

Offered by the Department of Linguistics in the Faculty of Social Sciences.

Department Head - R.W. Murray

#### Junior Courses

#### **Native Languages 205** H(3-0)

##### **Native Language I**

proficiency (in the same language).

**Note:** See the Master Timetable for specific offerings.

Instruction offered under the direction of the Faculty of Communication and Culture. For information contact the Academic Programs Office, 220-6343.

Additional interdisciplinary courses are offered under the course headings African Studies, Canadian Studies, Central and East European Studies, Communications Studies, Development Studies, East Asian Studies, General Studies, Latin American Studies, Law and Society, Leisure, Tourism and Society, Museum and Heritage Studies, Science, Technology and Society, South Asian Studies, and Women's Studies.

#### Senior Courses

#### **Northern Planning and Development Studies 401** H(3-0)

##### **Sustainability and Human Ecology in the Circumpolar Arctic**

The history of northern development and resource management in Canada with emphasis on specific case studies involving sustainability and human ecology in the Circumpolar Arctic.

**Prerequisite:** Development Studies 393.

**Note:** Credit for both Northern Planning and Development Studies 303 and 401 will not be allowed.

#### **Northern Planning and Development Studies 405** H(3-0)

##### **Traditional Environmental Knowledge and Northern Development**

The role of traditional environmental knowledge and its significance to northern development. Participatory research methodologies will be introduced.

**Prerequisite:** Northern Planning and Development Studies 401.

**Note:** Credit for both Northern Planning and Development Studies 305 and 405 will not be allowed.

**Note:** This course may not be offered every year.

#### **Northern Planning and Development Studies 407** H(3-0)

##### **Cultural Land-use Mapping**

The role of participatory research methodologies as a means of obtaining traditional environmental knowledge. The application of traditional environmental knowledge to land-use mapping technology in the context of geographical information systems will be explored.

**Prerequisite:** Northern Planning and Development Studies 401.

**Note:** Credit for both Northern Planning and Development Studies 307 and 407 will not be allowed.

**Note:** This course may not be offered every year.

#### **Northern Planning and Development Studies 411** H(3-0)

##### **Planning and Community Development in the Context of the North**

Complementary to other Northern Planning and Development Studies courses, this course is intended to explore further the tools of community economic development and practical means of involving community partners.

**Prerequisite:** Northern Planning and Development Studies 401.

**Note:** Credit for both Northern Planning and Development Studies 311 and 411 will not be allowed.

**Note:** This course may not be offered every year.

#### **Northern Planning and Development Studies 500** F(0-3S)

##### **Internship Project**

An integration of skills learned in previous Northern Planning and Development Studies courses culminating in an individual or group project. The internship will relate to community development issues and to research and development activities in a Canadian or international context.

**Prerequisites:** Northern Planning and Development Studies 405, 407 and 411.

Instruction offered by members of the Faculty of Nursing.

**Note:** The University of Calgary Bachelor of Nursing program is presently in a development stage and therefore the University reserves the right to make whatever changes are necessary to the content and the hours of instruction of individual Nursing courses in the program. Some of the Nursing course prerequisites and corequisites are waived for Bachelor of Nursing Accelerated Track students in order to accommodate block scheduling.

**Note:** Where applicable, Clinical Practice courses must be taken concurrently with the theoretical components.

The following core Nursing courses are for students in the University of Calgary Bachelor of Nursing program.

(\*Regular Track students only)

|      |     |
|------|-----|
| 201  | 307 |
| 203  | 309 |
| 205  | 311 |
| 207  | 401 |
| 209  | 402 |
| 211  | 403 |
| 213* | 404 |

|     |      |
|-----|------|
| 301 | 405  |
| 302 | 406* |
| 303 | 501  |
| 305 | 502  |

The following core Nursing courses are for Post

nursing profession, its unique position within the health care system, and the roles of various health care providers.

**Corequisites:** Nursing 203/205.

#### **Nursing 203** H(0-3)

##### **Foundations for Nursing Practice**

Development of skills applicable to nursing practice.

**Corequisites:** Nursing 201/205.

**Note:** Minimum passing grade is "C."

#### **Nursing 205** H(3-0)

##### **Therapeutic Interventions**

Nursing therapeutics and pharmacology in wellness and illness states across the lifespan.

**Corequisites:** Nursing 201/203.

#### **Nursing 207** H(3-0)

##### **Nursing Inquiry**

Continuing development of a conceptual framework for nursing practice. Development of a theoretical base for understanding various human responses to health experiences.

**Prerequisites:** Nursing 201/203/205.

**Corequisites:** Nursing 209/211.

#### **Nursing 209** H(104 hours)

##### **Nursing Practice**

Continuing development of skills for nursing practice with opportunity to apply assessment, psychomotor and communication skills in the helping relationship.

**Prerequisites:** Nursing 201/203/205 and current CPR Basic Cardiac Life Support.

**Corequisites:** Nursing 207/211.

**NOT INCLUDED IN GPA**

#### **Nursing 211** H(2-3)

##### **Health Assessment**

Knowledge and basic skills needed to complete a health history and a holistic assessment of healthy individuals. Students will practice health assessment skills on each other.

**Prerequisites:** Nursing 201/203/205, Zoology 269 and current CPR Basic Cardiac Life Support.

**Corequisites:** Nursing 207/209.

**Note:** Minimum passing grade is "C."

**Nursing 213 H(80 hours in Spring Session)****Consolidation Practicum I**

Integration of learning and continuing development of professional relationships with individuals and families experiencing health challenges in selected settings.

**Prerequisites:** Nursing 207/209/211, Zoology 269 and current CPR Basic Cardiac Life Support.

**Note:** Minimum passing grade is "C."

## Senior Courses

**Nursing 301 H(3-0)****Adult Health Theory**

Focus on expanding the theoretical understanding of the adult experiencing complex acute and chronic illness.

**Prerequisite:** Nursing 213 (BNRT students only).

**Prerequisite or Corequisite:** Nursing 311.

**Corequisite:** Nursing 302.

**Nursing 302 F(208 hours within one session)****Adult Health Practice**

Managing care from a holistic and interdisciplinary perspective for more acutely and chronically ill patients with a primary focus on the adult in acute medical/surgical settings.

**Prerequisites:** Nursing 213 (BNRT students only) and current CPR Basic Cardiac Life Support.

**Prerequisite or Corequisite:** Nursing 311.

**Corequisite:** Nursing 301.

**Note:** Minimum passing grade is "C."

**Nursing 303 H(3-0)****Psychiatric/Mental Health Theory**

Exploration of concepts related to individuals and families experiencing mental health and illness.

