



University of Ontario Institute of Technology

Bachelor of Health Sciences
(Specialization in Kinesiology)

Program Proposal

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Introduction

The following program proposal is requesting the addition of a specialization of Kinesiology to the BSc degree. The faculty currently has specializations in Medical Laboratory Science and Health Information Management. As our student population grows part of our strategic plan is to offer more educational options for them.

The program follows the same foundation years as the BSc. Starting in year three students may choose to specialize in Kinesiology, HIM, or remain in the comprehensive specialization. The major changes to the BSc comprehensive stream are:

- 1) In lieu of 7 open electives the kinesiology students will be taking the required courses listed in section three.
- 2) The kinesiology students will not be required to take Health Finance in year 3 as this will be replaced by a Health and Exercise Psychology course. Students will still have the option to take finance as an elective.

1. Background

A. Program Abstract

In 2004 the Faculty of Health Sciences started the comprehensive BSc degree. As students enter 3rd year we are looking to create specializations for them. Currently we have the HIM specialization and now we are looking to add the Kinesiology specialization

Graduates of the BSc (Kinesiology) will complete the necessary courses to be eligible for registration with the Ontario Kinesiology Association.

The Kinesiology stream will be a focused program directed toward understanding the role and application of exercise for rehabilitation and health improvement. Rehabilitation Kinesiology is a discipline within kinesiology whose practitioners prescribe individualised exercise programs to improve or maintain the health, functional capacity and global wellbeing of a range of clinical populations. The physiological response to exercise is compromised by various disease processes and or their associated medications and therefore an exercise prescription must account for this to ensure the efficacy of the program as well as the safety of the individual.

Graduates will be prepared to assume positions as kinesiologists both in the health care system and in private practice. Students will also be eligible for admission to professional post-graduate programs in physical therapy, occupational therapy, medicine and chiropractic as well as academic post-graduate programs.

B. Rationale and fit with UOIT mission

The rationale and fit to each of component of UOIT's mission are discussed sequentially, after each component.

Provide career-oriented undergraduate and graduate university programs with a primary focus on those programs that are innovative and responsive to the needs of students and employers.

As the population continues to age, approaches which promote healthy aging will become increasingly important in order to decrease the burden on the health care system. Kinesiologists who are eligible for registration with the Ontario Kinesiology Association will be part of that approach. The UOIT kinesiology program is unique in that it is a specialized program which focuses on Exercise Rehabilitation.

Advance the highest quality of research.

UOIT Health Sciences faculty are actively engaged in research relevant to rehabilitation kinesiology including the role of exercise in the management of back and neck pain, neuromuscular alterations in overuse injuries and the mechanisms of exercise as a treatment for depression. 4th year Rehabilitation Kinesiology students are encouraged to undertake a research project in one of these areas.

Advance the highest quality of learning, teaching, and professional practice in a technologically enabled environment.

The UOIT Rehabilitation Kinesiology program is built on a model of evidence based practice. Both teaching and learning are based on this model, which requires access to on line library resources for searching original peer reviewed literature. Advances in technology mean that physiological data can be collected in a laboratory setting but analyzed by individual students using software provided on their laptop which provides on line links to material relevant to the laboratory exercises.

Contribute to the advancement of Ontario and Canada in the global context with particular focus on Durham Region and Northumberland County.

As the population ages, the burden imposed by a frail elderly population and the diseases of disuse associated with chronic health conditions such as chronic pain, obesity and diabetes will impose a huge social and economic burden in the Durham region and in the western world. Within the region, the UOIT Rehabilitation Kinesiology program will be training graduates equipped to provide safe and effective exercise interventions to increase the functional independence of people living in the community with chronic illness. The Rehabilitation Kinesiology Program is based on a model of evidence based practice and will be contributing high quality original research therefore increasing understanding at a national and global level of the role of exercise in the management of chronic health problems.

Foster a fulfilling student experience and a rewarding educational (work) environment.

The Rehabilitation Kinesiology offers a number of hands on laboratories which aid in grounding the theoretical perspective offered in the classroom settings. There are a number of web based simulations which further aid the student in “visualizing” the material taught in the classroom. The unique blend of web based learning, classroom teaching and hands on laboratories ensures that all student learning styles are catered for. The advanced level courses also expose students to case based learning which further relates their academic learning to real world problems faced in rehabilitation kinesiology

Offer programs with a view to creating opportunities for college graduates to complete a university degree.

The UOIT Rehabilitation Kinesiology Program Leader, the Director Health Sciences and the Health Sciences Program and Budget Officer have met with course instructors from the Durham College Fitness and Health Promotion Diploma course. A scoping document has been prepared which would cross credit Durham graduates for appropriate coursework within their two year diploma so that they would be able to complete the four year honors BHSC (Rehabilitation Kinesiology) in less than 3 years.

