations, mixed two-five-ones, introduction to polychords, slashchords and non-functional harmony.

MUJZ 170 JAZZ KEYBOARD PROFICIENCY 1. (1) (1 hour) (Prerequisite: none. Open only to Jazz Performance Majors. May not be taken for elective credit in B.Mus. or Artist Diploma programs) Basic piano skills, basic comping techniques, standard 3 note rootless voicings in 7, 3 and 3, 7 position with one extension, two-five-ones in major and minor - limited keys. Simple substitution and reharmonisation.

MUJZ 171 JAZZ KEYBOARD PROFICIENCY 2. (1) (1 hour) (Prerequisite: MUJZ 170. Open only to Jazz Performance Majors. May not be taken for elective credit in B.Mus. or Artist Diploma programs) Continuation of previous semester. Two-five-ones and mixed two-five-ones using 4 note close position voicings and 4 and 5 note spreads, in all keys, diminished passing chords, half step shifts, voice leading, extensions, quartal and modal voicing, sight reading of

MUJZ 423 JAZZ IMPROVISATION/MUSICIANSHIP 3. (3) (3 hours) (Prerequisite: MUJZ 224. Corequisite: MUJZ 340. Open only to Jazz Performance Majors) Refinement of improvisational concepts in conjunction with ear training, leading towards the establishment of a personal style of playing. Complex forms and harmonies, and contemporary techniques. Memorization of large and varied repertoire is stressed. The ability to identify, transcribe and perform various melodies, rhythms, and complex harmonies by ear will be stressed.

MUJZ 424 JAZZ IMPROVISATION/MUSICIANSHIP 4. (3) (3 hours) (Prerequisite: MUJZ 423. Open only to Jazz Performance Majors) Continuation of Jazz Improvisation/Musicianship MUJZ 423.

MUJZ 440 ADVANCED JAZZ COMPOSITI typwsb 0.3 (T) Tj 3.75 0 2dt2168 Tc Tc -0.0825 89168 Tc (D243 Tj -1734TD /F2 7.5 Tf 73.25 -9.7-0.242 50 Tc nly to Ja315tressed.)225 0 -12 7 Tw ((Pr

Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

RELG 232 EASTERN ORTHODOX MYSTICISM AND CONTEMPORARY LITERATURE. (3) (Winter) A survey of Eastern Orthodox mystical thought in 19th - 20th century authors studied against the background of early texts (in translation) of the Syro-Byzantine and Russian spiritual tradition and examined in light of modern literary-religious trends.

RELG 252 HINDUISM AND BUDDHISM. (3) (Fall) The interaction of Hinduism and Buddhism in India with special reference to the law of Karma, caste, women, ritual, death, yoga, and liberation. Determination of interpretative principles for understanding the religious psychology of Hindus and Buddhists.

RELG 253 RELIGIONS OF EAST ASIA. (3) (Winter) Harmony with nature, society, and cosmos to be explored through the religions of the Far East (Confucianism, Taoism, Buddhism and Shinto).

RELG 254 INTRODUCTION TO SIKHISM. (3) (Winter) An introduction to the historical and religious context in which the Sikh religion developed, its principal doctrines, practices and institutions and its evolution from its origins to the present, both inside and outside India.

RELG 256 WOS DFO UIS DH

RELG 333 PRINCIPLES OF CHRISTIAN THEOLOGY 1. (3) (Winter) An introduction to the central categories of Christian theology. The course will include discussion of the nature of theology, and of all the primary areas of doctrine (Theology, Christology, Pneumatology, Anthropology, Ecclesiology, Eschatology). Throughout, a conscious attempt will be made to reflect on the Christian faith in the light of the contemporary apologetic situation.

RELG 334 THE CHRISTIAN FAITH. (3) (Fall) (Prerequisites: One of RELG 202, 204, 210, 302, 311, 312 or the equivalent.) A study of

Hebrew. Emphasis is placed on both the oral and the written language.

RELG 399 CHRISTIAN S

to individually supervised, original research in anatomical sciences. A variety of methods, including electron microscopy, cytochemistry, immunolabeling, radioautography, and cell fractionation and biochemical analysis are applied to basic problems in cell biology. A substantial written report, followed by an oral presentation and defence are required. Students should consult the course coordinators several weeks before registration.