**Prerequisite:** Nursing 213 (BNRT students only).

**Corequisite:** Nursing 305.

**Nursing 305 H(128 hours within one session)****Psychiatric/Mental Health Practice**

Application of concepts, values, and skills with individuals, groups, and families experiencing mental health and illness.

**Prerequisites:** Nursing 213 (BNRT students only) and current CPR Basic Cardiac Life Support.

**Corequisite:** Nursing 303.

**Note:** Minimum passing grade is "C."

**Nursing 307 H(3-0)****Nursing of Families**

Exploration of family nursing theory, models, and relational nursing practices which involve and support families within a variety of nursing practice contexts.

**Prerequisite:** Nursing 213 (BNRT students only).

**Nursing 309 H(3-0)****Nursing Research**

Overview of research methodologies with emphasis on the critique of research and its use in nursing practice.

**Note:** Completion of a statistics course is strongly recommended prior to taking Nursing 309.

**Nursing 311 H(3-0)****Pathophysiology**

An overview of human pathophysiological concepts at the cellular, organ and systems level.

**Prerequisite:** Zoology 269.

**Nursing 401 H(3-0)****Community Health Theory**

Exploration of concepts related to the focus of the community as a client. Public health, populations at risk for physical and psychosocial disruptions in health, environmental health, cultural health patterns and beliefs, group dynamics and communications with groups.

**Prerequisite:** Nursing 213 (BNRT Psychiatric/Mental Health Theory Explor plog5roups.utF6 1 Tf 0 -1.56 TD 0a statistics o

---

**Nursing 515** H(3S-0)

---

***Mind/Body/Integration: Ancient and Contemporary Healing Practices***

Exploration of healing practices based on the concept of mind/body/spirit integration. Experience with selected healing modalities will be provided.

**Prerequisite:** Consent of the Faculty.

**Note:** Not open to students with credit in Nursing 503.22, 601.22 or 615.

---

**Nursing 531** H(3-2)

---

***Community Health Nursing Theory***

Concepts and models related to population-focused nursing with emphasis on community, health promotion, team building, assessment strategies, and planning approaches.

---

**Nursing 533** H(128 hours within one session)

---

***Community Health Nursing Clinical Practice***

Application and synthesis of concepts and models related to population-focused nursing.

**Prerequisites:** Nursing 531, current CPR Basic Cardiac Life Support, and proof of current, active nurse registration.

**Note:** Not open to students with credit in Nursing 532.

**Note:** Minimum passing grade is "C."

---

**Nursing 537** H(3-0)

---

***Nursing Leadership and Management***

Professional and interpersonal relationships in nursing practice with an emphasis on leadership, interdisciplinary collaboration, and the management of nursing care at macro and micro levels.

---

**Nursing 539** H(3-0)

---

***Research in Nursing***

Concepts and process necessary for critiquing research and application to nursing practice.

**Note:** Completion of a statistics course is strongly recommended prior to taking Nursing 539.

---

**Nursing 543** H(128 hours within one session)

---

***Senior Practicum***

Synthesis and application of theoretical concepts within a selected area of practice with emphasis on further development of self-directed skills and professional attitudes.

**Prerequisites:** Nursing 441/533, current CPR Basic Cardiac Life Support, and proof of current, active nurse registration.

**Note:** Not open to students with credit in Nursing 542.

**Note:** Minimum passing grade is "C."

---

**Nursing 589** H(3S-0)

---

***Mind/Body Integration: Philosophical Foundations***

Critical analysis of the integrated nature of mind/body/spirit comparing various cultural paradigms as they relate to health and healing.

**Prerequisite:** Consent of the Faculty.

**Note:** Not open to students with credit in Nursing 503.11, 601.21 or 689.

---

**Graduate Courses**

---

---

**Nursing 601** H(3S-0)

---

***Seminar on Special Topics Related to Health Care and Nursing***

**Prerequisite:** Consent of the Faculty.

**MAY BE REPEATED FOR CREDIT**

---

**Nursing 603** H(156 hours)

---

***Independent Supervised Clinical Practicum***

**Prerequisite:** Consent of the Faculty.

**MAY BE REPEATED FOR CREDIT**

---

**Nursing 605** H(3S-0)

---

***Philosophical Foundations for Advanced Nursing Practice***

Exploration of the philosophical foundations of advanced nursing practice. A process of critical analysis and deconstruction of the various conceptual frameworks and paradigms leading to articulation of the philosophical perspectives that guide advanced nursing practice.

**Prerequisite:** Consent of the Faculty.

---

**Nursing 607** H(39 hours)

---

***Independent Guided Study***

**Prerequisite:** Consent of the Faculty.

**MAY BE REPEATED FOR CREDIT**

---

**Nursing 611** H(3-0)

---

***Substantive Theory***

Substantive theory related to specialty areas of advanced nursing practice.

**Prerequisite:** Consent of the Faculty.

**MAY BE REPEATED FOR CREDIT**

---

**Nursing 615** H(3S-0)

---

C

**Nursing 665** **H(3S-2)*****Advanced Health Assessment***

Builds upon fundamental health assessment skills to provide a solid foundation for advanced assessment. Focuses on history taking physical examination, diagnostic reasoning and clinical judgement, as well as selected diagnostic skills necessary for advanced practice.

**Prerequisite:** Consent of the Faculty.

**Nursing 667** **H(3S-0)*****Nurse Practitioner Practice Issues and Role Integration***

Systems aspects related to management of complex health problems in NP practice, medical-legal and role development in extended practice environment.

**Prerequisite:** Consent of the Faculty.

**Nursing 675** **H(2S-1T-8)*****Advanced Clinical Inquiry***

Open to master's thesis students only. Application of advanced practice frameworks across specialty areas in clinical settings. Emphasis on generating thesis research question and identifying appropriate study method.

**Prerequisite:** Consent of the Faculty.

**Note:** Not open to students with credit in Nursing 613 or 691.

**Nursing 681** **H(3S-0)*****Families and Illness***

Facilitates understanding of the reciprocity between illness and family dynamics. Emphasis is on the family dynamics when a family member is experiencing a chronic illness, life-threatening illness or a psychosocial problem.

**Prerequisite:** Consent of the Faculty.

**Nursing 683** **H(3S-0)*****Health Research Methods: Qualitative Designs and Analyses***

Exploration of research methods based primarily on inductive reasoning. Methods, issues and techniques of sampling, data collection, analysis, and interpretation will be explored. Experience will be provided in data collection, management, and analysis.

