

## Course Team

Course Instructor: Mark A. Schmuckler  
Office: SW515  
Email: [mark.schmuckler@utoronto.ca](mailto:mark.schmuckler@utoronto.ca)  
Office Hours: Tuesdays, 1:00 – 2:00 pm, or by appointment

Teaching Assistant: Mikayla Samuel  
Office: HW302  
Email: [mikayla.samuel@mail.utoronto.ca](mailto:mikayla.samuel@mail.utoronto.ca)

Course Hours: Wednesday, 3:00 – 5:00 pm  
Course Location: SW316

## General Course Information

Although typically taken for granted, being able to move around the world, navigating a cluttered environment, avoiding obstacles, and potential dangers, is critical for our survival. Yet despite the fundamental importance of this ability, as actors we give little thought to how we accomplish this incredible feat. The goal of PSYC74 is to introduce students to some of the basic principles underlying our ability to move around, exploring the twin topics of human movement and motor control.

Specifically, in this course we will examine a range of topics on human movement, drawing from the areas of eye-movements, balance control, and locomotion. Along with gaining conceptual movement about human movement, you will gain hands-on experience in actually collecting data regarding human movement data via a variety of simple and sophisticated behavioral data gathering systems. Finally, in this course you will become acquainted with the process of analyzing the data gathered in movement students. Because the data gathered in studies on human is complex, data analysis techniques are similarly complex, often involving the use of spatial frequency analysis, and so on.

## Learning Outcomes

By the end of this course, students will have:

- understanding of basic concepts related to motor control and performance
- knowledge of how motor performance is related to and influenced by sensory and perceptual systems
- basic knowledge of principles related to time series concepts and time series analyses
- the ability to apply Excel formulas for basic data manipulation and quantification
- experience in collection postural control and kinematic locomotor data, quantifying measures of postural stability and locomotor performance, and conducting basic statistical analyses of such measures
- be able to produce an experimental report of data collection procedures and statistical results related to motor control studies

## Course Communication

### Communicating with the class:

All course information will be communicated to you **via announcements on Quercus**, by email, or through in-person announcements made in class.

This course uses the University's learning management system, [Quercus](#), to post information about the course. Such information includes posting readings for weekly lecture topics, supplementary material for lectures/demonstrations in class (e.g., sample data sets to manipulate or analyze), class assignments, and so on. Quercus will also be used to provide you with important information regarding exams (e.g., material for which you are responsible, regulations regarding allowable resources for exams). This site is dynamic, and new information and resources will be posted regularly as we progress through the term. Accordingly, we recommend that you make it a habit to consistently check [Quercus](#) on a daily basis.

To access the course website, go to the U of T Quercus login page (<https://q.utoronto.ca>), and log in using your UTORid and password. Once you have logged into this site, you should see the link for PSYC74. You may need to scroll through other links to find this class. Click on the PSYC74 link to open our course area, view the latest announcements, and access your course resources. There are Quercus help guides for students that you can access by clicking on the "?" icon in the left side column.

**You are expected to monitor email and course announcements on a frequent and consistent basis. It is YOUR responsibility to recognize that certain communication may be time-sensitive, and that you are aware of all information provided on the course site.**

### Communicating with the course instructor/TA:

If you need to contact us, you can do so via the following methods:

1. Visiting office hours
2. Emailing the course instructor ([mark.schmuckler@utoronto.ca](mailto:mark.schmuckler@utoronto.ca)) or TA ([mikayla.samuel@mail.utoronto.ca](mailto:mikayla.samuel@mail.utoronto.ca)).

**Please use ONLY your official UofT email account for all communication, and please do not send emails via the direct messaging system in Quercus. Please include your student number and a meaningful subject line in all communications.** You can expect a response within 1 – 2 business days.