ANAT 432D1 (4.5), ANAT 432D2 (4.5) RESEARCH PROJECT: ANATOMICAL SCIENCE. (Fall and Winter) (Students must register for both ANAT 432D1 and ANAT 432D2.) (No credit will be given for this course unless both ANAT 432D1 and ANAT 432D2 are successfully completed in consecutive terms) (ANAT 432D1 and ANAT 432D2 together are equivalent to ANAT 432)

ANAT 458 MEMBRANES AND CELLULAR SIGNALING. (3) (Winter) (3 hours lectures) (Prerequisites: BIOC 212 or ANAT 212 or BIOL 201, ANAT 262, one of PHGY 201, PHGY 209 or BIOL 205; one of BIOC 312 or ANAT 365; BIOC 311 recommended) (This course is also listed as BIOC 458. Not open to students who are taking or who have taken BIOC 458) An integrated treatment of the properties of biological membranes and of intracellular signaling, including the major role that membranes play in transducing and integrating cellular regulatory signals. Biological membrane organization and dynamics; membrane transport; membrane receptors and their associated effectors; mechanisms of regulation of cell growth, morphology, differentiation and death.

ANAT 541 CELL AND MOLECULAR BIOLOGY OF AGING. (3) (Winter) (2 hours lecture, 2 hours conference) (Prerequisites: ANAT 261,

Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

Reserve; contact instructor well in advance for specific dates, logistics.

BIOL 300 MOLECULAR BIOLOGY OF THE GENE. (3) (Fall) (3 hours lecture, optional conferences) (Prerequisites: BIOL 200, BIOL 201) A survey of current knowledge and approaches in the area of gene structure and function. Topics include: gene isolation and characterisation, gene structure and replication, mechanism of gene expression and its regulation in pro- and eukaryotes.

BIOL 301 CELL AND MOLEC

BIOT – Biotechnology

Offered by: Department of Biology
Former Teaching Unit Code: 202

BIOT 505 SELECTED TOPICS IN BIOTECHNOLOGY. (3) (Fall) (Restricted to U3 students) Current methods and recent advances in biological, medical, agricultural and engineering aspects of biotechnology will be described and discussed. An extensive reading list will complement the lecture material.

CHEM – Chemistry

Offered by: Department of Chemistry
Former Teaching Unit Code: 180

CHEM 110 GENERAL CHEMISTRY 1. (4) (Fall) (3 lectures and laboratory) (Prerequisites/corequisites: College level mathematics and physics or permission of instructor; CHEM 120 is not a prerequisite) (Each lab section is limited enrolment) A study of the fundamental principles of atomic structure, valence theory and the periodic table.

CHEM 112 GENERAL CHEMISTRY LABORATORY. (1) (Fall) (2 1/2 hours laboratory) (Open only to entering students who have the lecture equivalent of CHEM 110) (Each lab section is limited enrolment) Illustrative experiments. Laboratory section of CHEM 110. New students will be issued lab sections in OM 1 on the first day of classes.

CHEM 120 GENERAL CHEMISTRY 2. (4) (Winter) (3 lectures and laboratory) (Prerequisites/corequisites: College level mathematics and physics, or permission of instructor: CHEM 110 is not a prerequisite) (Each lab section is limited enrolment) A study of the fundamental principles of physical chemistry.

CHEM 122 GENERAL CHEMISTRY LABORATORY. (1) (Winter) (2 1/2 hours laboratory) (Open only to entering students who have the lecture equivalent of CHEM 120) Illustrative experiments. Laboratory section of CHEM 120.

CHEM 150 WORLD OF CHEMISTRY: FOOD. (3) (Winter) (3 lectures) (No prerequisites) (Science students may take for credit only two of: CHEM 150, CHEM 160, CHEM 170, CHEM 180. These courses can be taken independently of each other) A series of lectures on the historical, practical, and simple chemical aspects of: food, food additives; vitamins; minerals, diet and cancer; dieting; water.

CHEM 160 WORLD OF CHEMISTRY: TECHNOLOGY. (3) (Fall) (3 lectures) (No prerequisites) (Science students may take for credit only two of: CHEM 150, CHEM 160, CHEM 170, CHEM 180. These courses can be taken independently of each other) Aspects of chemical technology including publishing of scientific articles, rocketry, chemistry of space travel, materials (metals, ceramics, wood, plastic), genetic engineering chemistry, forensic science, art and money.