**Prerequisite:** Consent of the Faculty.

**Nursing 685** **H(3S-0)*****Family Research***

This interdisciplinary course addresses the conceptual and methodological research issues

**Nursing Offsite 454** **F(195 hours)****Community Focused Nursing (Nursing Practice)**

Opportunity to develop skills with the community as the focus of care in a variety of settings.

**Corequisite:** Nursing Offsite 453.

**Note:** Minimum passing grade is "C."

**Nursing Offsite 455** **H(3-0)****Nursing Research**

Introduction to quantitative and qualitative research methods appropriate to nursing with an emphasis on the critique of studies for their application to practice.

**Note:** Completion of a statistics course is strongly recommended prior to taking Nursing Offsite 455.

**Nursing Offsite 457** **H(3-0)****Rural Nursing (Theory)**

Issues, theory and research related to the delivery and development of health care in rural areas.

**Corequisite:** Nursing Offsite 458.

**Nursing Offsite 458** **F(195 hours)****Rural Nursing (Nursing Practice)**

An integrated approach to nursing in a variety of rural settings with an emphasis on the application of concepts and theory pertinent to rural health care.

**Corequisite:** Nursing Offsite 457.

**Note:** Minimum passing grade is "C."

**Nursing Offsite 551** **H(3-0)****Issues in Nursing Practice**

An in-depth exploration of issues related to nursing practice and health care organizations.

**Corequisites:** Nursing Offsite 553/554.

**Nursing Offsite 553** **H(3-0)****Nursing Leadership and Management**

Professional and interpersonal relationships in nursing practice with an emphasis on leadership, interdisciplinary collaboration and the management of nursing care at macro and micro levels.

**Corequisites:** Nursing Offsite 551/554.

**Nursing Offsite 554** **F(330 hours)****Senior Nursing Practice**

Synthesis and integration of theoretical concepts from nursing and related disciplines, in the student's area of practice with emphasis on further development of self-directed learning skills to enhance professional practice. During their practicum, students will be under the direction of a Faculty Advisor and Clinical Preceptors.

**Corequisites:** Nursing Offsite 551/553.

**Note:** Minimum passing grade is "C."

Instruction offered by members of the Haskayne School of Business.

Operations Management Chairperson - J. Balakrishnan

**Note:** Students have the opportunity to take courses

offered by the Haskayne School of Business without the stated prerequisites, with the written permission of the Associate Dean (Undergraduate Programs) as appropriate, upon the recommendation of the Instructor of the course. However, should a student fail to achieve satisfactory standing in any course for which the stated prerequisite(s) is (are) lacking, he/she may be required to successfully complete the stated prerequisite(s) prior to being permitted to repeat the course. Students are required to have consent of the Haskayne School of Business Office before registering in 600-level courses offered by the Haskayne School of Business.

**Senior Courses****Operations Management 301** **H(3-0)****Introduction to Production and Operations Management**

A survey of the decision processes in production and operations management and their relationship to other business functions. Topics include project planning and scheduling, inventory management, materials requirements planning, quality and maintenance management, capacity planning, facilities layout, and process improvement.

**Prerequisites:** Any 200-level Mathematics and Statistics 213 (or equivalent, excluding Statistics 201).

**Note:** Not available for credit toward the Bachelor of Commerce degree. Until August 15, preference in enrollment is given to students who have declared a Management and Society minor.

**Operations Management 317** **H(3-0)****Fundamentals of Operations Management**

Introduction to the wide applicability, broad scope, strategic importance and major decisions of operations management, as well as important interactions with other functional areas. Topics covered include the design, control and improvement/innovation of business and other processes, project planning and control, quality management, statistical quality control, inventory management, just-in-time systems, and supply chains. Group assignments are a significant component of the course.

**Prerequisites:** Admission to the Haskayne School of Business, second year standing, Business and Environment 291 and Statistics 213.

**Operations Management 401** **H(3-0)****Materials and Supply Chain Management**

An in-depth treatment of inventory and replenishment management. Topics treated include strategic implications of materials management, common control systems, single echelon decision rules (when and how much to replenishment, recognizing quantity discounts, coordination of items, special opportunities to replenish, etc.), production scheduling, manufacturing resources planning, just-in-time systems, supply chain and other multiechelon considerations, and implications of new information technology. Case studies and a site visit are used, as well as illustrations of spreadsheet modelling.

**Prerequisites:** Third year standing, Operations Management 317 and Management Studies 391.

**Operations Management 403** **H(3-0)****Managing Quality in Products and Service**

An in-depth treatment of quality management practices and techniques for products and services. Topics and techniques covered include process design and improvement, total quality management, team-based problem solving, and process charting. In addition, managerial issues related to process

performance measurement and procedures for implementation are discussed.

**Prerequisites:** Third year standing and Operations Management 317.

**Operations Management 405** **H(3-0)****Service Operations Management**

Introduction to the management of service businesses from both a qualitative and quantitative perspective.. Topics include the range of businesses that are called "services," service design and performance measurements, service quality and recovery, managing people in service industries, service demand forecasting, scheduling, managing lineups, yield management, network optimization, and the role of information technology. Industry examples include travel and hospitality, professional services, retail, communication and transportation, banking, etc. An industry project is used to give students the opportunity to apply course concepts.

**Prerequisites:** Third year standing, Operations Management 317 and Management Studies 391.

**Operations Management 407** **H(3-0)****Introduction to Project Management**

Introduction to the management of projects in a variety of settings such as software development and installation, disaster relief, new product development, advertising campaigns, financial auditing, etc. Material from the organizational, planning, technical, financial, informational, and logistical aspects of project management will emphasize the interdisciplinary nature of projects. Group work related to actual projects will be required. Students will also learn to use commercial computer software for planning and scheduling projects.

**Prerequisites:** Third year standing and Operations Management 317.

**Operations Management 409** **H(3-1)****Computer Simulation for Business**

Computer simulation as an analysis and decision-making tool for all management disciplines. The emphasis is on developing practical skills that











**Philosophy 321 H(3-0)****Metaphysics**

An examination of such topics as categories, existence, persons, space, time, necessity.

**Prerequisite:** A previous course in Philosophy or consent of the Department.

**Philosophy 329 H(3-0)****Business Ethics**

A critical and analytical examination of some central moral problems that arise in and for business. Emphasis throughout the course will be placed not only on the details of the particular problems studied but also on the conceptual and other tools needed to understand and resolve or solve such problems. Topics to be discussed will include the moral responsibilities and rights of corporations and their officers, codes of business ethics, and conflicts of responsibilities and rights.

