

*Principal*

CALVIN S. KALMAN, PhD *University of Rochester; Professor, Physics, Provost's Distinction*

*Fellows*

SYED T. ALI, PhD *University of Rochester; Professor, Mathematics and Statistics*  
CATHERINE BACHEWICH, PhD *York University; Associate Professor, Biology*  
SIMON L. BACON, PhD *University of Birmingham; Associate Professor, Exercise Science*  
ANDREAS BERGDAHL, PhD *Lund University; Assistant Professor, Exercise Science*  
WAYNE BRAKE, PhD *McGill University; Associate Professor, Psychology*  
GRANT BROWN, PhD *Memorial University of Newfoundland; Professor, Biology*  
ALEXANDRE CHAMPAGNE, PhD *Cornell University; Assistant Professor, Physics*  
NADIA CHAUDHRI, PhD *University of Pittsburgh; Assistant Professor, Psychology*  
RICHARD DEMONT, PhD *University of Pittsburgh; Associate Professor, Exercise Science*  
EMMA DESPLAND, PhD *University of Oxford; Associate Professor, Biology*  
JAMES GRANT, PhD *University of Guelph; Professor, Biology*  
JOHN HARNAD, DPhil *University of Oxford; Professor, Mathematics and Statistics, Provost's Distinction*  
PAUL JOYCE, PhD *Dalhousie University; Professor, Chemistry and Biochemistry*  
LASZLO KALMAN, PhD *University of Szeged; Associate Professor, Physics; Chemistry and Biochemistry*  
GUILLAUME LAMOUREUX, PhD *Université de Montréal; Assistant Professor, Chemistry and Biochemistry*  
DAVID MUMBY, PhD *University of British Columbia; Associate Professor, Psychology*  
JUDITH PATTERSON, PhD *Virginia Polytechnic Institute; Associate Professor, Geography, Planning and Environment*  
JAMES G. PFAUS, PhD *University of British Columbia; Professor, Psychology*  
NATALIE PHILLIPS, PhD *Dalhousie University; Professor, Psychology*  
VLADIMIR TITORENKO, PhD *Institute for Genetics and Selection of Industrial Microorganisms, Moscow; Associate Professor, Biology*  
DAJANA VUCKOVIC, PhD *University of Waterloo; Assistant Professor, Chemistry and Biochemistry*  
CHRISTOPHER WILDS, PhD *McGill University; Associate Professor, Chemistry and Biochemistry*  
VALTER ZAZUBOVITS, PhD *University of Tartu; Associate Professor, Physics*

*Affiliate Fellows*

MICHEL COTÉ, PhD *University of California, Berkeley; Physics, Université de Montréal*  
MAJID FOTUHI, MD *Harvard University, PhD Johns Hopkins University; Johns Hopkins Medical Centre and Sinai Hospital of Baltimore*  
LUCIEN-ALAIN GIRALDEAU, PhD *McGill University; Biology, Université du Québec à Montréal*  
MICHAEL GREENWOOD, PhD *McGill University; Medicine, McGill University*

*For the complete list of faculty members, please consult the Department website.*

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**Location***Loyola Campus*

Richard J. Renaud Science Complex, Room: SP 363.00 – 363.09  
514-848-2424, ext. 2595

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**Objectives**

The aim of the Science College is to prepare students enrolled in one of Concordia's science programs for a life of research, teaching, or some similarly demanding intellectual pursuit in a profession. The academic program of the College complements the regular undergraduate curriculum and includes cross-disciplinary courses and student participation in laboratory research activities from the first year on. The collegial atmosphere fosters interaction among students and between students and faculty.

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In Science College, students will gain an understanding of several areas of science, while specializing in whichever one they choose. Curricular structures frequently restrict students to a single discipline. To help counteract excessive specialization, the Science College has designed a series of courses to show what practising physicists think about physics; what mathematicians do when they are thinking mathematics: — not “an introduction to,” but “the state of the art.”