CHEM 170 WORLD OF CHEMISTRY: DRUGS. (3) (Fall) (3 lectures) (No prerequisites) (Science students may take for credit only two of: CHEM 150, CHEM 160, CHEM 170, CHEM 180. These courses can be taken independently of each other) Aspects of drugs including drug history, over the counter drugs (e.g. aspirin, cough remedies, allergy preparations), and street drugs. Signifi-

tudents may take for credit
, CHEM 170, CHEM 180.
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techniques for structure determination. The chemistry of alkyl halides, alcohols, ethers, carbonyl compounds and amines with special attention to mechanistic aspects. Special topics.

CHEM 224 ORGANIC CHEMISTRY LABORATORY 1. (1) (Fall and Winter and Summer) (4 hours laboratory) (Open only to students who have the lecture equivalent of CHEM 212) Illustrative experiments in organic chemistry. Laboratory section of CHEM 212.

CHEM 232 ORGANIC CHEMISTRY PRINCIPLES. (4) (Only open to students in the BN Program, not open to nursing students in the B.Sc. Program) Concepts of modern organic chemistry, its application to biological processes and everyday life, principles of bonding, structure/stereochemistry, and reaction mechanisms will be presented. Their application to reactions of all of the main functional groups and to biologically important substances will be described.

CHEM 233 TOPICS IN PHYSICAL CHEMISTRY.(3) (Winter) (3-0-6) (For Chemical Engineers only) Introduction to chemical kinetics, surface and colloid chemistry and electrochemistry. The topics to be discussed will be of particular interest to students in chemical engineering.

CHEM 234 TOPICS IN ORGANIC CHEMISTRY.(3) (Fall and Winter and Summer) ((3-0-6)) (Prerequisite: CHEM 212 or equivalent) (For Chemical Engineers only) Modern spectroscopic techniques for structure determination. The chemistry of alkyl halides, alcohols, ethers, carbonyl compounds and amines with special attention to mechanistic aspects. Special topics.

CHEM 237 GENERAL ANALYTICAL CHEMISTRY LAB 2. (1) (Winter) (3 hours) (Prerequisite: CHEM 217) Laboratory portion of an individualized program in analytical chemistry.

CHEM 244 ORGANIC CHEMISTRY LABORATORY 2. (1) (Fall and Winter and Summer) (4 hours laboratory) (Prerequisite: CHEM 234 or equivalent) Laboratory section of CHEM 222.

CHEM 257D1 (2), CHEM 257D2 (2) INTRODUCTORY ANALYTICAL CHEMISTRY. (Fall and Winter) (1 lecture, 1 homework tutorial and 4 hours laboratory) (Prerequisites: CHEM 110 and CHEM 120 or equivalent.) (Not open to students who have taken or are taking CHEM 277D1/D2) (Each lab section is limited enrolment) (Students must register for both CHEM 257D1 and CHEM 257D2.) (No credit will be given for this course unless both CHEM 257D1 and CHEM 257D2 are successfully completed in consecutive terms) A survey of analytical chemistry including the theory and practice of representative gravimetric, volumetric and instrumental methods.

CHEM 273 CHEMICAL KINETICS. (1) (Winter) (1 lecture) (Prerequisites: CHEM 110 and CHEM 120 or equivalent. For Honours and Major /Fmistry student. O thro students iothpterisstion of

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Modular format incorporating self-paced and selfguided instructions. In consultation with the instructors, a program of experimental modules is chosen covering projects related to theoretical

MIPS instructions and architecture datapath and control, caches, virtual memory, interrupts and exceptions, pipelining.

COMP 302 PROGRAMMING LANGUAGES AND PARADIGMS. (3) (Fall and Winter) (3 hours) (Prerequisite: COMP 250 or COMP 203) (Restriction Note L) Programming language design issues and programming paradigms. Binding and scoping, parameter passing, lambda abstraction, data abstraction, type checking. Functional and logic programming.

COMP 303 PROGRAMMING TECHNIQUES. (4) (Winter) (3 hours, 3 lab hours) (Prerequisites: COMP 206, COMP 251, COMP 302) (Restriction Note I: Open only to students registered in a Core Group* or Mathematics Group* program, or the Minor in Computer Science. * as defined in the SOCS section, Undergraduate Programs Calendar) Software architecture, design patterns, object-oriented programming concepts, profiling and optimization. Students will implement a significant programming project.