## Lectures, Course Readings, and Course Materials

This course involves a significant in-person lecture/demonstration/practical component. This means that important material will be presented on a weekly basis in class, and will include standard lecture information, data collection for lab projects, and hands-on lab demonstration and practical experience in data manipulation and analyses (e.g., data manipulation in Excel, analysis of time series information using DADiSP, conducting statistical analyses). **Please note that you are responsible for all material covered in class, and that this material will not be fully provided at other times (i.e., office hours). In other words, you are expected to attend class on a weekly basis!**

There is no textbook for this class. Course readings will be made available via PDF downloads posted on Quercus. You will also be responsible for downloading and using some publicly available software on your own personal devices. If you do not have access to a dedicated personal computer, please let me know and I will work with you to enact a solution to this problem.

## Course Schedule: Topics, Readings, and Evaluations

<u>Week of:</u>	<u>Topic / Reading</u>	<u>Assignment (value)</u>
Sep. 2	Introduction to class <ul style="list-style-type: none"> <li>• Latash (2012). Chapter 2: Elements of history. In <i>Fundamentals of motor control</i>, pp. 5 – 24.</li> </ul>	
Sep. 9	Motor control: An overview and psychological foundations <ul style="list-style-type: none"> <li>• Schmidt et al. (2018). Chapter 1: Evolution of a field of study. In <i>Motor control and learning: A behavioral emphasis</i>, 6<sup>th</sup> Ed, pp. 3 – 21</li> <li>• McGill &amp; Anderson (2014). Chapter 5: Motor control theories. In <i>Motor learning and control</i>, 10<sup>th</sup> Ed., pp. 85 – 111.</li> </ul>	
Sep. 16	Motor control methodology <ul style="list-style-type: none"> <li>• Schmidt &amp; Lee (2011). Chapter 2: Methodology for studying motor performance. In <i>Motor control and learning</i>, 5<sup>th</sup> Ed, pp. 21 – 55</li> </ul>	
Sep. 23	Time series analysis and signal processing <ul style="list-style-type: none"> <li>• Warner (1998). Chapter 1: Research questions for time-series and spectral analysis studies. In <i>Spectral analysis of time series data</i>, pp. 1 – 12.</li> <li>• Warner (1998). Chapter 2: Issues in time-series research design, data collection, and data entry: Getting started. In <i>Spectral analysis of time series data</i>, pp. 13 – 31.</li> </ul>	
Sep. 30	Data analysis for assignment 1	Assignment 1 (10%) Due Date: T. B. A.
Oct. 7	<b>Exam 1</b> (in class)	Exam (25%)
Oct. 14	Postural control: An overview <ul style="list-style-type: none"> <li>• Shumway-Cook &amp; Woollacott (2012). Chapter 7, Normal postural control. In <i>Motor control: Translating research into clinical practice</i>, 4<sup>th</sup> Ed, pp. 161 – 194.</li> </ul>	
Oct. 21	Postural control: Data collection <ul style="list-style-type: none"> <li>• Rougier (2013). The influence of having eyelids open or closed on undisturbed postural control, <i>Neuroscience Research</i>, 47, 73-83.</li> <li>• Jeka &amp; Lackner (1994). Fingertip contact influences human postural control. <i>Experimental Brain Research</i>, 100, 495-502</li> </ul>	
Oct. 28	<b>Reading week – No class</b>	
Nov. 4	Postural Control: In-Class Data analysis <ul style="list-style-type: none"> <li>• Raymakers et al. (2005). The assessment of body sway and the choice of stability parameters. <i>Gait and Posture</i>, 21, 45-58.</li> <li>• Prieto et al. (1996). Measures of postural steadiness: Differences between healthy young and elderly adults. <i>IEEE Transactions on Biomedical Engineering</i>, 43, 956-966</li> </ul>	Assignment 2 (20%) Due Date: T. B. A.