**Philosophy 331 H(3-0)****Philosophy of Religion**

A philosophical examination of the fundamental concepts of religious thinking.

**Prerequisite:** Religious Studies 205 or a previous course in Philosophy or consent of the Department.

**Philosophy 333 H(3-0)****Aesthetics**

An examination of the criteria and concepts employed in aesthetic evaluation.

**Philosophy 337 H(3-0)****Feminist Philosophy**

Issues in feminist philosophy and methodology. Topics may include feminist theories of knowledge and science, ethics, metaphysics, political theory and feminist methodology.

**Philosophy 343 H(3-0)****Plato**

A study of the writings of Plato.

**Prerequisite:** A previous course in the History of Philosophy or consent of the Department.

**Philosophy 347 H(3-0)****Contemporary Moral Problems**

A critical and analytical examination of some current moral issues. Topics to be investigated may include: authority, religion in society, suicide, sexual morality, abortion, the legal enforcement of morality, justice.

**Philosophy 349 H(3-0)****Contemporary Ethical Theories**

A detailed investigation of some central normative ethical theories, including utilitarian, contractarian, and deontological theories.

**Prerequisite:** A previous course in Philosophy or consent of the Department.

**Philosophy 355 H(3-0)****Hume**

A study of the writings of Hume.

**Prerequisite:** A previous course in the History of Philosophy or consent of the Department.

**Philosophy 363 H(3-0)****Epistemology**

A study of some of the central problems in epistemology, including the following: knowledge and belief, empirical (perceptual and inductive) knowledge, a priori knowledge, appearance and reality, truth, scepticism.

**Prerequisite:** A previous course in Philosophy or consent of the Department.

**Philosophy 367 H(3-0)****Science and Philosophy**

For students in any discipline who would like to understand some of the fundamental principles of scientific enquiry. Topics will include scientific explanation, theory, prediction and confirmation.

**Philosophy 369 H(3-0)****Nineteenth Century European Philosophy**

A study of the major currents in nineteenth-century philosophy. Central figures in this tradition include Fichte, Schelling, Hegel, Feuerbach, Marx, Kierkegaard, Schopenhauer and Nietzsche. The particular works and authors studied will vary from year to year.

**Prerequisite:** A previous course in Philosophy or consent of the Department.

**Philosophy 377 H(3-1T)****Elementary Formal Logic**

Sentential and first-order logic, with identity and descriptions, from both deductive and semantic points of view. Completeness, compactness, decidability for sentential logic.

**Note:** Not open to students with credit in Philosophy 279.

**Philosophy 379 H(3-0)****Logic II**

Introduction to the metatheory of logical systems. Completeness, compactness, Löwenheim-Skolem, and undecidability theorems for first-order logic. Preview of non-standard models, second-order logic, and Gödel's first incompleteness theorem.

**Prerequisite:** Philosophy 279 or 377 or consent of the Department.

**Philosophy 381 H(3-0)****Philosophy of Mind**

A study of topics such as: thought, emotions, action and the will, mind-body identity, personal identity, and theories about the nature of mind.

**Prerequisite:** A previous course in Philosophy or consent of the Department.

**Philosophy 399 H(3-0)****Topics in Philosophy**

A detailed examination of a topic or tradition in European or Anglo-American philosophy. In years when the course is being offered a detailed course outline giving the topic or tradition to be discussed will be available.

**MAY BE REPEATED FOR CREDIT**

**Philosophy 405 H(3-0)****Early Modern Authors**

A study of the writings of a seventeenth or eighteenth century philosopher other than Hume or Kant. In years when the course is offered a course

outline giving the author and aspects of his/her philosophy to be treated will be available from the department office.

**Prerequisites:** Two previous courses in Philosophy, one of which must be Philosophy 301, 303, or 305; or consent of the Department.

**MAY BE REPEATED FOR CREDIT**

**Philosophy 407 H(3-0)****Twentieth Century Analytic Philosophy**

A study of the writings of a selected set of twentieth century analytical philosophers, which may include authors such as Russell, Wittgenstein, Austin, Quine, Putnam, Kripke, Dummett, Davidson. In years when the course is offered a course outline giving the authors to be discussed will be available from the department office.

**Prerequisites:** Two previous courses in Philosophy at least one of which must be a 300 or higher level course, and the other of which must be either Philosophy 279 or 377; or consent of the Department.

**MAY BE REPEATED FOR CREDIT**

**Philosophy 409 H(3-0)****Current Topics in Philosophy**

An intensive study of a selected current topic in Philosophy

**Prerequisites:** Two previous courses in Philosophy, at least one of which is at the 300 level, or consent of the Department.

**MAY BE REPEATED FOR CREDIT**

**Philosophy 421 H(3-0)****Problems in Metaphysics**

An intensive study of a selected problem in metaphysics.

**Prerequisites:** Two previous courses in philosophy, at least one of which must be a 300 or higher level course; or consent of the Department.

**MAY BE REPEATED FOR CREDIT**

**Philosophy 431 H(3-0)****Marx and Engels**

A philosophical study of the methods and concepts in the writings of socialist thinkers, primarily Marx and Engels. Topics to be considered may include the dialectic, materialism, alienation, structure of a theory of society, and the philosophical source of these as applied to the writings of Marx and Engels.

**Prerequisites:** Two previous courses in philosophy, at least one of which must be a 300 or higher level course; or consent of the Department.

**Philosophy 433 H(3-0)****The Socialist Tradition**

A study of selected thinkers or topics in Marxist or socialist thought.

**Prerequisites:** Two previous courses in philosophy, at least one of which must be a 300 or higher level course; or consent of the Department.

**MAY BE REPEATED FOR CREDIT**

**Philosophy 435 H(3-0)****Topics in Aesthetics**

An intensive study of a selected topic in Aesthetics.

**Prerequisites:** Two previous courses in Philosophy, at least one of which is at the 300 level, or consent of the Department.

**MAY BE REPEATED FOR CREDIT**

**Philosophy 443** H(3-0)***Aristotle***

A study of the writings of Aristotle.

**Prerequisite:** At least one of Philosophy 301, 303, 305, 343; or consent of the Department.

**Philosophy 445** H(3-0)***Aquinas***

A study of the writings of St. Thomas Aquinas.

**Prerequisites:** Two previous courses in philosophy, one of which must be Philosophy 301 or 303 or 305; or consent of the Department.