The College provides an opportunity for students to become acquainted with science as practised and understood by scientists today. Its curriculum is planned to fulfill the primary goals of the College — to provide an opportunity for experience in a research environment, for thinking about the nature of science, and for becoming aware of the style and content of the various scientific disciplines.

In Science College, students have the opportunity to work individually with active research scientists. This is done through a program of directed or independent study in each undergraduate year which enables them to undertake or participate in projects of discovery in a variety of different areas of scientific endeavour.

Students of the College will also be provided with an opportunity to consider the nature of science. The College offers courses in the intellectual and social context of science. Designed specifically for College students, these courses raise questions of broad interest to scientists and presume an understanding of the subject matter of science itself.

Students will also be given the opportunity to consider the social and cultural framework of their science studies through a basic course in some aspect of humanistic studies.

Finally, students will be encouraged to appreciate the link between clarity of thought and clarity of expression, through the availability of tutorial assistance in the development of writing skills.

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### Facilities

The College has study and lounge areas, computer facilities, a small library, and a few periodicals of general interest. The College offers students the opportunity and facilities to discuss matters of interest among themselves and with their professors. Science College also offers a number of courses and invites scientists to visit the University to meet College students.

### Requirements for Admission to Science College

The program of Science College is academically demanding, involving concentration in one discipline and a critical investigation of other aspects of science. The College is committed to serious academic work and high standards, and seeks to attract talented and enthusiastic students who are willing to work hard in a search for a deeper understanding of their subject.

Students must enrol in a science program that leads to a BSc or BA (cognitive science) degree in order to be part of Science College. Students registered for a BA in Journalism are also eligible, as are students registered in the General Science Option of Computer Science.

In addition to the normal requirements for admission to the University's various programs, applicants are expected to have a good academic average. They will be considered on the basis of their academic record, and a personal interview. Preference will be given to students who show a disposition and an aptitude to profit from the unique features of the sort of fundamental scientific education which the College offers. Applicants are encouraged to provide evidence of the range of their intellectual interests and of any creative activity in which they may have been involved.

Students must be prepared to attend courses at times outside the normal University schedule. The College is open to full-time students only.

### Science College and Journalism

A limited number of students who have been admitted to the Major in Journalism program may be allowed to register in the Science College, with a view to combining a basic understanding of science with a training in journalism.

### Performance Requirement

Students in the College must obtain a minimum grade of "B-" in all courses required for the Minor in Multidisciplinary Studies in Science, as well as in all courses counted toward their discipline-based honours, specialization, or major program. Students who receive a grade lower than "B-" are permitted to repeat the course. Students who receive a second grade lower than a "B-" are normally withdrawn from the minor.

### Further Information

Further information on the courses and activities of the Science College may be obtained either by writing or by telephoning the College office. Personal interviews with a fellow of the Science College may be arranged through the Science College office.

### Science College Curriculum

The College offers a Minor in Multidisciplinary Studies in Science, consisting of a core of courses which is required of all students. This core consists of 30 of the 90 credits normally required for a BSc degree. These courses have been developed specifically for the College with the intention of providing a unique, integrated program of education in science.

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## Program

*In addition to completing the core curriculum, students are responsible for satisfying their particular degree requirements by completing a departmental honours, specialization, or major program leading to a BSc or BA (cognitive science). The superscript indicates credit value.*

### 24-30 Minor in Multidisciplinary Studies in Science

- 6 SCOL 270<sup>6</sup>
- 6 SCOL 290<sup>3</sup>, 390<sup>3</sup>
- 6 SCOL 490<sup>6\*</sup>
- 12 Chosen from SCOL 350<sup>3\*\*\*</sup>, SCOL 360<sup>3\*\*\*</sup>, LBCL 291<sup>6\*\*</sup>, 292<sup>6\*\*</sup>

*\*After consultation with the College, this course may be replaced by BIOL 490, CHEM 450, or PSYC 495.*

*\*\*Only one of these courses may be taken.*

*\*\*\*This course may be repeated twice for credit in this program, provided the subject matter is different each time. In special circumstances and with permission of the College, a repeat of this course may be replaced by a science course at the 300 level or higher outside the student's program.*

*NOTE: Students who have taken BIOL 490, CHEM 450, or PSYC 495 are not required to take SCOL 490.*

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## Courses

Because of the renumbering of courses in the Department, students should see §200.1 for a list of equivalent courses.