Nov. 11	Locomotion: An Overview Shumway-Cook & Woollacott (2012). Chapter 12, Control of normal mobility. In <i>Motor control: Translating research into clinical practice</i> , 4 <sup>th</sup> Ed, 315 – 347.	
Nov. 18	Locomotion: Data collection <ul style="list-style-type: none"> <li>• Thorstensson (1986). How is the normal locomotor program modified to produce backwards walking? <i>Experimental Brain Research</i>, 61, 664-68.</li> <li>• McPhee, Cheung, &amp; Schmuckler (2022). Dual-task interference as a function of varying motor and cognitive demands. <i>Frontiers in Psychology</i>, 13, 952245</li> </ul>	
Nov. 25	Locomotion: In-Class Data analysis	Assignment 3 (20%) Due Date: T. B. A.
T. B. A.	<b>Exam 2</b> (during exam period)	Exam (25%)

**Please note that all assignments will be due by 5 pm on the day announced. Assignments will be submitted using the University's plagiarism tool, Turnitin.**

**Penalty for a late assignment: 1 mark per day (i.e., 1 day late, a B becomes a B-, and so on).**

## UTSC Policies

### University's Plagiarism Detection Tool

Normally, students will be required to submit their course essays to the University's plagiarism detection tool for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the tool's reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of this tool are described on the Centre for Teaching Support & Innovation web site (<https://uoft.me/pdt-faq>).

### Academic Integrity

The University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences in papers and assignments include using someone else's ideas or words without appropriate acknowledgement, submitting your own work in more than one course without the permission of the instructor, making up sources or facts, obtaining or providing unauthorized assistance on any assignment.

On tests and exams, cheating includes using or possessing unauthorized aids, looking at someone else's answers during an exam or test, misrepresenting your identity, or falsifying or altering any documentation required by the University.

### Equity, Diversity and Inclusion

The University of Toronto is committed to equity, human rights and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect where all members of our community can express themselves, engage with each other, and respect one another's differences. U of T does not condone discrimination or harassment against any persons or communities.

The University of Toronto is a richly diverse community and as such is committed to providing an environment free of any form of harassment, misconduct, or discrimination. In this course, I seek to foster a civil, respectful, and open-minded climate in which we can all work together to develop a better understanding of key questions and debates through meaningful dialogue. As such, I expect all involved with this course to refrain from actions or behaviours that intimidate, humiliate, or demean persons or groups or that undermine their security or self-esteem based on traits related to race, religion, ancestry, place of origin, colour, ethnic origin, citizenship, creed, sex, sexual orientation, gender identity, gender expression, age, marital status, family status, disability, receipt of public assistance or record of offences.

### Accommodations

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the AccessAbility Services Office as soon as possible.

AccessAbility Services staff (located in Rm AA142, Arts and Administration Building) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations 416-287-7560 or email [ability.utscc@utoronto.ca](mailto:ability.utscc@utoronto.ca). The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

## **Use of Generative Artificial Intelligence Tools**

Students may use artificial intelligence tools, including generative AI, in this course as learning aids or to help produce assignments. However, students are ultimately accountable for the work they submit.

Students may not use artificial intelligence tools for taking tests, writing research papers, creating computer code, or completing major course assignments. However, these tools may be useful when gathering information from across sources and assimilating it for understanding.

The knowing use of generative artificial intelligence tools, including ChatGPT and other AI writing and coding assistants, for the completion of, or to support the completion of, an examination, term test, assignment, or any other form of academic assessment, may be considered an academic offense in this course.

## **Recording of Classroom Material by Students**

Recording or photographing any aspect of a university course - lecture, tutorial, seminar, lab, studio, practice session, field trip etc. – without prior approval of all involved and with written approval from the instructor is not permitted.

# Department of Psychology Policies

## Department of Psychology Missed Term Work Policy

For missed term work (assignments and term tests) due to illness, emergency, or other mitigating circumstances, please follow the procedure outlined below.

### Procedure:

1. Complete the [Request for Missed Term Work Accommodations Form](#) ("MTW Form").
2. Email **BOTH** your MTW Form and Supporting Documentation to **<course email>** according to the instructions specified below.