**Philosophy 447** H(3-0)***Issues in Environmental Ethics***

A philosophical examination of selected issues concerning how human beings ought to conduct themselves in relation to other living species and the natural environment. Topics may include: obligations to future generations; animal liberation theories; population policy; pollution; the value of species diversity and species preservation; biocentric and holistic ethical theories of environment; ethical dimension of environmental policy formation.

**Prerequisite:** One of Philosophy 249, 313, 329, 347, 349 or consent of the Department.

**Philosophy 449** H(3-0)***Contemporary Meta-Ethics***

A study of recent theories about the meaning of moral terms, the nature of moral reasoning, and the relations between facts and values. Theories to be studied will include naturalism, intuitionism, emotivism, prescriptivism, and nihilism.

**Prerequisites:** Two previous courses in philosophy, at least one of which must be a 300 or higher level course, and one of which must be a moral philosophy course; or consent of the Department.

**Philosophy 453** H(3-0)***Social and Political Philosophy***

A study of some fundamental issues in social and political thought. Issues to be studied may include: rights, justice, authority, equality, freedom, democracy, property, liberalism, communitarianism.

**Prerequisites:** Two previous courses in philosophy, at least one of which must be a 300 or higher level course; or consent of the Department.

Philosophy 447

H(3-04J /F7 1 TfKantocial and Political PhilosophyAKant, prescriptivism, and nihilism.Prerequisites: Two previous courses in philos



## Senior Courses

**Physical Education Activity/Theory 319 E(0-2)*****Volleyball II***

**Prerequisite:** Physical Education Activity/Theory 219.

**Physical Education Activity/Theory 329 E(0-2)*****Diving II***

**Prerequisite:** Physical Education Activity/Theory 229.

**Physical Education Activity/Theory 363 Q(0-4)*****Alpine Skiing II***

**Prerequisite:** Physical Education Activity/Theory 263.

**Physical Education Activity/Theory 501 E(0-2)*****Special Topics in Physical Activity***

**Prerequisite:** Consent of the Faculty.

**MAY BE REPEATED FOR CREDIT**

**Physical Education Activity/Theory 503 Q(0-4)*****Special Topics in Physical Activity***

**Prerequisite:** Consent of the Faculty.

**MAY BE REPEATED FOR CREDIT**

Instruction offered by members of the Department of Physics and Astronomy in the Faculty of Science.

Department Head - R. B. Hicks

**Note:** For listings of related courses, see Applied Physics, Astronomy, Astrophysics, Medical Physics and Space Physics.

Students intending to register in any Physics course should read the relevant Faculty of Science Program section of this Calendar.

Some Physics courses offered during First Year and the first session of Second Year are composed of modules (M1 to M13 and L1 to L4, listed below); see course listings for Physics 211, 219, 221, 223, 259, 269, 319, 321, 323 below.

**Modules for First Year and First Session Second Year Physics Courses**

**M1 Motion and Kinematics.** Motion in one dimension, including displacement, velocity and acceleration; relative motion; graphical analysis of motion.

**M2 Forces and Acceleration.** Newton's laws of motion; vectors; statics with forces; vector kinematics; uniform circular motion and other curvilinear motion; non-inertial reference frames.

**M3 Energy, Momentum and Torques.** Ddnssorksection o -D.131en non-inertial ref,cienc4 TD 0.0001 Tw (modules 2(Ddnssorksar



---

**Physics 499** H(1-3T)

---

***Problem-Solving in Physics***

Solving problems that require methods from more than one area of physics. Problems may include physics of lasers, atoms and molecules, plasmas, rocket flight, fluids, and special relativity.

**Prerequisites:** Physics 343, 455, 449.

**Prerequisite or Corequisite:** Physics 443.

---

**Physics 501** H(3-0)

---

***The Theory of Relativity***

Review of relativistic kinematics and its geometrical interpretation. Applications of relativistic kinematics. Four-vector formalism and tensors in Minkowski space with applications. Introduction to Riemannian geometry and tensors in curved spacetime. Einstein equation. Schwarzschild metric and applications.

**Prerequisites:** Physics 301 and one of Mathematics 353 or Applied Mathematics 309.

---

**Physics 507** H(3-0)

---

***Solid State Physics***

Crystal structure. Classification of solids and their bonding. Fermi surface. Elastic, electric and magnetic properties of solids.

**Prerequisites:** Physics 443 or Chemistry 373; Physics 449, 455.

ultraviolet spectroscopic techniques. Hund's coupling cases. Polyatomic molecular spectroscopy. Examples from astronomy and upper atmosphere/ space physics.

---

**Physics 673** **H(3-0)**

---

***Non-Linear Optics and Quantum Electronics***

Operating principles and capabilities of lasers. Theory and application of nonlinear optics and quantum electronics with possible examples including nonlinear mixing, optical parametric oscillators, stimulated Brillouin and Rayleigh Scattering, and electro-optic effects.

---

**Physics 675** **H(3-0)**

---

***Special Topics in Laser and Optical Sciences***

Lectures by Physics and Astronomy, Chemistry, Engineering, and/or Medicine staff on current research topics in laser science and modern optical techniques.

**MAY BE REPEATED FOR CREDIT**

---

**Physics 691** **H(2S-0)**

---

***Graduate Seminar***

Reports on studies of the literature or of current research. Required of all graduate students in the Department of Physics and Astronomy.

**MAY BE REPEATED FOR CREDIT**

**NOT INCLUDED IN GPA**

---

**Physics 697** **H(3-0)**

---

***Topics in Contemporary Physics***

Topics will be from the research areas of staff members.

**MAY BE REPEATED FOR CREDIT**

---

**Physics 699** **H(0-9)**

---

***Project in Physics***

Each student will select a project in consultation with a staff member. The project may be experimental or theoretical in nature. A written report and an oral presentation are required.

---

**Physics 701** **H(0-9)**

---

***Independent Study***

Each student will select a topic of study in consultation with a staff member. The topic will be in the research area of the staff member. This course may not be used to meet the regular course requirements in the MSc and PhD programs.

**MAY BE REPEATED FOR CREDIT**

Instruction offered by members of the Department of Political Science in the Faculty of Social Sciences.

Department Head - R. C. Keith

Junior Courses

---

**Political Science 201** **H(3-1T)**

---

***Introduction to Government and Politics***

A systematic introduction to the basic concepts and institutions of the process of politics.

