

**KIN 4431 – Physiology of Exercise Performance
 Fall 2024**

<p>Instructor: Dr. Kevin Boldt Office: Thames Hall 4178 Email: kboldt@uwo.ca Phone: 519-661-2111 Ext.86957 Office Hrs: by appointment</p> <p>TAs:</p>	<p>Lectures:</p> <p>Instruction Mode: in-person:</p>
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NOTE: All course information including grades, assignment outlines, deadlines, etc. are available via [OWL Brightspace](#). Download the Brightspace Pulse App to stay up-to-date on course communication and enable your notification settings within “Communications” in the top toolbar. Check the website regularly for course announcements.

<p>Calendar Course Description (including prerequisites/anti-requisites): Senior level course focusing on factors affecting exercise performance including both intrinsic (neuromuscular, metabolic, respiratory, cardiovascular, menstrual, etc.) and extrinsic (temperature, pollution, underwater immersion, altitude, spaceflight, footwear and apparel, alcohol/cannabis, etc.) factors.</p> <p>Prerequisite(s): (i) Physiology 1021 or equivalent, and Kinesiology 2230A/B or (ii) Physiology 3120, Physiology 3140A and Physiology and Pharmacology 3000E. Antirequisite(s): Physiology 4420A/B, Kinesiology 4432. Extra Information: 3 lecture hours, 1 tutorial hour. Note: Priority to BSc Honours Specialization Kinesiology students. Physiology 4420A/B.</p>

You are responsible for ensuring that you have successfully completed all course pre-requisites, and that you have not taken an anti-requisite course.

Statement on Prerequisite Checking

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites

NOTE: If you wish to enroll in this course without the stated pre-requisite(s), you must obtain written approval from the course instructor. The approval should then be forwarded to your academic counsellor.

My Course Description

This course takes a deep-dive into the main physiological systems related to exercise performance (with focus on **performance-limiting** factors for each system) and **how external stimuli impact the performance capabilities of the individual**. Primary systems include metabolic, cardiovascular, respiratory, and neural-muscular systems. The impact of external stimuli includes altitude (hypoxia), thermal (hot and cold) stress, pollution, alcohol and cannabis, pregnancy and the menstrual cycle, underwater immersion (hyperbaria), and micro/mega-gravity (space). The main focus of study is the acute effects of the stimuli on performance, rather than chronic training or acclimation.

Learning Outcomes

Upon completion of this course, students will be able to:

1. Understand the limiting factors of the major physiological systems (metabolic, muscular, respiratory, cardiovascular) to overall physical performance
2. Describe the contributions of each system in maintaining homeostasis under differing external conditions.
3. Describe the impact of external factors (temperature, alcohol, altitude, microgravity, pollution, etc.) on exercise performance, and explain the specific mechanisms of how each factor impacts performance.
4. Search the literature for experimental evidence and critically appraise the effectiveness of novel approaches to improving health/performance.
5. Communicate scientific evidence to peers.
6. Describe anecdotal experiences of the impact of an external factor on their own exercise performance.
7. Demonstrate effective oral and written communication skills.

Course Schedule:

Week	Lecture	Topic	Dates
1	Lecture 1	Intro & Homeostasis	September 5
2	Lecture 2 + 3	Energy Systems & Metabolic Performance	September 10, 12
3	Lecture 4 + 5	Cardiovascular Performance & Respiratory Performance	September 17, 19
4	Lecture 6	Neuro-muscular Performance	September 24, 26
5	Midterm		October 1, 3
6	Lecture 7	Footwear and Apparel	October 8, 10
	Reading Week		October 12-20
7	Lecture 8	Performing at Altitude (Hypoxia)	October 22, 24
8	Lecture 9	Performing in the Heat and Cold (Thermal Stress)	October 29, 31
9	Lecture 10	Performing in Pollution	November 5, 7
10	Lecture 11	Performance under the Influence (alcohol/cannabis)	November 12, 14
11	Lecture 12	Pregnancy and the Menstrual Cycle	November 19, 21
12	Lecture 13	Performing Underwater (Hyperbaria)	November 26, 28
13	Lecture 14	Performing in Space (Megagravity and Microgravity)	December 3, 5

Through most of the semester, Tuesdays (Totally Trending Topic Tuesdays) will be dedicated to group presentations, and Thursdays will be lectures.

Required Course Material:

There is no required textbook for this course.

Course Evaluation:

The following assessments have been carefully designed to engage learners and facilitate achievement of the learning outcomes. The exams contain creative questions that focus on critical thinking and application of knowledge and heavily de-emphasize simple recall. The assignments incorporate options where students will have the autonomy to select the direction of their projects through selecting both the topics and outcomes that are meaningful to them.

Due dates are provided below and will be communicated on OWL Brightspace. Assigned work, including formal assignments are due as communicated below and in OWL Brightspace. Assignments are due before the date and time listed. Failure to submit assignments by due dates and times will result in a late penalty of 10% per day. Accommodations for assignments and examinations must be made through the Academic Support and Engagement office.