C. Admission Requirements

This specialization is part of the BHSc and will require the same admission requirements:

PROGRAM ADMISSION REQUIREMENTS
Graduation from an Ontario secondary school with a minimum overall average of 70%
Admission will be based on the best six grades at the OAC or grade 12(U or M level) These six courses must include the pre-requisite subjects listed below:
Required New Curriculum Subjects:
English ENG4U (min 60%); Biology SBH4U; and any Math

D. In-Course Employment Opportunities

There is no requirement for in-course employment in this program; however, this program will lend itself to the possibility of optional internship or co-op opportunities which will be developed in the future. Additionally, students may work with health partners during course work such as the Research project. We intend to deliver the program so that students may be able to continue some or all of their existing employment while pursuing the degree.

E. Need and Demand

The increasing burden of an aging population has significant implications for the health care sector. Those aged 65+ are the most intensive users of health services. Average per capita provincial/territorial health spending in Canada was about \$2,630 in 2004, while spending for those aged 65-69 was about \$5,016, and spending on those aged 80-84 was roughly \$11,902.(62)¹ The baby boomers will create a huge demand on the health care system in the 2020s and 2030s. Health care approaches which promote healthy aging will lead to greater functional independence of an aging population and lessen the burden associated with caring for people with chronic illness such as obesity, diabetes and chronic musculoskeletal complaints. The role of an exercise rehabilitation practitioner is to safely implement whole body exercise to restore and maintain healthy functional movement in people who have existing musculo-skeletal pain or disability, and to help prevent the development of diseases related to inactivity. The UOIT Rehabilitation Kinesiology Program will help prepare students to meet this need. Additionally there is high student demand for a Kinesiology program which will enable them to be eligible for registration with the Ontario Kinesiology Association and provide a solid foundation for entry into other professional graduate programs. http://www.infrastructure.gc.ca/research-recherche/result/studies-rapports/rs18_e.shtml

Enrolment Projections

Although there is a science to retention projections there is always an art to predicting how many new students a program will bring in. We have reviewed the applications to enrolments for Ontario Universities offering similar programs from 1997 to 2003 and it shows that applications have been on the rise by about 23% while the actual intake has remained steady. Post double cohort there has been a system wide increase in space but student demand still seems to outweigh institutional supply. In 2007 there were over 18,600 applications in the Phys and Health Education category on OUAC and 2,955 enrolled. In discussions with the admissions office there is a strong belief that there will be a large increase in BHSc applications with the addition of this program

In 2008 the faculty opened up 3 kinesiology based electives to third and fourth year students and the sections of 60 are all full.

Based on this information it is believed that the Kinesiology specialization could grow to an enrolment of 90 students; however, at least 30 of these would be cannibalizing from our other BHSc programs. For this reason the model shows an increase of 60 net new students.

BHSc Kinesiology Enrolment Predictions

Assumptions:

- 1) Avg students will take 10 courses per year (4 yrs to complete)
- 2) Retention factors: yr1 to 2 = 80%, yr2 to 3 = 90%

	2009-10	2010-11	2011-12	2012-13	2013-14
year 1	40	60	60	60	60
year 2		32	48	48	48
year 3			29	44	44
year 4				29	44
TOTAL new BHSc KIN	40	92	137	181	196

Preparation for Graduate Study

The curriculum for this proposed program has been designed to develop in learners the required level of knowledge, skill and attributes necessary for the honours baccalaureate degree. The specific course content is ideal preparation for entry into professional graduate programs in physiotherapy, occupational therapy, medicine and chiropractic. Students will also be eligible for entry into academic graduate study in kinesiology and/or community health.

2. Degree Requirements:

Students will complete and Introduction to Movement Science course in the second year of the BHSc and enter the specialization in year three of the BHSc program. In addition to courses designed to give students a focus in Rehabilitation Kinesiology, the required courses needed to meet the registration requirements of the Ontario Kinesiology Association (OKA) have been included. Additionally, the Canadian Council of University Physical Education and Kinesiology Administrators (CCUPEKA) has

accreditation standards for university based kinesiology programs. The UOIT Rehabilitation Kinesiology Stream meets these standards which include:
the delivery of courses in human anatomy, human physiology, exercise physiology, biomechanics, motor learning/motor control; psychology of physical activity, and two courses in social science and/or humanities area (total of 8 courses); 96 hours of laboratory time in at least 4 core courses; research methods, stats (2 courses). Additionally, 75% of the Kinesiology courses must be taught by full-time Kinesiology faculty or staff and a minimum of 4 courses must be offered at advanced level.