---

**Political Science 213** **H(3-0)**  
(formerly Political Science 313)

---

***Political Ideologies***

An introduction to the study of political ideologies such as nationalism, socialism, liberalism and fascism.

---

**Political Science 225** **H(3-0)**

---

***Canadian Politics: A Comparative View***

An introduction to the study of government and politics through the examination of current issues and trends in post-industrial nations, comparing Canada with Europe and Anglo-American democracies.

---

**Political Science 279** **H(3-0)**  
(formerly Political Science 379)

---

***Politics of the Global South***

An introduction to political issues common to the developing regions of Africa, Asia, Latin America and the Middle East, with special emphasis on topics such as democratization, globalization, development, and human rights.

---

**Political Science 283** **H(3-0)**

---

***Issues and Trends in World Politics***

Major trends and issues in world politics, such as international tensions, migration, ethnic conflicts, human rights and sustainable development.

Senior Courses

In selecting Senior Courses and in designing their programs, students are advised to consult the Undergraduate Guide, available from the Department.

---

**Political Science 309** **H(3-0)**

---

***Rational Choice***

Topics such as game theory, cooperation, collective action, public choice, coalitions and voting rules.

---

**Political Science 310** **F(3-0)**

---

***History of Political Thought***

Focuses on the quest for the good regime in the West. The criteria for the good regime will be , cooon to 14 Tgime will br04 Ttel.971 polRo09.), (topiedievy)71.Aug -0in.97rent issues



**Political Science 375** H(3-0)**Government and Politics of Russia**

The collapse of the U.S.S.R. and Russia's constitution, power struggles, elections, democracy, and marketization.

**Political Science 377** H(3-0)**Government and Politics of the United States**

A study of the institutions and processes of American politics.

**Political Science 381** H(3-0)**Introduction to International Relations**

The structures and processes of international relations and foreign policy.

**Political Science 383** H(3-0)**Introduction to International Law**

The basic concepts, principles, and functions of international law.

**Prerequisite:** Political Science 381 or consent of the department.

**Political Science 385** H(3-0)**Introduction to International Organizations**

An introductory analysis of international governmental organizations with main emphasis on the United Nations and selected regional organizations.

**Prerequisite:** Political Science 381 or consent of the department.

**Political Science 387 (History 387)** H(3-0)**Political History of Ireland from 1603**

A study of modern Ireland from the English conquest of 1603 to the present. It will include a special emphasis on the origins of the contemporary Irish Republic and Northern Ireland.

**Political Science 389 (History 389)** H(3-0)**Government and Politics of Japan Since 1850**

Political development of modern and contemporary Japan, and Japan's diplomatic relations with its Asia-Pacific neighbours.

**Note:** Not open to students with credit in Political Science 367.

**Political Science 391 (History 391)** H(3-0)**Modern Latin American Politics and Society**

A political history of modern and contemporary Latin America. Themes may include populism, revolution, militarism, new social movements, and democratization.

**Note:** Not open to students with credit in Political Science 373.

**Political Science 399** H(3-1T)**Research Methods**

Research design, measurement, data collection, and data analysis.

**Prerequisite:** One half course at the 200 level in Political Science or consent of the Department.

**Note:** Credit towards degree requirements will be given for only one of Anthropology 307, Applied Psychology 301/303, Engineering 319, Political

Science 399, Psychology 312, Sociology 311/315, Statistics 201/211, 213/217, 333, 357; that one being a course appropriate to the degree program.

All courses numbered 401-597 inclusive are generally offered in alternate years. Please consult the master timetable.

**Political Science 401** H(3-0)**Property and Justice**

Ethical reflections on theories of property in their political context. Focus on Augustine, Aquinas and contemporary Christian views.

**Prerequisite:** Political Science 310 or consent of the Department.

**Political Science 405** H(3-0)**Biopolitics**

Biological and cultural origins of political behaviour. Topics such as altruism, reciprocity, sex differences, aggression, and emergence of the state.

**Political Science 407** H(3-0)**Classical Political Thought**

An examination of selected classical texts from historians, dramatists and political philosophers with special focus upon the concepts relevant to political problems in the twentieth century.

**Prerequisite:** Political Science 310 or consent of the Department.

**Political Science 409** H(3-0)**Liberalism and Conservatism**

Liberal and conservative writers such as J.S. Mill and Edmund Burke. Contemporary developments in neoliberalism and neoconservatism.

**Prerequisite:** Political Science 310 or consent of the Department.

**Political Science 411** H(3-0)**Recent Political Thought**

A study of selected twentieth-century political thinkers and their critics. Consult the department for information on the selection of topics.

**Prerequisite:** Political Science 310 or consent of the Department.

**Political Science 413** H(3-0)**Politics and Literature**

Political analysis of how selected works of literature articulate visions of order and disorder.

**Prerequisite:** Political Science 310 or consent of the Department.

**Political Science 423** H(3-0)**Politics of the Canadian North**

The evolution of government and politics in Canada's Territories.

**Political Science 425** H(3-0)**Local Government**

A study of both institutions and political processes at the local level.

**Prerequisite:** Political Science 321 or consent of the Department.

80.04 6980Tm 0.0001 Tc -0.0017 Tw [(Political Science 425)-1015355(H(3-0))]TJ/F7 1 Tf 0 -1.8 TD 0.013 Tc -.0012 T

---

**Political Science 447** H(3-0)

---

***Public Policy Issues***

Case studies of selected public policies. Emphasis on Canada, with comparative examples.

**Prerequisite:** Political Science 357.

---

**Political Science 451** H(3-0)

---

***Public Administration***

Presidential relations, and budgetary, fiscal and social relations. May be offered as a simulation.

**Prerequisite:** Political Science 377.

---

**Political Science 579** **H(3-0)**

***Political Economy of Development***

Third World development projects, programs, and policies in Africa, Asia and Latin America, intended to raise the standard of living and enhance political participation.

**Prerequisite:** Political Science 379 or consent of the Department.

---

**Political Science 581** **H(3S-0)**

***Selected Topics in International Law and Organizations***

An advanced seminar on international order and on cooperative and competitive efforts by states and other international actors to create, maintain and change that order.

**Prerequisite:** Political Science 383 or 385 or consent of the Department.

---

**Political Science 583** **H(3-0)**  
**(History 583)**

***The United States and the World since 1890***

A historical and analytical examination of the development of modern United States foreign policy from the late nineteenth century to the present. Topics include the institutional structure of foreign policy decision-making, including the role of the President, Congress, State Department, Pentagon and public opinion, and the relationship between domestic politics and foreign policy. Historical dimensions include the turn to imperialism, World War I, the coming of World War II, the Cold War, Korea, Vietnam, Latin American relations, strategic arms limitations talks, and detente.

