

**School of Kinesiology
Faculty of Health Sciences
Western University**

**SENIOR RESEARCH PROJECT (Bioscience)
Kin 4443E**

Course Manager: J.M. Kowalchuk, PhD

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Course Description:

Independent research project in the Integrative Bioscience area of Kinesiology, involving experimental design, presentation of proposal, collection and analysis of data, presentation of results, and final written report as a scientific paper.

This laboratory-based research course is restricted to 4th year students enrolled in the Honours BSc Kinesiology programme. Enrolment is limited and will depend on the availability of individual faculty members and their willingness to act as a research supervisor. Students must get written approval from one of the designated research faculty members (listed below) before they can register for this course. Students are advised to contact potential faculty supervisors early (before September) to determine their availability and willingness to participate. While acceptance by a faculty supervisor usually ensures acceptance into the course, a formal application to this full course (1.0 course credit) through the Kinesiology undergraduate office must be completed within the first two weeks after the start of the fall academic term.

Faculty members accepting students (Note: faculty members may choose not to accept students in any given year; or other faculty in Kinesiology and related programmes, who currently are not listed, can be approached regarding their willingness to supervisor senior research students):

Dr. B. Allman
Dr. G. Belfry
Dr. T. Burkhart
Dr. A. Christie
Dr. J. Dickey
Dr. J. Garland

Dr. M. Heath
Dr. T. Jenkyn
Dr. J. Kowalchuk
Dr. P. Lemon
Dr. K. Shoemaker
Dr. T. Wilson

Dr. J. Melling
Dr. M. Mottola
Dr. L. Nagamatsu
Dr. C. Rice

Learning Objectives:

The Kin 4443 course is intended to provide students with a laboratory research experience in experimental Kinesiology. The course involves laboratory research, instrumentation, and communication in science. Following completion of this course, students will be able to:

1. work independently or collaboratively on a research project in a specific area of Kinesiology where the project includes literature review; experimental design; collection, analysis and interpretation of collected data; and oral and written communication of a scientific information in the form of seminar presentations and research reports, respectively.
2. perform the experimental procedures and operate the scientific equipment relevant to the research project.
3. search for, critically review and synthesize information from published literature
4. understand and explain, in more detail, the specific physiological, metabolic and/or biomechanical system(s) relevant to the research area
5. organize and communicate research findings via oral presentations and written reports

Prerequisites:

- enrolment is limited to Honours BSc Kinesiology students (Honours BA students are eligible to enrol with permission from the potential research supervisor)
- permission of a Kinesiology-approved research supervisor & Director of the School
- preference will be give to students with an academic average 80% and above
- minimum of 10 hr per week throughout the academic year

Course Format:

Research based course working in the laboratory of a Kinesiology-approved supervisor. Students (and faculty) will meet occasionally during the year for both formal (e.g., preliminary research proposal; final presentation of project) and informal presentations and information sessions. Dates and times will be arranged as needed.

Course Evaluation:

Students will be evaluated by their supervisor with respect to their performance in the laboratory. This will include not only technical skills, but also their familiarity with the literature, and their contribution to the experimental design, analysis, and interpretation of the data. This evaluation will be done at the end of each of the fall and winter terms. An abstract and a final research paper will be evaluated by the immediate faculty supervisor and one other faculty member. Feedback will be given to students as soon as possible after presentations. Student participation in the discussion sessions, and in the question period after each student presentation is expected and required. All faculty will participate in the evaluation of student presentations. The presentations will be done with all students and faculty in attendance (dates and times will be arranged after consultation with students and faculty).

Details of the (suggested) evaluation are outlined below (subject to ‘minor’ changes each year depending on student participation and discussions and agreement amongst faculty supervisors):

<u>Activity</u>	<u>Weight</u>	<u>Evaluator(s)</u>
Laboratory performance (1 st term)	10%	Supervisor
Research proposal presentation (1 st term; TBD)	15%	All faculty
Laboratory performance (2 nd term)	15%	Supervisor
Abstract submission (due March, TBD)	10%	Supervisor + other faculty
Final presentation (2 nd term; March TBD)	15%	All faculty
Final research paper (due April TBD)	35%	Supervisor + other faculty

Depending on the number of faculty supervisors (determined by the number of students enrolled in the course), all supervisors will be involved in the marking of the various activities, and these will be assigned “randomly” to the various supervisors.