B. Program Design and Program Map:

Year-Sem	Subject	Subject	Subject	Subject	Subject
1-1	CSCI 1800U Computing Tools for H.S.	BIOL 1010U Biology 1	HLSC 1200U Anatomy & Physiology 1	HLSC 1700 Professional Writing	Open Elective
1-2	PSYC 1000U Introductory Psychology	BIOL 1010U Biology II	HLSC 1201U Anatomy & Physiology II	HLSC 1802U Intro to Health Care Systems	Open Elective
2-1	HLSC 2201U Intro to Health Info Management	HLSC 2030U Interpersonal Communication	HLSC 2460U Patho-physiology1	HLSC 2800 Health and Wellness	SOCI 1000U Introduction to Sociology
2-2	HLSC 3800U Critical Appraisal for Health Science	HLSC 2601U Intro to Health Management	HLSC 2461U Patho-physiology II	HLSC 2801U Health, Illness, Therapeutics	HLSC 2400 Intro Movement Science
3-1	HLSC 3710 U Ethics	HLSC 3805U Epidemiology Health Inquiry	HLSC 3910U Research	HLSC 3480 Principles of Fitness	HLSC 3470 Anatomy of Human Movement
3-2	HLSC 3601U Managing Health Care Teams	HLSC 3501U Health Law	HLSC 3020 Health & Exercise Pscy	HLSC 3481 Exercise Pyhs	HLSC 3410 Human Motor Control
4-1	HLSC 4998U Research Proj or Apps	HLSC 4850U Current Issues in Health Care	HLSC 3471 Biomechanics	HLSC 4402 Exercise Rehabilitation I	Open Elective
4-2	HLSC 4999U Research Proj II or Apps II	HLSC 4620U Project Quality Improvement	HLSC 4403 Exercise Rehabilitation II	Open Elective	Open Elective

C. Course Descriptions and Outlines:

Calendar Course Descriptions for existing courses

Of the eight required courses, there are four currently offered in the Faculty of Health as electives. This program will require only four new courses.

Course Outlines for Proposed New Courses

- i) Exercise Physiology,
- ii) Exercise and Health Psychology,
- iii) Exercise Rehabilitation I,
- iv) Exercise Rehabilitation II.

Attached in Appendix A.

3. Human and Physical Resource Requirements

A. Faculty Members:

As the program rolls out into 2009, three full time Faculty members will be required in order to cover the eight new required undergraduate courses plus additional sections within existing courses due to enrolment growth. There is currently one core faculty member and one part time instructor. Over the next three years we have proposed to grow to four core faculty to cover the Kinesiology specialization, current foundation courses, and the future graduate stream.

B. Administrative Requirements:

A Kinesiology Lab Coordinator is required to coordinate undergraduate laboratories related to anatomy, exercise prescription, biomechanics, exercise physiology and motor control in the Rehabilitation Kinesiology stream of the BHSc. The coordinator is responsible for supervising the testing of experiments for each course prior to each lab and for ensuring that all equipment is in good working order and that necessary consumables are ordered and available. The lab coordinator is responsible for ensuring that demonstrations and tutorials are current, and meet the intended learning outcomes for each course. The lab coordinator is responsible for instructing demonstrators and students in safe working practices in the laboratory environment and is responsible for compliance with occupational Health and Safety, and Workplace Hazardous Materials Information System (WHMIS) legislation by demonstrators.

The remaining infrastructure currently exists as part of the BHSc program.

C. Library holdings and services required

The purchase of course texts for the new kinesiology courses as well as the possible purchase of additional journal subscriptions in the fields of Kinesiology and Rehabilitation will be required. These will be looked at annually once instructors are hired.

D. Computing requirements

This stream will have similar should not have any different computing requirements than the current BHSc students.

E. Special equipment required

- Data acquisition equipment to record physiological data such as ECG from the heart, EMG and force output data from muscles, spirometry of respiratory activity, etc. This can be accomplished by the purchase of systems made by ADI instruments which includes some pre-written labs in the kinesiology area and the flexibility to design and run new labs which can be submitted by students on line.
- ADI Lab Tutor, Chart and Power Lab software
- 8 ADI PowerLab stations to record physiological data such as ECG from the heart, EMG and force output data from muscles, spirometry of respiratory activity, etc. during student laboratories
- 8 ADI Reflex Kits (includes electrogoniometers, instrumented tendon hammer, stimulating and recording electrodes)
- 8 Mark 10 force transducers to record force data
- 8 purpose built racks to mount the force transducers
- Anatomy models: 8 skeletons with origin/insertion markings, one whole body muscle model, two muscle arm models, two leg muscle models, models of individual joints (hip, knee, ankle, shoulder, elbow, wrist, cervical spine, lumbar spine)
- 8 specialized exercise bikes and one treadmill for training students to do aerobic fitness testing
- 8 sets of steps for step testing
- 8 “sit and reach” flexibility testing stations
- Heart rate monitors, blood pressure cuffs, stethoscopes
- Fat calipers, measuring tapes, exercise balls, plastic goniometers

Further discussions will have to occur between Health Sciences, Fitness and Health Promotion, and the Wellness Center to see if the final five items could be shared for efficiency.