**Prerequisites:** Third or fourth year standing and one of History 219 or 383, Political Science 381 or consent of the Department.

---

**Political Science 597** **H(3-0)**

***Directed Readings in Political Science***

Students wishing to register in this course must submit to the Head of the Department a detailed statement by the instructor of the work to be carried out.

**Prerequisite:** Consent of the Department.

**MAY BE REPEATED FOR CREDIT**

**Graduate Courses**

Courses numbered 600-799 are offered either as special reading courses or as seminars, as required. Students should consult the Department regarding enrollment in these courses.

---

**Political Science 615** **H(3-0)**

***Advanced History of Political Thought***

Intensive study of major political thinkers.

---

**Political Science 617** **H(3-0)**

***Advanced Political Theory***

Discussion of contemporary topics in political thought. Emphasis on analysis of problems rather than history of ideas.

---

**Political Science 619** **H(3-0)**

***Applied Ethics and Military Force***

An examination of the philosophical justifications offered to defend the use of military force, based particularly on the analysis of texts in the history of Western political philosophy.

---

**Political Science 621** **H(3-0)**

***Canadian Federal Politics***

Examination of the structure and operation of the Canadian federal state including its constitutional framework, parliamentary government, intergovernmental relations, and political culture.

---

**Political Science 623** **H(3-0)**

***Canadian Political Process***

Examination of Canadian political behaviour within its institutional context, including political parties, interest groups, voting and socialization. Computer use is optional.

---

**Political Science 625** **H(3-0)**

***Canadian Public Administration***

Examination of the problems of administrative agencies and public authorities.

---

**Political Science 631** **H(3-0)**

***Parties, Elections and Representation***

An examination of political parties and elections in both established and emerging democracies as a means of understanding the nature of political representation in modern representative democracies.

---

**Political Science 641** **H(3-0)**

***Selected Topics in Public Law***

Examination of the political, philosophical, and institutional dimensions of selected public law issues, with particular reference to judicial and quasi-judicial tribunals as policy-making institutions. Consult the Department for information on choice of topics.

---

**Political Science 651** **H(3-0)**

***Policy Studies***

Critical review of major themes, issues, and approaches in the study and evaluation of public policy.

---

**Political Science 671** **H(3-0)**

***Advanced Comparative Politics: Political Development***

Analysis of comparative methods and paradigms of political development.

---

**Political Science 673** **H(3-0)**

***Advanced Comparative Politics: Institutions and Systems***

Comparative analysis of political institutions and systems.

---

**Political Science 675** **H(3-0)**

***Selected Topics in Advanced Comparative Politics***

675.01. Middle East 675.02. Africa 675.03. East Asia 675.04. Latin America 675.05. Western Europe 675.06. Eastern Europe and the Former Soviet Union 675.07. Public Policy 675.08. Politics of Development

---

**Political Science 681** **H(3-0)**

***Advanced Analysis of International Relations***

Selected issues and approaches in the analysis of world politics.

---

**Political Science 683** **H(3-0)**

***Advanced Studies in Foreign Policy***

Selected themes in the formation and implementation of foreign policies.

---

**Political Science 685** **H(3-0)**

***Strategic Studies***

Advanced seminar in major topics in strategic studies, such as arms control, deterrence, and other military doctrines.

---

**Political Science 687** **H(3-0)**

***Mass Violence and Human Rights***

An examination of the political, ethical and legal dilemmas surrounding collective violence and its impact on populations in the context of Post-Cold War case histories.

---

**Political Science 691** **H(3-0)**

***Quantitative Analysis in Political Science***

Examination of empirical research methods and techniques of quantitative analysis in the study of political phenomena. Computer use is required.

---

**Political Science 693** **H(3-0)**

***Theoretical Foundations of Political Science***

---

**Political Science 715** **H(3-0)**

***Special Topics in Political Theory***

**MAY BE REPEATED FOR CREDIT**

---

**Political Science 721** **H(3-0)**

***Special Topics in Canadian Politics***

**MAY BE REPEATED FOR CREDIT**

---

**Political Science 725** **H(3-0)**

***Special Topics in Public Administration***

**MAY BE REPEATED FOR CREDIT**

---

**Political Science 741** **H(3-0)**

***Special Topics in Public Law***

**MAY BE REPEATED FOR CREDIT**

---

**Political Science 751** **H(3-0)**

***Public Policy Case Study I***

---

**Political Science 753** **H(3-0)**

***Public Policy Case Study II***

**Prerequisite:** Political Science 751.

---

**Political Science 755** **H(3-0)**

***Special Topics in Public Policy***

**MAY BE REPEATED FOR CREDIT**



environment; display and control devices, design and evaluation of the built environment, human skills and limitations, work schedules, safety, and research methods in human factors engineering.

**Prerequisite:** Psychology 312.

---

**Psychology 427** H(3-2)(Area III)

**Environmental Psychology**

The theory and data pertaining to the relationship between human behaviour and the physical environment, both natural and built. Particular emphasis is placed on the implications of current knowledge for the management of the human-environment interface. A research project is an integral part of the course.

**Prerequisite:** Psychology 312.

---

**Psychology 429** H(3-2)(Area II)

**Adolescence**

An in-depth examination of the physical, cognitive, emotional, and social changes occurring during adolescence, drawing upon theory and relevant research.

**Prerequisites:** Psychology 312 and 351.

**Note:** Not open to students with credit in Psychology 355.

---

**Psychology 431** H(3-0)(Area II)  
(formerly Psychology 481)

**Current Issues in Psychopathology**

Coverage of the theoretical and methodological aspects of current research into the etiology and modification of behavioural and experiential disorders.

**Prerequisites:** Psychology 312 and 385.

---

**Psychology 433** H(3-2)(Area II)  
(formerly Psychology 483)

**Clinical Psychology**

Assessment and treatment problems in clinical settings.

**Prerequisite:** Psychology 385. Psychology 331 is recommended.

**Note:** Restricted to fourth-year Psychology Majors and fourth-year Psychology Honours students.

---

**Psychology 435** H(3-2)(Area II)  
(formerly Psychology 485)

**Behaviour Modification**

Current behaviour change procedures for children and adults. Practical considerations involved in the selection, implementation, maintenance, and evaluation of behaviour modification programs.

