

activity, programs, and approaches to teaching. Strategies for helping the gifted.

Prerequisite(s): Third year standing or instructor's consent. (3-0; 0-0)

HKIN 470 Exercise Physiology (3 sem. hrs.)

An applied study of the effects of exercise on body systems as related to the functional capacity of individual systems to maximal human performance. Principles and methods of conducting and developing physical exercise and training programs.

Prerequisite(s): HKIN 191, 198; BIOL 241, or instructor's consent; third year standing. (3-1; 0-0)

HKIN 472 Athletic Therapy Practical Experience (2 sem. hrs.)

A Certified Athletic Therapist is defined as a health care professional that provides effective solutions to recovery from physical injury and the promotion of healthy, active living. The Scope of Practice of a Certified Athletic Therapist includes the prevention, immediate care, and reconditioning of musculoskeletal injuries. This course is a supervised practicum which enables students to practice the skills and competencies learned in the athletic therapy theory courses taken at Mount Royal College. Students are introduced to injury prevention strategies, common sport injury rehabilitation, and unique injury situations relevant to the specific therapy clinic.

Prerequisite(s): HKIN 372, completion of the Athletic Therapy courses at Mount Royal College, and acceptance into the HKIN Athletic Therapy stream. (2-0; 0-0)

HKIN 480 Principles of Advanced Coaching (3 sem. hrs.)

This course provides advanced study and application of the factors influencing successful coaching and athletic performance in both individual and team sports. Topics of study include mental preparation, sport physiology, regeneration, skill development, analysis of skills in addition to yearly planning and player selection.

NB: Not offered every year. See Dean of School of Human Kinetics. (0-0; 3-0)

Prerequisite(s): HKIN 280, fourth year standing. Not offered every year. See Dean of the School of Human Kinetics.

HKIN 490 Philosophy and Applied Ethics in Human Kinetics and Recreation (3 sem. hrs.)

An examination of pertinent contemporary issues facing the physical educator or sport leader, including the nature, development, and study of these issues within a Christian perspective.

Prerequisite(s): Third or fourth year standing plus 12 sem. hrs. of HKIN theory. Not offered every year. See Dean of the School of Human Kinetics.

HKIN 495 Senior Seminar (3 sem. hrs.)

A course offered on topics of current interest in sport performance and Human Kinetics. Under supervision of the School faculty, students conduct a careful review of the literature on a topic of their choice and prepare a substantial paper. Final student papers are presented in the form of an oral presentation.

Prerequisite(s): Fourth year standing plus 12 sem. hrs. of HKIN theory. (3-0; 0-0)

C. SUPERVISED LEADERSHIP EXPERIENCE

Supervised practical teaching, coaching, or administrative experiences conducted on and off campus for the purpose of on-the-job training and experience. BHK students, Human Kinetics majors, concentrations, and minors must complete a number of sem. hrs. for graduation (check with specific programs for exact number).

Prerequisite(s): 12 sem. hrs. of Human Kinetics theory courses and third year standing.

HKIN 355 A Core Teaching Experience I (1 sem. hr.)
(0-3 or 0-3)

HKIN 355B Core Teaching Experience I (2 sem. hrs.)
(0-6 or 0-6)

HKIN 455A Core Teaching Experience II (1 sem. hr.)
(0-3 or 0-3)

HKIN 455B Core Teaching Experience II (2 sem. hrs.)
(0-6 or 0-6)

HKIN 456A Core Teaching Experience III (1 sem. hr.)
(0-3 or 0-3)

HKIN 456B Core Teaching Experience III (2 sem. hrs.)
(0-6 or 0-6)

HKIN 457A Coaching Experience I (1 sem. hr.)
(0-3 or 0-3)

HKIN 457B Coaching Experience II (2 sem. hrs.)
(0-6 or 0-6)

HKIN 458A Approved Leadership Experience I (1 sem. hr.)
(0-3 or 0-3)

HKIN 458B Approved Leadership Experience II (2 sem. hr.)
(0-6 or 0-6)

HKIN 459 Sport and Leisure Management Experience (3 sem. hr.)
(0-6 or 0-6)

HKIN 460 Sport and Leisure Management Experience (3 sem. hrs.)
(0-6 or 0-6)

INFORMATION SYSTEMS

Courses cross-listed as CMPT may be taken to satisfy Natural Sciences but not lab science requirements.