F. Space required

In the short term the program will require one fully dedicated lab space e.g. the size of the squash court. This space is required for undergraduate labs which are typically 24 students in size or eight groups of 3 students per lab set-up (depending on lab course and weekly requirements). Lab equipment can be locked away so that the room can still be used in a multi-purpose manner to run multiple streams of the five courses that currently have attached lab streams. One converted squash court is currently being used by Durham College Health and Fitness promotion program and 8 testing stations are able to fit into this space.

When the dedicated Rehabilitation Kinesiology Lab is not being used for undergraduate labs, it would provide space for fourth year students to collect data for research projects.

In order to better serve the undergraduate course, serve the Durham community and provide the opportunity for student placements the medium term plan would be to expand into two lab spaces. This new area would house an exercise testing room close to the current health centre and fitness facility.

4. Statement of Funding and Resource Availability

Sent to the Provost for approval as Appendix B

Appendix A

ACADEMIC COUNCIL CURRICULUM AND PROGRAM REVIEW COMMITTEE

NEW COURSE PROPOSAL FORM

i) Exercise Physiology

Date of Submission: September 2, 2008

Faculty: Health Sciences

Course Number: HLSC 3481U

Academic Credit Weight: 3 credit hours

Course Title: Exercise Physiology

Brief Course Description:

This course aims to develop an understanding of the human physiological response to exercise. Topics include energy metabolism, and the respiratory and cardiovascular response to physical exercise.

Pre-requisites:

HLSC 1201U Human Anatomy and Physiology I

HLSC 3480U Principles of Fitness and Exercise Prescription

Expanded Course Description:

Exercise Physiology approaches the acute responses to dynamic exercise from a systems approach including cardiovascular, respiratory and metabolic. It integrates knowledge of these systems to develop an understanding of the physiology of exercise and begins to develop an understanding of how these responses may be altered in special populations. It is a fundamental foundation course for Exercise Rehabilitation I and II. The course uses a combination of didactic classroom lecturing and hands-on laboratories where students collect and analyze physiological data during exercise to provide a theoretical and practical understanding of the physiological response to exercise.

Learning Outcomes:

Students who have successfully completed this course will have reliably demonstrated an ability to:

- Explain the pathways involved in metabolism and energy provision,
- Discuss non-oxidative metabolism and measurement during high-intensity exercise.
- Discuss oxidative metabolism including measurement of aerobic metabolism and the concept of maximal uptake

- Describe cardiovascular regulation and discuss the cardiovascular response to exercise
- Describe respiratory regulation and the discuss the respiratory response to exercise
- Describe thermoregulation and its importance during exercise
- Demonstrate competence in measurement of cardiorespiratory function during exercise

Course Design:

Exercise Physiology uses a combination of didactic classroom lecturing, and “hands on” laboratory work where students collect physiological data. They have software loaded on their laptops which can be used to run data analyses and simulations outside of class time. The software also contains links to relevant websites which further illustrate key physiological concepts.

Instruction:

- 1. Planned frequency of offering and number of sections anticipated (every year, alternate years, etc.):**
 - Every year
- 2. Number of faculty members currently competent to teach the course:**
 - One
- 3. Instructor(s) likely to teach the course in the coming year.**
 - New Hire
- 4. An indication of the number of contact hours:**
 - 2 lecture hours per week
 - one 2 hour laboratory per week with a maximum of 24 students per laboratory stream

5. Sample textbook. Recommended course texts:

b. Required Textbook

McArdle WD, Katch FI, and Katch VL. *Exercise Physiology: energy, nutrition, and human performance*. 6th edition. Lippincott, Williams and Wilkins Publishing, 2006.

c. Required Software

ADI Instruments LabTutor and LabChart software will be loaded on the student laptops.

- 6. Any resources to be purchased/provided by students.**
 - The students will be required to purchase the course text.
- 7. Faculty qualifications (academic and experience) to teach the course.**
 - A new hire with expertise in Clinical Exercise Physiology will be sought to teach this course

Evaluation:

Evaluation Methods

A. Midterm Exam 25% - Week 7

B. Lab reports	20% - Submitted on line
C. Quizzes	15% - Done on line, in class
C. Final Exam	40% - Exam date TBA

Bibliography:

Textbooks

d. Required Textbook

McArdle WD, Katch FI, and Katch VL. *Exercise Physiology: energy, nutrition, and human performance*. 6 th edition. Lippincott, Williams and Wilkins Publishing, 2006.

e. Required Software

ADI Instruments LabTutor and LabChart (TMADI instruments) software will be loaded on the student laptops.

Other Resources:

The faculty has already purchased the necessary physiological equipment and software to run this course. Dedicated lab space will be required to run this and the other kinesiology practical labs.