COMP 304 OBJECT-ORIENTED DESIGN. (3) (Fall) (3 hours) (Prerequisites: COMP 206, COMP 251, COMP 302) (Restriction Note I) The object model, objects and classes, verification and testing, object-oriented analysis, unified modeling language and design patterns.

COMP 310 COMPUTER SYSTEMS AND ORGANIZATION. (3) (Fall and Winter) (3 hours) (Prerequisite: COMP 273) (Restriction Note I) Control and scheduling of large information processing systems. Operating system software - resource allocation, dispatching, processors, access methods, job control languages, main storage management. Batch processing, multiprogramming, multiprocessing, time sharing.

COMP 330 THEORETICAL ASPECTS: COMPUTER SCIENCE. (3) (Fall) (3 hours) (Prerequisite: COMP 251.) (Restriction Note I) Mathematical models of computers, finite automata, Turing machines, counter machines, push-down machines, computational complexity.

COMP 335 SOFTWARE ENGINEERING METHODS. (3) (Winter) (3 hours) (Corequisite: COMP 302) This course in software engineering teaches basic concepts and methods for software development. The focus is on engineering and analysing requirements, design and code. Small software development exercises will be given where students would learn how to apply different methods.

COMP 350 NUMERICAL COMPUTING. (3) (Fall) (3 hours) (Prerequisites: MATH 222 and MATH 223 and one of: COMP 202, COMP 208, COMP 250; or equivalents.) (Restriction Note I) Computer representation of numbers, IEEE Standard for Floating Point Representation, computer arithmetic and rounding errors. Numerical stability. Matrix computations and software systems. Polynomial interpolation. Least-squares approximation. Iterative methods for solving a nonlinear equation. Discretization methods for integration and differential equations.

COMP 360 ALGORITHM DESIGN TECHNIQUES. (3) (Fall and Winter) (3 hours) (Prerequisite: COMP 251) (Not open to students who have taken or are taking COMP 362.) (Restriction Note E, I) A study of techniques for the design and analysis of algorithms.

COMP 361 SYSTEMS DEVELOPMENT PROJECT. (3) (Winter) (Prerequisite: COMP 206) (Restriction Note I) Practical issues in systems programming including: inter-process communication, task scheduling, special purpose systems, multi-processor systems. Implementation of a large body of software to illustrate core concepts and provide substantial hands-on experience.

COMP 362 HONOURS ALGORITHM DESIGN. (3) (Winter) (Prerequisite: COMP 252) (Not open to students who have taken or are taking COMP 360.) Basic algorithmic techniques, their applications and limitations. Problem complexity, how to deal with problems for which no efficient solutions are known.

COMP 400 TECHNICAL PROJECT AND REPORT. (3) (Fall and Winter) (Prerequisites: 15 Computer Science credits. For Honours students) A computer related project, typically a programming effort, along with a report will be carried out in cooperation with a staff member in the School of Computer Science.

COMP 409 CONCURRENT PROGRAMMING. (3) (Fall) (Prerequisites: COMP 251, COMP 302, and COMP 310 or ECSE 427) (Restriction Note I) Characteristics and utility of concurrent programs; formal methods for specification, verification and development of concurrent programs; communications, synchronization, resource allocation and management, coherency and integrity.

COMP 420 FILES AND DATABASES. (3) (Fall) (Prerequisite: COMP 302) (Restriction Note I) Language essentials for file processing; sequential files; sorting, updating, tree files; direct files; files of structured data; basics of relational databases.

COMP 421 DATABASE SYSTEMS. (3) (Winter) (3 hours) (Prerequisites: COMP 206, COMP 251, COMP 302) (Restriction Note I) Database Design: conceptual design of databases (e.g., entity-relationship model), relational data model, functional dependencies. Database Manipulation: relational algebra, SQL, database application programming, triggers, access control. Database Implementation: transactions, concurrency control, recovery, query execution and query optimization.

COMP 423 DATA COMPRESSION. (3) (Winter) (3 hours) (Prerequisites: COMP 251, MATH 223, MATH 323) Information Theory. Huffman, arithmetic and dictionary codes. Context Modelling. Lossy compression and quantization. Signal processing. Applications to text, image, speech, audio and video data.