**Prerequisite:** Psychology 385.

**Note:** Restricted to fourth-year Psychology Majors and fourth-year Psychology Honours students.

---

**Psychology 437** H(3-0)(Area II)  
(formerly Psychology 487)

**Health Psychology**

Concepts linking psychology to issues of physical health and illness. Lectures and student-led presentations include mind-body issues, emotions and body awareness, stress-management, psychoimmunology, psychopharmacology, pain, health, and social support.

**Prerequisite:** Psychology 205.

**Note:** Restricted to Psychology Majors and Honours students with third or fourth year standing.

---

**Psychology 439** H(3-0)(Area II)

**Psychology of Gender**

An analysis of psychological theory and research on gender situated within the interdisciplinary field of gender studies. Topics include the meaning of gender, psychological development and gender, and gender and interpersonal relationships.

**Prerequisites:** Psychology 312, and one of 345 or 351.

**Note:** Note open to students with credit in Psychology 347.

---

**Psychology 441** H(3-2)(Area II)  
(formerly Psychology 445)

**Social Psychology: Theory and Research**

A review of current theory and research in the area of social psychology. Research projects will introduce methodologies used in this area.

**Prerequisites:** Psychology 312 and 345.

**Note:** Sociology 341 does not substitute for Psychology 345 as a prerequisite.

---

**Psychology 443** H(3-0)(Area II)

**Interpersonal Relationships**

Application of social psychological theory and methodology to a variety of topics in the area of interpersonal relationships such as attraction, close relationships, interpersonal conflict, communication, and power. Course projects will be an integral part of the course.

**Prerequisites:** Psychology 312 and 345.

**Note:** Sociology 341 does not substitute for Psychology 345 as a prerequisite.

---

**Psychology 447** H(3-0)(Area II)

**Advanced Topics in Personality or Social Psychology**

An examination of current research topics in personality or social psychology or gender.

**Prerequisites:** Psychology 205 and appropriate 300-level course. Students are advised to consult with the Department regarding specific prerequisites for the course in a given year.

**Note:** May be repeated once for credit with consent of the Department.

---

**Psychology 449** H(3-2)(Area II)  
(formerly Psychology 453)

**Experimental Child Psychology: Social-Personality Development**

Socialization processes and behaviours from birth to adolescence; observational learning, altruism, moral development, sex-roles, dependency, emotional development, and social motivation.

**Prerequisites:** Psychology 312 and one of 351 or 355.

---

**Psychology 451** H(3-2)(Area III)

**Experimental Child Psychology: Basic Processes**

Neonatal, infant, and child behaviour drawn from the laboratory and experimental research; sensory and basic learning processes and perceptual-cognitive development.

**Prerequisites:** Psychology 312 and 351.

---

**Psychology 455** H(3-0)(Area III)

**Sensory, Perceptual, and Cognitive Aspects of Aging**

Basic research and contemporary issues in the age-related changes in sensation, perception, attention, learning and memory, intelligence and problem-solving.

**Prerequisites:** Psychology 312 and 353.

**Note:** Not open to students with credit in Psychology 553.

---

**Psychology 457** H(3-0)(Area II)

**Social and Clinical Aspects of Aging**

Stability and change in the later years of life with a focus on social and clinical areas of aging.

**Prerequisites:** Psychology 312 and 353.

**Note:** Not open to students with credit in Psychology 553.

---

**Psychology 459** H(3-0)(Area II)  
(formerly Psychology 559)

**Developmental Psychopathology**

A critical examination of developmental psychopathology during childhood and adolescence with an emphasis on the characteristics of the disorders, their determinants, and outcomes. Current theories and research, and recent trends in intervention and prevention will be emphasized.

**Prerequisite:** Psychology 359 or both 351 and 385.

---

**Psychology 461** H(3-2)(Area III)

**Learning: Theory and Research**

Traditional and contemporary learning theory emphasizing infrahuman data.

**Prerequisite:** Psychology 312.

---

**Psychology 463** H(3-2)(Area III)

**Memory**

Current and classic memory research is explored. Topics include how memories are encoded, stored, and retrieved. Laboratory projects introduce methodologies used in memory research.

**Prerequisites:** Psychology 312 and 365.

---

**Psychology 465** H(3-2)(Area III)

**Research in Cognitive Psychology**

Current research in human memory, thinking, attention, and language processing is explored. Laboratory projects will introduce research methodologies used in these areas.

**Prerequisites:** Psychology 312 and 365.

---

**Psychology 467** H(3-2)(Area III)

**Experimental Psycholinguistics**

Exploration of the cognitive, neuropsychological, and social processes that underlie language abilities. A laboratory component provides experience with methodologies used to study language behaviour.

**Prerequisite:** Psychology 312.

**Note:** Not open to students with credit in Linguistics 339.









---

**Psychology 727** H(3-0)

---

***Seminar in Social/Personality Psychology***

Selected topics related to interpersonal processes, gender, justice, and personality and its assessment.

**Prerequisite:** Consent of the Department.

**MAY BE REPEATED FOR CREDIT**

---

**Psychology 728** F(0-3)

---

**Pure Mathematics 319** H(3-1T)**Transformation Geometry**

Geometric transformations in the Euclidean plane. Frieze patterns. Wallpaper patterns. Tessellations.

**Prerequisites:** Mathematics 211 or 221 and one other 200-level Mathematics course.

**Pure Mathematics 329** H(3-1T)**Introduction to Cryptography**

Description and analysis of cryptographic methods used in the authentication and protection of data. Classical cryptosystems and cryptanalysis, information theory and perfect security, the Data Encryption Standard (DES) and Public-key cryptosystems.

**Prerequisite:** Mathematics 271.

**Note:** Credit for both Pure Mathematics 329 and 321 will not be allowed.

**Pure Mathematics 371** H(3-1T)**Combinatorial Mathematics**

Counting, graph theory, combinatorial optimization.

**Prerequisite:** Mathematics 271.

**Pure Mathematics 415** H(3-1T)**Set Theory**

Axioms for set theory, the axiom of choice and equivalents, cardinal and ordinal arithmetics, induction and recursion on wellfounded sets, infinitary combinatorics, applications.

**Prerequisite:** Mathematics 271 or 311 or 353 or Pure Mathematics 315 or consent of the Division.

**Pure Mathematics 419** H(3-0)  
**(Statistics 419)****Information Theory and Error Control Codes**

Information sources, entropy, channel capacity, development of Shannon's theorems, development of a variety of codes including error correcting and detecting codes.

**Prerequisites:** Mathematics 311, and Mathematics 271 or Statistics 419 or consent of the Division.