Course Rationale:

The Bachelor of Health Science (Honours) programs have been designed to meet the needs of undergraduates aspiring to enter a variety of health-related careers or wishing to pursue post-graduate studies. Exercise Physiology is a foundation course for exercise rehabilitation which will prepare graduates for a number of post-graduate and clinical programmes including occupational therapy, physiotherapy, chiropractic, and exercise rehabilitation.

The Bachelor of Health Science (Honours) is a multi-focused undergraduate degree designed to engage students in the examination of diverse aspects of health and health care delivery and health research. Graduates are positioned to formulate questions related to human health, address technical and theoretical problems, and excel at analytical thinking. The faculty is developing a minor stream in kinesiology and rehabilitation, which will require strong elements of critical thinking and analysis. This course is on the list of approved courses to register in Ontario as a kinesiologist with the Ontario Kinesiology Association and it is a required course for the Canadian Council of University Physical Education and Kinesiology Administrators (CCUPEKA).

- **The relationship of the proposed course to other existing offerings:**

Anatomy and Physiology I and II has introductory material on the cardiovascular, respiratory and metabolic physiology. This material will be assumed prior knowledge, but will be reviewed prior to beginning more advanced study of these systems and their response to exercise.

- **The expected enrolment in the course.**

Multiples of 30 up to a lecture size of 90
Faculty Approval for Cross-Listings:

ii) Exercise Health and Exercise Psychology

Date of Submission: September 2, 2008

Faculty: Health Sciences

Course Number: HLSC 3020U

Academic Credit Weight: 3 credit hours

Course Title: Health and Exercise Psychology

Brief Course Description:

This course aims to develop an understanding of the complexity of the relationship of the human psychological and physiological response to physical movement and activity by critically evaluating the therapeutic use and safe practice of prescribed exercise as a therapeutic tool within preventative and rehabilitative health care interventions. The emphasis is placed upon understanding the concepts, principles, and theories of the promotion and safe practice of the psychological and physical techniques adopted by exercise therapy, and how these may be sourced from and used as an adjunct in research.

Pre-requisites:

PSYC 1000U Introductory Psychology

Expanded Course Description:

The epidemiological shift in the profile of health risk factors from infectious to non-infectious chronic illnesses such as cancer and coronary heart disease, chronic renal disease and obesity/diabetes are largely the result of sedentary lifestyle practices involving smoking, stress, poor diet, and inactivity. Therefore the principal aim of this course is to introduce students to the psychological factors that influence health behaviors and, ultimately the effects on health outcomes. The course also aims to develop an understanding of how psychology can be applied to promote health in association with prescribed exercise as a preventative and therapeutic care intervention. There is consequently a particular focus on the role of individual and group psychology in the practice and maintenance of exercise behavior.

Learning Outcomes:

Students who have successfully completed this course will:

- Have experienced an introduction to the field of exercise psychology and have been offered an overview of the range of professional issues and therapeutic potentials within this emergent clinical specialty.
- Be able to critically examine and discuss the link between physical activity, exercise and psychological well-being
- Be able to critically evaluate and discuss research on individual, interpersonal and environmental factors that predispose sedentary ill health and affect exercise participation and clinically guided therapeutic outcomes

- Apply practical knowledge to the promotion of physical activity based upon the principles and practice of the psychology of exercise

The learning outcome listed above will be achieved by progression and the involvement in the following course content:

INTRODUCTION TO HEALTH BEHAVIOUR AND COGNITION
 UNDERSTANDING HEALTH BEHAVIOURS
 MODIFIABLE HEALTH RISK FACTORS
 EATING BEHAVIOUR
 PHYSICAL ACTIVITY STRESS, PAIN AND QUALITY OF LIFE
 STRESS AND ILLNESS
 HEALTH-RELATED QUALITY OF LIFE
 CHANGING HEALTH BEHAVIOURS
 PREVENTION, PROMOTION, AND ADHERENCE TO EXERCISE AND HEALTHY LIFESTYLE CHOICES

Course Design:

The course involves two lecture hours which will initially be delivered face to face but will evolve to on line delivery over a two year period. The two hour face to face tutorial slot becomes a fundamental place where learning can be reinforced and integrated through the use of case based material. Information sources will be taken from current literature and case based material and will build on the more formative material delivered in stage I and II of the course.