Assessment	Weight	Date
Mid-term Exam	20%	October 3
Group Presentation	25%	Ongoing (Tuesdays)
Performance Experience Self-Reflection Assignment	25%	November 15
Final Exam	30%	Scheduled by Registrar
Total	100%	

Exams (Mid-term 20%; Final 30%): Exams will be a combination of multiple choice and short/long answer questions. The mid-term will be held in class and the cumulative final exam will be scheduled by the registrar. A missed examination without appropriate documentation will result in a zero (0) grade. Following formal documentation, a make-up mid-term will be available on October 10, 2024. Students unable to write the make-up midterm will have the weight of that test pushed to the final exam. Per University policy, makeup examinations for the final exam (i.e., during the December exam periods) are held on the Thursday of the first week of classes in January (for first-term courses).

Totally Trending Topic Tuesday Group Presentation (25%): Students will be divided into groups (~2-3 students) to present on a specific factor affecting performance (of their choice). The purpose of the presentation is to present an overview of a research article on a trending topic, and your critical appraisal of the research and the factors effectiveness. Assessment of the presentations will be completed by both the instructor and through peer-evaluation. Excused absences (due to extenuating circumstances) will result in rescheduling of group's presentation with instructors' approval.

Performance Experience Assignment (25%): Students will experiment with the effects of an external factor on their own performance and reflect on their experience. Students will select an external factor and complete an exercise session (resistance-based, sprint-based, or aerobic) under normal (control) conditions and under exposure to the external factor. They will take relevant objective measures (heart rate, blood pressure, reps-to-failure, speed, distance covered, muscle circumference/pump, etc.) and report on their subjective feelings of the impact of the factor.

Course/University Policies

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

1. Email

In accordance with policy, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

2. Academic Offences

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, in the Academic Calendar (westerncalendar.uwo.ca).

Plagiarism

Student work is expected to be original. Plagiarism is a serious academic offence and could lead to a zero on the assignment in question, a zero in this course, or your expulsion from the university. You are plagiarizing if you insert a phrase, sentence or paragraph taken directly from another author without acknowledging that the work belongs to him/her. Similarly, you are plagiarizing if you paraphrase or summarize another author's ideas without acknowledging that the ideas belong to someone else. All papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between Western University and Turnitin.com (www.turnitin.com).

Re-submission of Previously Graded Material

Without the explicit written permission of the instructor, you may not submit any academic work for which credit has been obtained previously, or for which credit is being sought, in another course or program of study in the University or elsewhere.

Use of Statistical Pattern Recognition on Multiple Choice Exams

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

3. Use of Electronic Devices

During Exams: Unless you have medical accommodations that require you to do so, or explicit permission from the instructor of the course, you may not use any electronic devices during ANY tests, quizzes, midterms, examinations, or other in-class evaluations.

During Lectures and Tutorials: Although you are welcome to use a computer during lecture and tutorial periods, you are expected to use the computer for scholastic purposes only, and refrain from engaging in any activities that may distract other students from learning. From time to time, your professor may ask the class to turn off all computers, to facilitate learning or discussion of the material presented in a particular class. **Unless explicitly noted otherwise, you may not make audio or video recordings of lectures – nor may you edit, re-use, distribute, or re-broadcast any of the material posted to the course website.**

Personal Response Systems ("clickers") may be used in some classes. For those classes in which we use this technology, it is your responsibility to ensure that the device is activated and functional. You must speak with the course instructor immediately, if you have any concerns about whether or not your clicker is malfunctioning.

You must use only your own clicker. For all components of this course in which clicker records are used to compute a portion of the grade:

- The use of somebody else's clicker in class constitutes a scholastic offence;

- The possession of a clicker belonging to another student will be interpreted as an attempt to commit a scholastic offense

4. Academic Considerations and Absences from Lectures and Assessments

Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request (in writing) any necessary academic considerations at least two weeks prior to the holiday to the academic counsellors in their Home Department. Additional information is provided in the [Western Multicultural Calendar](#).

Academic Accommodation

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. Students with ongoing accommodation needs within this course are also encouraged to contact [Accessible Education](#), which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found [here](#).

Academic Consideration

The University recognizes that a student's ability to meet their academic responsibilities may, on occasion, be impaired by extenuating circumstances that are medical or compassionate in nature. These extenuating circumstances may be acute (short term), or it may be chronic (long term), or chronic with acute episodes. In all cases, students are advised to consult with the academic counsellors in their home units, at their earliest opportunity. Academic counsellors may refer students to [Accessible Education](#) for ongoing academic accommodations.