COMP 424 TOPICS: ARTIFICIAL INTELLIGENCE 1. (3) (Fall) (3 hours) (Prerequisites: COMP 206, COMP 251, COMP 302) (Restriction Note J) Introduction to search methods in AI problems. Mechanical theorem-proving techniques, game playing by com-

sor architecture: pipeline control and hazard resolution, pipelined memory structures, interrupt, evaluation techniques; vector processing; RISC vs. CISC architectures; general vs. special purpose architectures; VLSI architecture issues.

COMP 506 ADVANCED ANALYSIS OF ALGORITHMS. (3) (Winter) (3 hours) (Prerequisite: COMP 330 or COMP 360 or COMP 405 or COMP 431) The study of computational complexity and intractability: Cook's Theorem, NP-completeness, oracles, the polynomial hierarchy, lower bounds, heuristics, approximation problems.

COMP 507 COMPUTATIONAL GEOMETRY. (3) (Fall) (3 hours) (Prerequisite: COMP 360 or COMP 405 or equivalent or corequisite COMP 506) Problems in computational geometry; worst-case complexity of geometric algorithms; expected complexity of geometric algorithms and geometric probability; geometric intersection problems; nearest neighbor searching; point inclusion problems; distance between sets; diameter and convex hull of a set; polygon decomposition; the Voronoi diagram and other planar graphs; updating and deleting from geometric structures.

COMP 520 COMPILER DESIGN. (4) (Fall) (3 hours, 1 hour consultation) (Prerequisites: COMP 273 and COMP 302) The structure of a compiler. Lexical analysis. Parsing techniques. Syntax directed translation. Run-time implementation of various programming language constructs. Introduction to code generation for an idealized machine. Students will implement parts of a compiler.

COMP 522 MODELLING AND SIMULATION. (4) (Fall) (3 hours) (Prerequisites: COMP 251, COMP 302, COMP 350) Simulation and modeling processes, state automata, Petri Nets, state charts, discrete event systems, continuous-time models, hybrid models, system dynamics and object-oriented modeling.

COMP 523 LANGUAGE-BASED SECURITY. (3) (Prerequisites: COMP 302, COMP 330.) State-of-the-art language-based techniques for enforcing security policies in distributed computing environments. Static techniques (such as type- and proof-checking technology), verification of security policies and applications such as proof-carrying code, certifying compilers, and proff-carrying authentication.

COMP 524 THEORETICAL FOUNDATIONS OF PROGRAMMING LANGUAGES. (3) (Fall) (3 hours) (Prerequisite: COMP 302, and MATH 340 or MATH 235) Operational and denotational semantics of programming languages. Equivalence theorems for first-order languages. Lambda calculus. Type-inference, typed lambda calculus. Polymorphism. Elements of domain theory and fixed-point induction.

COMP 525 FORMAL VERIFICATION. (3) (Winter) (3 hours) (Prerequisites: COMP 251, COMP 310, COMP 330 and MATH 340) Propositional logic - syntax and semantics, temporal logic, other modal logics, model checking, symbolic model checking, binary decision diagrams, other approaches to formal verification.

COMP 526 PROBABILISTIC REASONING AND AI. (3) (Winter) (3 hours) (Prerequisites: COMP 206, COMP 360, COMP 424 and MATH 323) Belief networks, Utility theory, Markov Decision Processes and Learning Algorithms.

COMP 531 THEORY OF COMPUTATION. (3) (Winter) (3 hours) (Prerequisite: COMP 330) Models for sequential and parallel computations: Turing machines, boolean circuits. The equivalence of various models and the Church-Turing thesis. Unsolvable problems. Model dependent measures of computational complexity. Abstract complexity theory. Exponentially and super-exponentially difficult problems. Complete problems.

COMP 533 OBJECT-ORIENTED SOFWARE DEVELOPMENT. (3) (Fall) (Prerequisites: COMP 335 or ECSE 321) Object-oriented, UML-based software development; requirements engineering based on use cases; using OCL and a coherent subset of UML to establish complete and precise analysis and design documents for a software system; Java-specific mapping strategies for implementation.