Instruction:

- 8. Planned frequency of offering and number of sections anticipated (every year, alternate years, etc.):**
 - Every year
- 9. Number of faculty members currently competent to teach the course**
 - 1
- 10. Instructor(s) likely to teach the course in the coming year:**
 - Paul Yelder, who holds graduate qualifications in Education / Health Science and Neuroscience - Medical Imaging. He has recently submitted a PhD thesis involving applied biomechanics, musculoskeletal imaging, and peripheral factors that influence motor control. Over the past 12 years he has taught and assessed the components of this proposed course within various undergraduate / postgraduate and masters degree courses that were externally reviewed and accredited by the New Zealand Qualifications Authority within the Faculty of Health Sciences at UNITEC Auckland New Zealand and more recently he has delivered an inaugural movement science course HLSC341OU-001 Human Motor Control and Learning within the Faculty of Health Sciences UOIT. He has also extensive experience in delivering Health Psychology and Developmental Psychology courses at undergraduate level with associated clinical experience in Mental Health Care delivery and therapeutic teams using dynamic psychotherapy and interactive- interpersonal techniques in both individual and group settings.
- 11. An indication of the number of contact hours**
 - **Directed:** 2 lecture hours per week, one 2 hour tutorial per week (with a maximum of 30 students per tutorial stream)

- **Self Directed:** 50 – 70 hours self directed with web based instruction as an adjunct to stage three – integration phase of the course:

12. Sample textbook. Recommended course texts:

REQUIRED TEXT

Lox, C. L., Martin Ginis, K. A., & Petruzzello, S. J. (2006). *The psychology of exercise: Integrating theory and practice (2nd edition)*. Scottsdale, AZ: Holcomb Hathaway Publishers.

Evaluation:

Evaluation Methods

A. On-line quizzes	15%
B. Midterm Exam	25%
B. Case study	30% submitted on line
C. Final Exam	40% Exam date TBA

Bibliography:

Textbooks

f. Required Textbook

Lox, C. L., Martin Ginis, K. A., & Petruzzello, S. J. (2006). *The psychology of exercise: Integrating theory and practice (2nd edition)*. Scottsdale, AZ: Holcomb Hathaway Publishers.

Other Resources:

- None

Course Rationale:

- **How the course contributes to the educational objectives of the Faculty.**

The Bachelor of Health Science (Honours) programs have been designed to meet the needs of undergraduates aspiring to enter a variety of health-related careers or wishing to pursue post-graduate studies. Exercise Psychology is a foundation course for exercise rehabilitation which will prepare graduates for a number of post-graduate and clinical programmes including occupational therapy, physiotherapy, chiropractic, and exercise rehabilitation.

The Bachelor of Health Science (Honours) is a multi-focused undergraduate degree designed to engage students in the examination of diverse aspects of health and health care delivery and health research. Graduates are positioned to formulate questions related to human health, address technical and theoretical problems, and excel at analytical thinking. The faculty is developing a minor stream in kinesiology and rehabilitation, which will require strong elements of critical thinking and analysis. This course is on the list of approved courses to register in Ontario as a kinesiologist with the Ontario Kinesiology Association and it is a required course for the Canadian Council of University Physical Education and Kinesiology Administrators (CCUPEKA).

- **The relationship of the proposed course**

Psych 100 covers introductory aspects of psychology which are pre-requisites to this area

iii) Exercise Rehabilitation I

Date of Submission: September 2, 2008

Faculty: Health Sciences

Course Number: HLSC 4402 U

Academic Credit Weight: 3 credit hours

Course Title: Exercise Rehabilitation I

Brief Course Description:

This course focuses on the role of exercise in a multi-component approach to rehabilitation. The risks and benefits of exercise, particularly with respect to sedentary individuals and/or those with medical considerations as well as the evidence for the role of exercise as a primary or adjunctive intervention for rehabilitation are considered. The course combines didactic lectures on foundation material and progresses to in depth case study presentations for the role of exercise for patients with complex neural and musculoskeletal conditions.

Pre-requisites:

HLSC 2461 Pathophysiology II

HLSC 3471 Kinesiology II: Musculoskeletal Biomechanics

HLSC 3481 Exercise Physiology

Expanded Course Description:

This course focuses on the role of exercise in a multi-component approach to rehabilitation. The risks and benefits of exercise, particularly with respect to sedentary individuals and/or those with medical considerations as well as the evidence for the role of exercise as a primary or adjunctive intervention for rehabilitation are considered. The course covers the psychology and physiology of chronic pain including the role of cognitive behavioural therapy, selection and assessment of appropriate rating scales and evaluation procedures and assessment of risk factors for exercise. The second part of the course integrates this information, along with relevant pathophysiology and exercise physiology using case study presentations of clients with complex neural and musculoskeletal conditions.