### Supporting Documentation Requirements and Deadlines:

Reason for Missed Work	Documentation required for a <b>first absence</b> in the term	Documentation required for <b>subsequent absences</b> in the term	Deadline for submitting MTW form and supporting documentation
Illness or Injury	<a href="#">ACORN</a> Absence Declaration	<a href="#">UofT Verification of Illness Form</a>	<b>WITHIN 2 BUSINESS DAYS</b> of the missed work
Bereavement	<a href="#">ACORN</a> Absence Declaration	A death certificate or funeral announcement	<b>WITHIN 2 BUSINESS DAYS</b> of the missed work
University-sponsored athletic or artistic obligation at the varsity/provincial/national level	<a href="#">ACORN</a> Absence Declaration	A note from a university staff member (advisor, coach, residence staff, etc.) who can substantiate the obligation, sent directly to the course email	<b>10 BUSINESS DAYS IN ADVANCE</b> of the missed deadline
Disability-related reasons for students registered with AccessAbility Services	For missed <b>TERM TESTS</b> , <ul style="list-style-type: none"> <li>- <b>Contact your AccessAbility consultant</b> and have them write to the course email detailing the accommodations needed.</li> </ul> For missed <b>ASSIGNMENTS</b> , <ul style="list-style-type: none"> <li>- If your desired accommodation is <b>within the scope</b> of your Accommodation Letter (e.g. your letter includes "extensions of up to 7 days" and you need 3 days), send your <b>Accommodation Letter</b> to the course email and specify how many days extension you are requesting.</li> <li>- If your desired accommodation is <b>outside the scope</b> of your Accommodation Letter (e.g. your letter includes "extensions of up to 7 days" but you need more time than that), <b>contact your AccessAbility consultant</b> and have them write to the course email detailing the accommodations needed.</li> </ul>		<b>PREFERABLY IN ADVANCE OF THE MISSED WORK, OR AS SOON AS POSSIBLE</b>
Academic Conflict	Screenshot from Quercus demonstrating the conflict.		

(e.g. two midterms at the same time)		<b>10 BUSINESS DAYS IN ADVANCE</b> of the missed work
Religious Conflict	None required	

**Notes:**

- The following reasons are not considered sufficient for missed term work: social activities, recreational travel, technological issues, avoidance of assessments or deadlines, work commitments
- [Missed Final Exams](#) are handled by the Registrar’s Office and should be declared on eService.
- For ACORN absence declarations, the date you declare the absence is required to fall within the seven-day declaration period (i.e.) the absence cannot be submitted proactively or retroactively.
- Instructors cannot accept term work any later than five business days after the last day of class. Beyond this date, accommodations are only possible via the Registrar’s Office [petition process](#).
- If you are unable to submit your request within the specified number of business days, you must still email your instructor within that window to explain the nature of the delay. Exceptions to the deadlines are made only under exceptional circumstances.
- Multiple assignments due on the same day are not considered academic conflicts. Students are expected to manage their time effectively to meet assignment deadlines.
- Back-to-back tests/quizzes are not considered academic conflicts. Only overlapping activities are conflicts.
- Students are responsible for keeping their course timetables conflict-free. Students who register in two courses with overlapping lecture/tutorial/lab schedules will not be accommodated.

**Next Steps:**

After submitting your documentation, you will receive a response from your instructor or TA. The course instructor reserves the right to decide what accommodations will be made. Failure to adhere to any aspect of this policy may result in a denial of your request. **You are responsible for checking your official U of T email and Quercus course announcements daily**, as accommodations may be time-critical.

For missed assignments, **do not wait for the instructor’s response to resume work on your assignment**. Extensions may be as short as one business day, depending on the nature of the illness/emergency. Complete your assignment as soon as you’re able, and email it to your instructor.

If an accommodation is granted but a continued illness/emergency prevents you from meeting its requirements, you must repeat the missed term work procedure to request additional accommodations. **Please make it clear in your subject line that you are requesting a second accommodation**. Examples: If you were granted an extension for a paper but are still unable to meet the new deadline, or if you miss a make-up term test, you must submit *another* MTW form and supply documentation according to the “subsequent absences” column in the chart above. \*Note: In the case of a missed make-up test, an opportunity to write a second make-up test may not necessarily be provided.