Most forms of academic consideration require documentation, and this documentation is to be submitted to academic counsellors within five (5) business days of their return to academic responsibilities. Any such documents will be retained in the student's file, and will be held in confidence in accordance with the University's [Official Student Record Information Privacy Policy](#). Once the petition and supporting documents have been received and assessed, appropriate academic considerations shall be determined by academic counseling, in consultation with the student's instructor(s). Academic considerations may include extension of deadlines, waiver of attendance requirements for classes/labs/tutorials, arranging Special Exams or Incompletes, re-weighting course requirements, or granting late withdrawals without academic penalty. Academic considerations shall be granted only where the documentation indicates that the onset, duration and severity of the illness are such that the student could not reasonably be expected to complete their academic responsibilities. (Note – it will not be sufficient to provide documentation indicating simply that the student “was seen for a medical reason” or “was ill.”).

Whenever possible, students who require academic considerations should provide notification and documentation in advance of due dates, examinations, etc. Under no circumstances are students expected to submit rationales for (or documentation of) any absences, to course instructors. Students are, however, required to follow-up with course instructors, in a timely fashion, to identify the ways in which the academic consideration will be implemented.

Examination Conflicts

A student completing tests or examinations with flexible submission times (e.g., where one or more evaluation is a take-home assessment) cannot request alternative arrangements unless a conflict cannot be avoided by rescheduling writing the exam to a different time

within the window specified by the instructor. This applies to direct conflicts as well as “heavy load” conflicts (e.g., three exams within a 23-hour period). The student should discuss any concerns about a potential conflict and/or request academic considerations with their academic counselling unit prior to the deadline to drop a course without academic penalty

In the case of online tests and examinations, use of a “Conflict Room,” wherein student can write two proctored exams concurrently, will be interpreted as arrangements for continuous proctoring.

5. Contingency Plan for an In-Person Class Pivoting to 100% Online Learning

In the event of a situation that requires this course to pivot to online content delivery, all remaining course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor

Note that disruptive behaviour of any type during online classes, including inappropriate use of the chat function, is unacceptable. Students found guilty of Zoom-bombing a class or of other serious online offenses may be subject to disciplinary measures under the Code of Student Conduct.

6. Online Proctoring

Tests and examinations in this course may be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western’s Remote Proctoring website at: <https://remoteproctoring.uwo.ca>.

7. Grades

Where possible assignment objectives and rubrics will be posted on OWL.

Generally, students can expect some form of feedback on their performance in a course before the drop date.

- November 12th, 2024 (for first term half-courses)
- December 2nd, 2024 (for full-year courses)
- March 7th, 2025 (for second term half-courses)

A+	90-100	<i>One could scarcely expect better from a student at this</i>
A	80-89	<i>Superior work that is clearly above average</i>
B	70-79	<i>Good work, meeting all requirements and eminently satisfactory</i>
C	60-69	<i>Competent work, meeting requirements</i>
D	50-59	<i>Fair work, minimally acceptable.</i>
F	below 50	<i>Fail</i>

Rounding of Grades (for example, bumping a 79 to 80%):

This is a practice some students request. The final grade documented is the grade that you have achieved. There is no rounding to the next grade level, or ‘giving away’ of marks. Please don’t ask me to do this for you; the response will be “please review the course outline where this is presented”.

Appealing a Grade Within this Course

You have the right to appeal any grade within this course. The grounds for a grade appeal may be one or more of: medical or compassionate circumstances, extenuating circumstances beyond the student’s control, bias, inaccuracy, or unfairness. All grounds advanced in a request for relief must be supported by a clear and detailed explanation of the reasons for the request together with all supporting documentation.

Appeals generally proceed in this order:

1. Course instructor (informal consultation)
2. Department Chair (submission of written request)
3. The Dean of the Faculty (submission of written request)

In the case of perceived procedural unfairness, steps 2 and 3 are carried out within the Department and Faculty offering the course. In the case of extenuating medical or compassionate circumstances that impact on a grade, steps 2 and 3 are carried out within a student's Home Department and Faculty.

A request for relief against a mark or grade must be initiated with the instructor as soon as possible after the mark is issued. In the event that the instructor is not available to the student, or fails to act, or if the matter is not resolved satisfactorily with the instructor, a written request for relief must be submitted to the Chair of the Department within three weeks of the date that the mark was issued. In the case of a final grade in a course, the written request for relief must be submitted to the Chair of the department by January 31st (for first-term half courses) or June 30th (for second-term half courses or full-year courses)

8. Support Services

Health and Wellness:

Information regarding health and wellness-related services available to students may be found at <http://www.health.uwo.ca/>.

Students who are in emotional/mental distress should refer to Mental Health@Western (<http://www.health.uwo.ca/>) for a complete list of options about how to obtain help. There are various support services around campus and these include, but are not limited to:

Student Development Centre -- <http://www.sdc.uwo.ca/ssd/>

Ombudsperson Office -- <http://www.uwo.ca/ombuds/>

9. Student Code of Conduct

The purpose of the Code of Student Conduct is to define the general standard of conduct expected of students registered at Western University, provide examples of behaviour that constitutes a breach of this standard of conduct, provide examples of sanctions that may be imposed and set out the disciplinary procedures that the University will follow. For more information, visit <https://www.uwo.ca/univsec/pdf/board/code.pdf>