Learning Outcomes:

Students who have successfully completed this course will have reliably demonstrated an ability to:

- Critically evaluate the literature on the evidence for using exercise as an intervention in patients with chronic neuromuscular and/or musculoskeletal pain conditions
- Understand how to use and interpret pre-exercise safety screening scales and tests
- Be able to identify medical issues in rehabilitation which may affect the response or safety of exercise including the effect of medications on the cardiovascular response of exercise
- Evaluate the psychometric properties and select appropriate scales for monitoring client progress
- Incorporate an awareness of psychological issues in chronic pain such as fear avoidance, depression, chronic fatigue, exercise adherence and self-efficacy into the assessment,

- exercise prescription, and monitoring of clients in an exercise rehabilitation setting
- Develop a safe, evidence based exercise prescription for a client with complex musculoskeletal and/or neuromuscular issues

Course Design:

The course will run as a two hour lecture once per week with two hour tutorial slots designed for group work on case study assignments and presentations in the second half of the semester. It will begin with didactic content to provide students with the necessary tools to search the primary literature as well as giving them appropriate background to present an in depth case study to the class. Email and face to face communication with the course tutor is strongly encouraged while the student is working on their case study.

Instruction:

13. Planned frequency of offering and number of sections anticipated (every year, alternate years, etc.).

- Every year

14. Number of faculty members currently competent to teach the course:

- 1

15. Instructor(s) likely to teach the course in the coming year:

- Bernadette Murphy, Associate Professor

16. An indication of the number of contact hours

- 2 lecture hours per week, 2 hour tutorial per week (maximum 24 students per tutorial)

17. Sample textbook. Recommended course texts:

g. Required Textbooks

1. ACSM's Resources for Clinical Exercise Physiology: Musculoskeletal, Neuromuscular, Neoplastic, Immunologic, and Hematologic Conditions. Humphrey, J.N., Herbert, W.G., and Humphrey, R. (eds). American College of Sports Medicine, Lippincott, Williams and Wilkins, 2002.

2. ACSM's Guidelines for Exercise Testing and Prescription.

18. Any resources to be purchased/provided by students.

- The students will be required to purchase the course texts.

19. Faculty qualifications (academic and experience) to teach the course.

- Dr. Murphy has an MSc and PhD in Physiology and a DC chiropractic degree. She developed a post-graduate programme in Exercise Rehabilitation at the University of Auckland and has run a similar theoretical course in Exercise Rehabilitation previously. She teaches Kinesiology I: Anatomy of Human Movement, and Kinesiology II: Musculoskeletal Biomechanics and Exercise Prescription and Principles of Fitness, all of which are pre-requisites to this course.

Evaluation:

Evaluation Methods

- Midterm Exam - 25% Week 7
- Essay - 20% submitted on line

- C. Case Study presentations - 30% done on line, in class
- C. Final Exam on Case study presentations - 25% Exam date TBA

Bibliography:

Textbooks

h. Required Textbook

1. ACSM's Resources for Clinical Exercise Physiology: Musculoskeletal, Neuromuscular, Neoplastic, Immunologic, and Hematologic Conditions. Humphrey, J.N., Herbert, W.G., and Humphrey, R. (eds). American College of Sports Medicine, Lippincott, Williams and Wilkins, 2002.
2. ACSM's Guidelines for Exercise Testing and Prescription.

Other Resources:

No additional resources are required to run this course.

Course Rationale:

- **How the course contributes to the educational objectives of the Faculty.**

The Bachelor of Health Science (Honours) programs have been designed to meet the needs of undergraduates aspiring to enter a variety of health-related careers or wishing to pursue post-graduate studies. Exercise Rehabilitation is a course which will prepare graduates for a number of post-graduate and clinical programmes including occupational therapy, physiotherapy, chiropractic, and exercise rehabilitation. Additionally, it will provide them with the necessary background to work in as a kinesiologist in a rehabilitation setting.

The Bachelor of Health Science (Honours) is a multi-focused undergraduate degree designed to engage students in the examination of diverse aspects of health and health care delivery and health research. Graduates are positioned to formulate questions related to human health, address technical and theoretical problems, and excel at analytical thinking. The faculty is developing a minor stream in kinesiology and rehabilitation, which will require strong elements of critical thinking and analysis. This course is on the list of approved courses to register in Ontario as a kinesiologist with the Ontario Kinesiology Association and it is a required course for the Canadian Council of University Physical Education and Kinesiology Administrators (CCUPEKA).

- **The relationship of the proposed course to other existing offerings,**

This course develops and integrates background material from the pre-requisite courses: HLSC 2460 Pathophysiology I, HLSC 2461 Pathophysiology II, HLSC 3401 Principles of Fitness and Exercise Prescription, HLSC 3470 Kinesiology I: Anatomy of Human Movement, and HLSC 3471 Kinesiology II: Musculoskeletal Biomechanics, HLSC 3480 Exercise Physiology. As such there will be slight overlap but this is intentional as it is an advanced level paper which integrates prior learning.

iv) Exercise Rehabilitation II

Date of Submission: September 2, 2008

Faculty: Health Sciences

Course Number: HLSC 4403 U

Academic Credit Weight: 3 credit hours

Course Title: Exercise Rehabilitation II

Brief Course Description:

A continuation of Exercise Rehabilitation I this course builds on the foundation courses exploring the role of exercise in a multi-component approach to rehabilitation. The general objective of the course is for the student to become proficient in graded exercise testing, and exercise prescription, for clients with complex cardiovascular, respiratory and metabolic conditions such as diabetes, and obesity. The course combines didactic lectures and practical sessions on foundation material and progresses to in depth case study presentations.