- Note:
1. A similar project cannot be completed as part of an independent study
 2. **A copy of the final report must be submitted to the Undergraduate office**

General course information (details may vary year-to-year depending on student and faculty involvement):

1. Presentation length - 10-15 min with 5-10 min for questions
2. Student presentations - may take place over 2 or more days depending on the number of students enrolled
3. Research Presentation dates and times - TBD - dependent on availability of students and faculty supervisors - but usually completed in early- to mid-November in the 1st term, and before the final day of classes in the 2nd term (usually in mid- to late-March or early April)
4. Abstract deadline - TBD but approximately 1 week before 2nd term presentations in March
5. Final research report - TBD but approximately 1 week after 2nd term presentations (on or before final day of classes in April)

Abstract and Final Research Paper:

Abstract: Copies of the project abstract should be submitted to the Kin 4443 course coordinator approximately one week before the 2nd term presentations (usually held in late March or early April). The supervisor and other faculty supervisors will mark and provide feedback on the abstract. A revised abstract will be submitted within a week and all abstracts will be sent out to all Kin 4443 students and supervisors prior to the final presentation. The format of the abstract will follow guide for “preparing an abstract” used by the American College of Sports Medicine (to be discussed).

Final Research Paper: The final research report should be submitted to the Kin 4443 course coordinator at the end of the 2nd term (date TBD but usually 1-2 weeks after the 2nd term presentation and on or before the final day of classes). Depending on the number of students enrolled in the course, the final research paper will be marked by the faculty supervisor and one

(or more) of the other course supervisors. Students will submit one copy of the final research report to the Kin undergraduate office. Students will be informed as to whether to submit a paper copy or an e-copy of the final research report to the course coordinator.

The final research paper should be written in “manuscript style” and include the following sections: Abstract, Introduction (with clearly stated Purpose & Hypothesis), Methods, Results, Discussion, References - i.e., as if you were submitting your research for publication to a journal commonly used by your supervisor (e.g., American Journal of Physiology; Applied Physiology, Nutrition and Metabolism; European Journal of Applied Physiology; Journal of Applied Physiology; Journal of Biomechanics; Journal of Physiology; Medicine and Science in Sports and Exercise).

Also, either at the beginning or end of the paper, it is important that you provide a paragraph which defines/describes/details your role in this project and the role of the other co-authors that you may include on your paper. In other words, what exactly did you do for this project and how did the other authors support your work in this thesis. An example from a multi-authored publication is provided here:

e.g.) **“AUTHOR CONTRIBUTIONS:**

Author contributions: DAK, APB, LKL, TCR, HBR, and JMK conception and design of research; DAK, LKL, and TCR performed experiments; DAK, APB, LKL, TCR, and JMK analyzed data; DAK, APB, LKL, TCR, HBR, and JMK interpreted results of experiments; DAK prepared figures; DAK, HBR, and JMK drafted manuscript; DAK, APB, LKL, TCR, HBR, and JMK edited and revised manuscript; DAK, APB, LKL, TCR, HBR, and JMK approved final version of manuscript.”

The final research paper should be formatted as follows (details subject to change each year):

- length not to exceed 15 pages (this limit does not include title page, figures, tables, and references)
- typed, double-spaced
- margins (top, bottom, sides) should be 2.54 cm
- Arial or Times New Roman font, with 12 pt font size
- tables and figures can be appended at the end of the Results section or at the end of the manuscript - do not embed them into the body of the Results section

CONTRACT
Kinesiology 4443E
An Independent Research Project in Kinesiology

Student's Name: _____ Student #: _____

UWO Email Address: _____ Date: _____

Name of Supervisor: _____

AREA OF RESEARCH: (Brief description of study - Objectives/research method/etc)

Student Time commitment:

STATEMENT OF RECOGNITION: (Student)

I have read the detailed course outline and understand and accept the structure & evaluation system.

Student Signature

Date

APPROVAL

Supervisor Signature

Date

Director of Kinesiology

Date

INSTRUCTIONS TO STUDENT:

1. Submit the completed form with Supervisor's signature to the Undergraduate office no later than September 14.
2. Once approved by the Director of Kinesiology, you must formally add the course no later than the UWO approved Add deadline date.
3. You must provide a copy of the written research report to the Undergraduate Office. Please email to wmandigo@uwo.ca

INSTRUCTIONS TO SUPERVISOR:

1. Final marks are to be submitted to the Undergraduate Office one week after the end of classes.
2. No grade can be submitted for incomplete work.