COMP 534 TEAM SOFTWARE ENGINEERING. (3) (Fall) (3 hours) (Prerequisite: COMP 433 or equivalent) Team-work and team-processes for evolving software systems. Guided by defined processes, project teams will elicit new requirements, design code and test an enhanced software system. Team members will play various technical and managerial roles in carrying out their software project.

COMP 535 COMPUTER NETWORKS 1. (3) (Fall) (3 hours) (Prerequisite: COMP 310) (Students may not take both COMP 435 and COMP 535 for credit) Exposition of the first four layers of the ISO model for computer network protocols, i.e., the physical, data, network, and transport layers. Basic hardware and software issues with examples drawn from existing networks, notably SNA, DECnet, and ARPAnet.

COMP 537 INTERNET PROGRAMMING. (3) (Winter) (3 hours) (Prerequisites: COMP 251 and COMP 302, and any one of COMP 310, COMP 420, COMP 424, or COMP 433) Sockets, User Datagram Protocol (UDP), Transmission utility protocals; Remote Terminal

COMP 564 COMPUTATIONAL GENE REGULATION. (3) (Prerequisite: COMP 462.) This course examines computational problems related to gene regulation at the mRNA and protein levels. With respect to mRNA expression, topics include microarray analysis, SNP detection, and the inference of genetic networks. With respect to protein expression, topics include peptide sequencing, peptide identification, and the interpretation of interaction maps.

COMP 566 DISCRETE OPTIMIZATION 1. (3) 5F Tl)1.53 Tf-0.252 Tc 0 Tw (E) Tj 4.5 0 TD 0.168 Tc 7.5 Tf 0eu 0 -9.75 TuTw .s81.

spectroscopic techniques applied to the identification of minerals and to the analysis of their composition and structure.

EPSC 320 ELEMENTARY EARTH PHYSICS. (3) (Fall) (3 hours lectures) (Prerequisite: MATH 222) Physical properties of Earth and the processes associated with its existence as inferred from astronomy, geodesy, seismology, geology, terrestrial magnetism a

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GEOG 199 FYS: GEO-ENVIRONMENTS. (3) (Fall) (Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) (Maximum 25. Closed to Geography Majors) Geography studies the complex but crucial relationships between people and their physical and socio-cultural environments. The course is constructed around field trips and preparatory seminars which provide an opportunity for students to learn about a variety of physical environments and their utilisation.

GEOG 200 GEOGRAPHICAL PERSPECTIVES: WORLD ENVIRONMENTAL PROBLEMS. (3) (Fall) (3 hours) Introduction to geography as the study of nature and human beings in a spatial context. An integrated approach to environmental systems and the human organization of them from the viewpoint of spatial relationships and processes. Special attention to environmental problems as a constraint upon Third World development.

GEOG 201 INTRODUCTORY GEO-INFORMATION SCIENCE. (3) (Fall) (3 hours and lab) An introduction to Geographic Information Systems. The systematic management of spatial data. The use and construction of maps. The use of microcomputers and software for mapping and statistical work. Air photo and topographic map analyses.

GEOG 202 STATISTICS AND SPATIAL ANU0C 0datAA As t A A

ical interpretation of Canada's salient physical and human characteristics, including landscapes and their evolution, climate, vegetation, society/land relationships and socio-economic attributes of the population.

GEOG 311 CANADA - A GEO-ECONOMIC PERSPECTIVE. (3) (Winter) (3 hours) (Prerequisite GEOG 216 or permission of instructor) A geographic interpretation of the Canadian economy and its regional and sectoral elements. The course provides an overview of the key theories and approaches to understanding Canada's economic geography, focusing on the specific geo-economic features of Canada's regions and their interaction with the global economy.

GEOG 315 URBAN TRANSPORTATION GEOGRAPHY. (3) (Winter) (3 hours) (Prerequisite GEOG 217 or permission of instructor) Discusses the urban transportation problem and proposed solutions from a geographic perspective. Specific topics include an analysis of the land use-transportation system in North American cities; its social environmental impacts; the analysis of urban travel behaviour; and the geographical implications of various policy alternatives.

GEOG 316 POLITICAL GEOGRAPHY. (3) (3 hours)

GEOG 321 CLIMATIC ENVIRONMENTS. (3) (Winter) (3 hours) (Prerequisite: GEOG 203 or ATOC 210 or permission of instructor) Scope of climatology, physical, dynamic and applied. The Earth/atmosphere system, radiation and energy balances, governing meteorological processes. Movement and circulation of the atmosphere on a local and global scale. Resulting weather systems.