NB: Students studying programming must master very large amounts of technical material and demonstrate their mastery in written form. For this reason, a high level of English reading and writing skills is required before taking these courses. Students who lack such skills should take courses to develop them before considering enrolment in any programming course.

ISYS 113 Introduction to Information Systems and Web Technologies (3 sem. hrs.)

An introductory level of understanding of information systems with an emphasis on web technologies. Authoring static and client-sided dynamic web pages and sites. Information systems and web technology studies including the development of database aware server-sided web pages and sites in later courses.

NB: Not offered every year. See Department chair.

Cross-listed: CMPT 113.

Prerequisite(s): None. (0-0; 3-0)

Prerequisite(s): None (other than as above).

(2-2 or 2-2; six weeks)

ISYS 123 Data Analysis For Information Systems B (0.5 sem. hrs.)

An introduction to spreadsheets and databases. Cell formulas, charts, macro programming. Database design, decomposition; basic SQL. Tools such as Excel, Access, and MS-SQL may be used, but the focus is on concepts and design rather than skills with specific tools.

Cross-listed: CMPT 123.

Prerequisite(s): ISYS/CMPT 113 or CMPT 140, or equivalent. (3-1-3 or 3-1-3)

ISYS 140 Introduction to Programming (Part 1) (3 sem. hrs.)

A more gradual introduction to programming and problem solving than ISYS 141. Using systematic and structured techniques in the context of problem definition,

the determination of input/output requirements, preparation of problem solving algorithms, and writing simple code. Debugging programs and producing internal and external documentation that specifies how the program can be used and the methods by which the program achieves its objectives.

NB: ISYS 140, 145 is the normal sequence for most programming students. This course may be offered in a six-week format, with five classes per week.

Cross-listed: CMPT 140.

Prerequisite(s): None, but students must be familiar with using a computer. (3-1-3 or 3-1-3)

ISYS 166 Intermediate Programming (3 sem. hrs.)

Intermediate programming techniques in one or more programming notations.

Cross-listed: CMPT 166.

Prerequisite(s): CMPT 141 or 145 or equivalent with a minimum grade of C+. (2-3; 0-0)

ISYS 237 Introduction to Database Management Systems (3 sem. hrs.)

Introduction to the common methods of structuring files for a variety of applications and to methods of using data organization techniques in the design and management of databases.

NB: Students with credit for CMPT 337 may not take this course. Not offered every year. See Department chair.

Cross-listed: CMPT 237.

Prerequisite(s): ISYS 123 and 140. (3-2 or 3-2)

ISYS 311 Web Technologies II (3 sem. hrs.)

This course provides students with a deeper level of understanding of web technologies. Students learn how to author more complex server-sided dynamic web pages and sites utilizing web programming languages, such as Perl and PHP coupled with a database interface such as MySQL. Techniques such as AJAX and Java may also be utilized. The course prepares students to develop database aware server-sided web pages and sites. Because this course is specifically designed to provide the student with instruction in the latest web technologies, the exact technology taught from year to year depends on W3C, programming language, and database standards development.

NB: Not offered every year. See Department chair.

Cross-listed: CMPT 311.

Prerequisite(s): ISYS 211, 140 (or suitable equivalent programming courses), and 123. (3-0 or 3-0)

ISYS 325 Distributed Systems and Networking (3 sem. hrs.)

Network operating systems, physical networks, and the construction and maintenance of server sites.

NB: Not offered every year. See Department chair.

Cross-listed: CMPT 325.

Prerequisite(s): ISYS 166 and third year standing in Computing Science or Information Systems. (3-0-3 or 3-0-3)

ISYS 338 Advanced Topics in Database Management (3 sem. hrs.)

Advanced topics on implementation, query optimization, transaction processing, concurrency, control, recovery, security, distributed data issues, data warehousing, and data mining are discussed in this course, and concludes with an overview of new trends in the emerging database applications.

NB: Not offered every year. See Department chair.

Cross-listed: CMPT 338.

Prerequisite(s): CMPT/ISYS 237. (3-2 or 3-2)

ISYS 370 Business Information Systems (3 sem. hrs.)

The impact of information technology and the ways in which organizations can achieve competitive advantage and support of key business functions through the strategic design, deployment, and use of information technology. The course also examines the utilization of spreadsheet, database management, and project management software to manage the design, deployment and use of information

technology within an organizational setting.