### **SCOL 270 Historical, Philosophical, and Social Aspects of Science** (6 credits)

Prerequisite: Membership in the Science College, or permission of the College. This course discusses the intellectual framework of science and the relationships between science and society, and the political and philosophical questions inherent in the scientific process. Students are expected to understand the scientific issues at the level at which they were originally addressed.

### **SCOL 290 Directed and Independent Study I** (3 credits)

Prerequisite: Membership in the Science College, or permission of the College. The student works under the supervision of a member of the Faculty on either a practical laboratory project or a literature study. A formal, written report is required.

### **SCOL 350 Current Issues in Physical, Biological and Mathematical Sciences** (3 credits)

Prerequisite: Membership in the Science College, or permission of the College. This course is designed to help students understand the "state of the art" in fields of science in which they are not specializing. It discusses problems under current study, and attempts to identify possible future directions of research. The approach is qualitative. Detailed technical knowledge is not prerequisite.

Specific topics for this course will be stated in the Undergraduate Class Schedule.

*NOTE: This course may be repeated twice for credit in this program, provided the subject matter is different each time. In special circumstances and with permission of the College, a repeat of this course may be replaced by a science course at the 300 level or higher outside the student's program.*

*NOTE: Students who have received credit for SCOL 351, 352, or 353 may not take this course for credit if the subject matter is the same.*

### **SCOL 360 Topics for Multidisciplinary Study** (3 credits)

Prerequisite: Membership in the Science College, or permission of the College. The purpose of this course is to introduce students to problems and areas of study which transcend traditional disciplinary barriers. A chosen area of investigation is treated from the viewpoint of various disciplines. Lectures from different areas may be used for this purpose. The aim is to show the contributions made by each field to the understanding of the problem, and how they complement each other.

Specific topics for this course will be stated in the Undergraduate Class Schedule.

*NOTE: This course may be repeated twice for credit in this program, provided the subject matter is different each time. In special circumstances and with permission of the College, a repeat of this course may be replaced by a science course at the 300 level or higher outside the student's program.*

*NOTE: Students who have received credit for this topic under a SCOL 398 number may not take this course for credit.*

### **SCOL 370 Selected Readings in Multidisciplinary Study** (3 credits)

Prerequisite: Membership in the Science College and/or permission of the College. The purpose of this course is to introduce students to problems and areas of study which transcend traditional disciplinary barriers. A chosen area of investigation is treated from the viewpoint of various disciplines. Readings from different areas may be used for this purpose under guidance of one or more fellows of the College. The aim is to show the contributions made by each field to the understanding of the problem, and how they complement each other.

*NOTE: Students who have received credit for this topic under a SCOL 398 number may not take this course for credit.*

### **SCOL 390 Directed and Independent Study II** (3 credits)

Prerequisite: Membership in the Science College, or permission of the College. A student who has completed SCOL 290 registers for SCOL 390. Students are encouraged to work in a field different from that of their SCOL 290 project.

### **SCOL 398 Selected Topics in Multidisciplinary Studies** (3 credits)

Prerequisite: Membership in the Science College and/or permission of the College. Specific topics for this course, and prerequisites relevant in each case, will be stated in the Undergraduate Class Schedule.

### **SCOL 490 Directed and Independent Study III** (6 credits)

Prerequisite: Membership in the Science College, or permission of the College. A student who has completed SCOL 390 registers for SCOL 490. Students are encouraged to work in a field different from that of their SCOL 290 and 390 projects. Students complete a research project approved in advance by the College, under the supervision of a fellow of the College and/or a faculty member in a scientific discipline at Concordia or elsewhere.

*NOTE: After consultation with the Science College, students may register in BIOL 490, CHEM 450, or PSYC 495 and upon successful completion be exempted from SCOL 490. Students may also choose to do the honours project and in addition a SCOL 490 project.*