Pre-requisites:

HLSC 4402 Exercise Rehabilitation I

Expanded Course Description:

This course focuses on the role of exercise in a multi-component approach to rehabilitation. The risks and benefits of exercise, particularly with respect to sedentary individuals and/or those with medical considerations as well as the evidence for the role of exercise as a primary or adjunctive intervention for rehabilitation are considered. The second part of the course integrates this information, along with relevant pathophysiology and exercise physiology using case study presentations of clients with complex cardiovascular, respiratory and metabolic conditions.

Learning Outcomes:

Students who have successfully completed this course will have reliably demonstrated an ability to:

- Critically evaluate the literature on the evidence for using exercise as an intervention in patients with cardiac, respiratory and metabolic conditions
- Understand how to use and interpret pre-exercise safety screening scales and tests
- Develop an understanding of pertinent cardiac records and medications.
- Be able to identify medical issues in rehabilitation which may affect the response or safety of exercise including the effect of medications on the cardiovascular response to exercise
- Evaluate the psychometric properties and select appropriate scales for monitoring client progress
- Acquaint the student with basic concepts of ECG, and practical application of these concepts in exercise rehabilitation
- Develop understanding of the procedures involved in graded exercise testing, including: equipment operation and calibration, patient screening and preparation, test protocol selection and termination criteria, data collection and analysis.

- Prepare the student to provide safe and appropriate exercise prescription.

Course Design:

The course will run as a two hour lecture once per week with two hour tutorial/practical slots designed for practical work relevant to exercise prescription as well as preparation time for case study presentations. It will begin with didactic content to provide students with the necessary tools to search the primary literature as well as giving them appropriate background to present an in depth case study to the class. Email and face to face communication with the course tutor is strongly encouraged while the student is working on their case study.

Instruction:

20. Planned frequency of offering and number of sections anticipated (every year, alternate years, etc.):

- every year

21. Number of faculty members currently competent to teach the course:

- 0

22. Instructor(s) likely to teach the course in the coming year:

- New hire in Exercise Physiology
- **An indication of the number of contact hours**

2 lecture hours per week, 2 hour tutorial per week (maximum 24 students per tutorial)

23. Sample textbook. Recommended course texts:

i. Required Textbooks

1. ACSM's Resources for Clinical Exercise Physiology: Musculoskeletal, Neuromuscular, Neoplastic, Immunologic, and Hematologic Conditions. Humphrey, J.N., Herbert, W.G., and Humphrey, R. (eds). American College of Sports Medicine, Lippincott, Williams and Wilkins, 2002.
2. ACSM's Guidelines for Exercise Testing and Prescription.

24. Any resources to be purchased/provided by students.

- The students will be required to purchase the course texts.

25. Faculty qualifications (academic and experience) to teach the course:

- A new hire with expertise in Clinical Exercise Physiology will be hired to teach this course

Evaluation:

Evaluation Methods

- A. Midterm Exam - 25%
- B. Practical Exam on Graded Exercise Testing - 20%
- C. Case Study presentations - 30% done on line, in class
- D. Final Exam on Case study presentations - 25% Exam date TBA

Bibliography:

Textbooks

j. Required Textbook

1. ACSM's Resources for Clinical Exercise Physiology: Musculoskeletal, Neuromuscular, Neoplastic, Immunologic, and Hematologic Conditions. Humphrey, J.N., Herbert, W.G., and Humphrey, R. (eds). American College of Sports Medicine, Lippincott, Williams and Wilkins, 2002.
2. ACSM's Guidelines for Exercise Testing and Prescription.

Other Resources:

No additional resources are required to run this course.

Course Rationale:

The following points should be addressed in the rationale:

- **How the course contributes to the educational objectives of the Faculty.**

The Bachelor of Health Science (Honours) programs have been designed to meet the needs of undergraduates aspiring to enter a variety of health-related careers or wishing to pursue post-graduate studies. Exercise Rehabilitation is a course which will prepare graduates for a number of post-graduate and clinical programmes including occupational therapy, physiotherapy, chiropractic, and exercise rehabilitation. Additionally, it will provide them with the necessary background to work in as a kinesiologist in a rehabilitation setting.

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- **The relationship of the proposed course to other existing offerings**

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Appendix B – Proposed Budget Model

The proposed budget model supporting the program including 3 new hires and the capital requests has been sent to the Provost Office for approval. With these basic requirements the program is still contributing approximately 70% net contribution in steady state.