Cross-listed: BUSI 370.

Prerequisite(s): BUSI 276, knowledge of Microsoft Office Suite, third year standing. (3-0; 3-0)

ISYS 371 Systems Development (3 sem. hrs.)

Current principles, concepts and techniques related to the design, development, and deployment of business computer information systems. Focus on the use of various systems analysis and design models, for example, uniform modeling language (UML), and various software tools, e.g., computer aided design system environment (CASE).

NB: May not be offered every year.

Cross-listed: BUSI 371.

Prerequisite(s): Third year standing; BUSI/ISYS 370; and knowledge of Microsoft Office Suite. (3-0 or 3-0)

ISYS 372 Enterprise Resource Planning Software (3 sem. hrs.)

The design principles of enterprise-wide information systems such as customer relationship management, supply chain management, decision support systems, executive support systems, and data mining techniques.

NB: May not be offered every year.

Cross-listed: BUSI 372.

Prerequisite(s): Third year standing, Microsoft Office Suite; and BUSI 276, 342; BUSI/ISYS 370. (3-0 or 3-0)

ISYS 377 Management Science (3 sem. hrs.)

This course considers the various operative models by which firms attempt to create value. Topics include quality theory, quality measurement, production/supply chain planning and execution, process design, and project management, information tools necessary for effective operations, and management of the service content of the firm's products.

NB: Not offered every year. See Department chair.

Cross-listed: BUSI 377.

Prerequisite(s): BUSI 276; MATH 120. (3-0 or 3-0)

ISYS 385 Software Engineering (3 sem. hrs.)

An introduction to the theory of designing and carrying out large software projects. All stages of the software engineering cycle are examined and experienced, and planning for at least one project is undertaken.

NB: Students with credit for CMPT 285 may not take this course. Not offered every year. See Department chair.

Cross-listed: CMPT 385.

Prerequisite(s): Proficiency in C, C++, Java, Pascal, Modula-2, or Ada; CMPT 140; CMPT 231 and 237. (3-3; 0-0)

ISYS 386 Software Engineering Project (3 sem. hrs.)

The project designed in ISYS 385 is carried through to completion and tested. Students may count a maximum of 7 sem. hrs. toward their minor, concentration, or major from among CMPT 387; 400, 409, 410, 411, 419, 420, 421, or other CMPT or ISYS offerings designated as a project course. Any additional credits earned from such courses must be counted as electives. Students may do either a thesis (410/411) or a collaborative project (420/421), but not both.

NB: Not offered every year. See Department chair.

Cross-listed: CMPT 386.

Prerequisite(s): Grade of B- in CMPT/ISYS 385 and the ability to work on a team. (0-0; 1-6)

ISYS 387 Software Engineering Project II (3 sem. hrs.)

The project designed in ISYS 385/386 is carried through to completion and tested. Students may count a maximum of 7 sem. hrs. toward their minor, concentration, or major from among CMPT 387; 400, 409, 410, 411, 419, 420, 421, or other CMPT or ISYS offerings designated as a project course. Any additional credits earned from such courses must be counted as electives. Students may do either a thesis (410/411) or a collaborative project (420/421), but not both.

NB: Not offered every year. See Department chair.

Cross-listed: CMPT 387.

Prerequisite(s): Grade of B- in CMPT/ISYS 385 and the ability to work on a team. (0-0; 1-6)

ISYS 390 Introduction to Geographic Information Systems (3 sem. hrs.)

This course introduces the basic principles of Geographic Information Systems (GIS). It focuses on the theory and practice of GIS including how to store, analyze and display geographic information; how to use GIS as tool in the social and environmental sciences; and the development of skills in the operation of GIS software.

Cross-listed: GEOG 282.

Prerequisite(s): 9 sem. hrs. of Geography including GEOG 280, or GEOGAS 301 (Au Sable Institute), or instructor's consent. (0-0; 3-2)

ISYS 400 Directed Studies in Computing Science (1-3 sem. hrs.)

Students are required to produce an outline of the topic to be studied, in consultation with the instructor. A course of reading and/or experimentation is pursued according to the approved outline. Assessment may be via examination and/or a final written report.

NB: This course with the appropriate choice of topics can be used as a preparation for the senior thesis (CMPT 410).