GEOG 322 ENVIRONMENTAL HYDROLOGY. (3) (Winter) (3 hours) (Prerequisite: GEOG 203 or equivalent) Quantitative, experimental study of the principles governing the movement of water at or near the Earth's surface and how the research relates to the chemistry and biology of ecosystems.

GEOG 331 URBAN SOCIAL GEOGRAPHY. (3) (Fall) (3 hours) (Prerequisite: GEOG 216 or GEOG 217 or permission of instructor) Social space and social time. The reflection of social structure in the spatial organization of the city. Historical perspective on changing personal mobility, life cycle, family structure and work organization. The appropriation and alienation of urban spaces.

1762c (, **GEOG 350 ECOLOGICAL BIOGEOGRAPHY.** (3) (Fall) (3 hours) (Prerequisite: GEOG 203 or ENVR 200 or ENVR 202)

GEOG 351 QUANTITATIVE METHODS. (3) (Fall) (3 hours) (Prerequisite: MATH 203 or permission of instructor) (You may not be able to get credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) Multiple regression and correlation, logit models, discrete choice models, gravity models, facility location algoritguisite75 0 TD /F2 7.5 Tf 0.165 Tc 0 Tw (G) Tj 8.25 0 TD /F2 b j 8 a0i Tw (U 4.leamment of water at 0 Tj 1.5 0 3) (Fall Meamment of water at1hp66me. Th0s9treln8s (O) Tj 5.to gce e iG 68 t4h relates 5b25 0 TD 3bility, lifem2929 Tc -0.2529 nd anei TDc (9Tc (A

Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

MATH 314 ADVANCED CALCULUS. (3) (Fall and Winter and Summer) (Prerequisites: MATH 133, MATH 222) (Not open to students who have taken or are taking MATH 248) Derivative as a matrix. Chain rule. Implicit functions. Constrained maxima and minima. Jacobians. Multiple integration. Line and surface integrals. Theorems of Green, Stokes and Gauss.

MATH 315 ORDINARY DIFFERENTIAL EQUATIONS. (3) (Fall and Winter and Summer) (Prerequisite: MATH 222. Corequisite MATH 133) (Not open to students who have taken or are taking MATH
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algebra. Propositional and predicate calculi. Recurrences and graph theory.

MATH 370 ALGEBRA 3. (3) (Fall) (Prerequisite: MATH 251) Introduction to monoids, groups, permutation groups; the isomorphism theorems for groups; the theorems of Cayley, Lagrange and Sylow; structure of groups of low order. Introduction to ring theory; integral domains, fields, quotient field of an integral domain; polynomial rings; unique factorization domains.

MATH 371 ALGEBRA 4. (3) (Winter) (Prerequisite: MATH 370) Introduction to modules and algebras; finitely generated modules over a principal ideal domain. Field extensions; finite fields; Galois groups; the fundamental theorem of Galois theory; application to the classical problem of solvability by radicals.

MATH 375 DIFFERENTIAL EQUATIONS. (3) (Fall) (Prerequisites: MATH 247 or MATH 251 or equivalent, MATH 248 or equivalent, MATH 325) First order partial differential equations, geometric theory, classification of second order linear equations, Sturm-Liouville problems, orthogonal functions and Fourier series, eigenfunction expansions, separation of variables for heat, wave and Laplace equations, Green's function methods, uniqueness theorems.

MATH 376 CHAOS AND NONLINEAR DYNAMICS. (3) (Fall) (Prerequisites: MATH 222, MATH 223) (Intended primarily for Honours students. Not open to students who have taken or are taking MATH 326)

MATH 377 NUMBER THEORY. (3) (Winter) (Prerequisite: Enrolment in Mathematics Honours program or consent of instructor)

MATH 380 DIFFERENTIAL GEOMETRY. (3) (Winter) (Prerequisites: MATH 251 or MATH 247, and MATH 248 or MATH 314) In addition to the topics of MATH 320, topics in the global theory of plane and space curves, and in the global theory of surfaces are presented. These include: total curvature and the Fary-Milnor theorem on knotted curves, abstract surfaces as 2-d manifolds, the Euler characteristic, the Gauss-Bonnet theorem for surfaces.