This course can only be taken with the consent of the academic computing coordinator.

Cross-listed: CMPT 400.

Prerequisite(s): Advanced standing in Computing Science or Information Systems.

ISYS 409 Thesis Preparation (1 sem. hr.)

Students are required to choose a topic for their senior thesis (ISYS 410 or 411) in consultation with an instructor. Selected readings and references pertinent to the topic are assigned. A final written report is presented, consisting of a detailed thesis proposal and a review of the literature.

NB: A student is allowed credit for only one of either ISYS 409 or CMPT 419.

Cross-listed: CMPT 409.

Prerequisite(s): Advanced standing in Computing Science or instructor's consent.

ISYS 410 Senior Thesis (2 sem. hrs.)

Research in a chosen area of Computing Science with a final written report.

NB: Normally 2 sem. hrs. are assigned unless arrangements are made with the Department chair.

Cross-listed: CMPT 410.

Prerequisite(s): ISYS 409, a related directed study in preparation, or instructor's consent.

ISYS 411 Senior Thesis (3 sem. hrs.)

Research in a chosen area of Computing Science with a final written report.

NB: Normally 2 sem. hrs. are assigned unless arrangements are made with the Department chair.

Cross-listed: CMPT 411.

Prerequisite(s): ISYS 409, a related directed study in preparation, or instructor's consent.

ISYS 419 Project Preparation (1 sem. hr.)

Students are required to choose a topic for their senior group project (CMPT 420 or 421) in consultation with the instructor. Selected readings and references pertinent to the topic are assigned. A final written report (software requirements document) is produced giving a detailed specification of the proposed software project.

NB: A student is allowed credit for only one of CMPT/ISYS 409 or 419.

Cross-listed: CMPT 419

Prerequisite(s): Advanced standing in Computing Science or instructor's consent.

ISYS 420 Special Topics - Senior Collaborative Project (1-6 sem. hrs.)

A major collaborative software project in a chosen area of Computing Science with a final report and presentation. At least two, and normally not more than five people work as a team to design, code, debug, test, and document the software. *NB:* The choice of CMPT 420 or 421 depends on the instructor's assessment of the proposed project's size and complexity.

Prerequisite(s): ISYS 419, a related directed study, or instructor's consent.

Cross-listed: CMPT 420

ISYS 421 Special Topics - Senior Collaborative Project (1-6 sem. hrs.)

A major collaborative software project in a chosen area of Computing Science with a final report and presentation. At least two, and normally not more than five people work as a team to design, code, debug, test, and document the software.

NB: The choice of CMPT 420 or 421 depends on the instructor's assessment of the proposed project's size and complexity.

Prerequisite(s): ISYS 419, a related directed study, or instructor's consent.

Cross-listed: CMPT 421

ISYS 470 Information Systems Project/Internship (3 or 4 sem. hrs.)

Application of several business disciplines and information systems concepts, principles, and practice in an actual business information system. Students are expected to develop a complex business information systems project. Students work closely with both the professor and individuals in the information systems profession. Students may also take the course as an internship while actually working for an enterprise in an information systems position.

Cross-listed: BUSI 470.

Prerequisite(s): Fourth year standing and Microsoft Office Suite and BUSI 221, 222, 280; 342, 370, 371, 372. (0-0; 3/4-0)

ISYS 480 Ethical and Social Issues in High Technology (3 sem. hrs.)

A study from a Christian context of some historical, social, and ethical issues relating to the development and use of scientific ideas and techniques. Science and technology are examined in their total social, historical, and intellectual contexts, with a view to tracing, in possible new developments, what the key issues are today. Students are challenged to think through the issues from more than one point of view and to learn how to determine appropriate Christian responses to them.

NB: Not offered every year. Offered only in fall semester.

See Department chair.

Cross-listed: CMPT 480. This course may be substituted for IDIS 400 or NATS 487.

Prerequisite(s): Third year standing overall and at least one previous Computing Science or lab science course at the university level. (3-0; 0-0)

ISYS 490 Integrative Group Project (3 sem. hrs.)

The course requires students to apply several business disciplines, in an actual business setting, to the development of a complex business project. Students work closely with both the professor and individuals in the business community.

NB: Not offered every year.

Cross-listed: BUSI 490.

Prerequisite(s): Fourth year standing in Business or Information Systems.