MATH 381 COMPLEX VARARYXTU

Before selecting courses, students should refer to the Course Information and Regulations section beginning on page402.

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PHGY 209 MAMMALIAN PHYSIOLOGY 1.

PHGY 508 ADVANCED

conceptual look at physics, beginning with the idea of space and time, continuing with the historical development of Newtonian mechanics of celestial motion, electricity and magnetism, ether and light, Einstein's special and general theories of relativity, quantum mechanics, matter and antimatter, cosmology and the big bang.

PHYS 205 OUR EVOLVING UNIVERSE. (3) (Fall) (Restrictions: Not open to students in a physics program. Not open to students who have taken PHYS 204.) An elementary course on astronomy and astrophysics. Positional astronomy and finding your way about the sky. Our evolv -0.165Fl0.2869 0.e. 0.e0 -9u

tion, theory and applications, angular momentum, relativistic wave equations.

PHYS 557 NUCLEAR PHYSICS. (3) (Fall) (3 hours lectures) (Honours students, or permission of the instructor) General nuclear properties, nucleon-nucleon interaction and scattering theory, radioactivity, nuclear models, nuclear reactions.

PHYS 558 SOLID STATE PHYSICS. (3) (Fall) (3 hours lectures) (Honours students, or permission of the instructor) Properties of crystals, lattice vibrations and thermal properties of insulators, free electron model and band structure, semi-conductors, metals, optical properties.

PHYS 559 ADVANCED STATISTICAL MECHANICS. (3) (Fall) (3 hours lectures) (Honours students, or permission of the instructor) Self averaging and central-limit theorem; thermodynamic fluctuations; ensemble theory; surface roughening; broken symmetry and Goldstone's theorem; phase transitions; mean-field, Landau and Ornstein-Zernicke theory; Monte Carlo method; molecular dynamics; scaling; renormalization group; epsilon expansion; non-equilibrium theory.

PHYS 562 ELECTROMAGNETIC THEORY. (3) (Winter) (3 hours lectures) (Honours students, or permission of the instructor) (Graduate Prerequisites: U1 or U2 Honours Physics or permission of instructor.) Electrostatics, dielectrics, magnetostatics, timevarying fields, relativity, radiating systems, fields of moving charges.

PHYS 567 PARTICLE PHYSICS. (3) (Winter) (3 hours lectures) (Honours students, or permission of the instructor) Survey of elementary particles; hadrons, leptons and hardrons' constituents (quarks). Invariance principles and conservation laws. Detectors and accelerators. Phenomenology of strong, electomagnetic and weak interactions.

PSYC – Psychology

Offered by: Department of Psychology
Former Teaching Unit Code: 204

A basic introductory course in psychology is a prerequisite for all Psychology courses with the following exceptions:.25 vs.285 hing Unit Code: 204

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instructor.) Focuses on current techniques employed to study which genes influence behaviour, and how they do so.

PSYC 318 BEHAVIOURAL NEUROSCIENCE 2. (3) (Winter) (2 lectures, 1 conference) (Prerequisite: PSYC 308 or PSYC 311 or BIOL 306 or PHGY 314) Physiological bases of motivation including feeding and drinking, sexual and parental behaviour. Physiological processes in reinforcement and learning.

PSYC 331 INTER-GROUP RELATIONS. (3) (2 lectures) (Winter) (Prerequisite: PSYC 215) The course focuses on the social psychology of societal groups such as racial minorities, aboriginal groups and women. The ideological biases of current theories is first established. This is followed by a review of current theories and finally current controversies are explored including new forms of racism and affirmative action.

PSYC 332 INTRODUCTION TO PERSON

PERSON

approved by the Department before registration.) (For more information see the Psychology Department website.)
Supervised research project.

PSYC 496 SENI

with permission of the instructors, or equivalent. Basic knowledge of cellular and molecular biology is required.) (Open to U3 and graduate students only.)

PSYT 502 BRAIN EVOLUTION AND PSYCHIATRY. (3) (Fall) (Prerequisites: BIOL 115 or equivalent as authorized by instructor) The course will focus on the transcendental importance of evolution of nervous systems for normal and pathological behavior. Studies of allomeric brain growth and recent evolutionary theories of brain organization as they relate to normal and abnormal behavior will be emphasized.

Index of Courses by Subject Code