

Fall 2023 Course Syllabus
Sensorimotor Systems (NROC64)

Professor: Mark Morrissey, Ph.D.
Wednesday 7-9pm: MW 170

Course Email: NROC64.f2023@gmail.com

Office Hours:

- Remote Bookable: Fridays 12-1pm. One-on-one appointments in 10 minutes time-slots:
 - Must be reserved 24 hours in advance through:
 - <https://calendly.com/morrissey-utsc>

A note on email communication: All questions regarding the course, lectures, readings, exams, etc. must be sent to the course email address: NROC64.f2023@gmail.com. Questions that have already been answered in the course syllabus, in lecture slides, or on Quercus will not receive a response. Students are asked to contact Dr. Morrissey directly for personal or confidential matters only, at mark.morrissey@mail.utoronto.ca

**** Please note: Course announcements will be made through Quercus. Students are responsible for monitoring the course website regularly for important announcements and updates. Class emails will also be sent through Quercus. Therefore, students are responsible for making sure that their listed email address is correct. ****

REQUIRED TEXBOOK: Neurophysiology: A Conceptual Approach, Fifth Edition
Roger Carpenter

SUPPLEMENTAL READINGS: Supplemental readings will be provided for each lecture. Material covered from these readings in lecture will be testable. They will also serve as the basis for the two course papers. See Excel sheet posted on Quercus

COURSE DESCRIPTION: A focus on the mechanisms by which the nervous system processes sensory information and controls movement. The topics include sensory transduction and the physiology for sensory systems (visual, somatosensory, auditory, vestibular). Both spinal and central mechanisms of motor control are also covered.

COURSE OBJECTIVES:

1. Develop a foundational understanding of sensorimotor systems
2. Strengthened your ability to consume scientific literature
3. Practice the acquisition of scientific knowledge
4. Practiced your ability to understand, critique and communicate original research in psychology and neuroscience
5. Train your ability to effectively communicate scientific knowledge to others

Prerequisite:
(BIOB30H &) NROB60H, exclusion (but not equivalent): PSY290H

COURSE STRUCTURE The format of the course will consist primarily of lectures, but will also include video and other methods to help illustrate course material. The material covered in lectures will generally correspond to the material in the textbook, but will often serve to supplement the readings rather than simply duplicate their contents. Therefore, I strongly recommend having completed the relevant readings prior to watching the accompanying online lecture; having done so will make the learning experience more enjoyable and productive. I will also present material that is not included in the readings; therefore, familiarity with both lectures and course readings is necessary to succeed in this course. You will be responsible for all material presented in class and in the required readings.

Quiz 1	5%	Week 5
Mid-term Exam	25%	Oct 18
Paper	10%	Due Nov 2
Quiz 2	5%	Week 9
Slide-deck	15%	Nov 30
Quiz 3	5%	Week 12
Final Exam	35%	Dec Exam period

QUIZZES, TERM TEST AND FINAL EXAM

mTuner quizzes (5% each): Students will be required to complete three closed-book online quizzes during the semester. These quizzes will be taken online with mTuner. mTuner allows for enhanced online multiple-choice tests specifically designed to help promote students' learning and understanding of the course material. The quizzes are designed to help students keep up with the course material and be prepared for the mid-term and the final exam. No extensions will be granted for completing the quizzes. All quizzes are **closed-book**. Specific details about the mTuner quizzes will be provided on Quercus.

- Quiz 1: Will take place during week 5 (Thursday 10am-Friday 10pm) and will cover material from weeks 1-4.
- Quiz 2: Will take place during week 9 (Thursday 10am-Friday 10pm) and will cover material from Weeks 5-8.
- Quiz 3: Will take place during week 12 (Thursday 10am-Friday 10pm) and will cover material from Weeks 9-11.

Mid-term examination (25%): The mid-term exam will cover all required readings and lecture material covered before the mid-term. The exam will consist of multiple-choice questions, will not exceed two hours and **closed-book**.

Final examination (35%): The final exam will be 'soft' cumulative. It will cover all course material however **an emphasis will be placed on material covered after the mid-term**. The exam will consist of multiple-choice questions, will not exceed two hours, and be closed-book. The final exam will be scheduled during the University examination period.

Papers: The purpose of the two papers is help you practice and develop several key skills 1) reading & understanding primary research papers 2) knowledge translation 3) clear writing and scientific communication.

The idea behind the readings and the papers is that you have a chance to practice reading scientific articles. Being able to do so is an absolute must in many professional areas, inside and outside the university. Because this is a skill there is no other way to learn it but to practice.

Paper (10%): ELI5 (Explain like I'm Five)

The purpose of this paper is to practice and develop your knowledge translation skills. Choose ONE paper from the supplemental reading list and write a 2-PAGE summary of the study. Your audience is someone without a strong science or psychology background. Translate the paper into a clear summary that communicates the purpose, background, what was done, what they found and what it means. There is a strict 2-page (1.5 spacing, 12 pt font) limit for this paper.

Slide-deck (15%): Paper summary

The purpose of this assignment is to practice and demonstrate your ability to read and understand a scientific paper and translate the paper into a short critical summary in a slide-deck format. The audience is someone with a solid science and psychology background. Translate the paper into a clear summary that covers the purpose, the hypothesis, the method, results and discussion. Your summary should also include a critical view of the paper (what does it mean, why is it important, what are strengths and what are weaknesses). You can use the software of your preference, Powerpoint, Keynote, Slides, Canva etc.

Graphics are encouraged, the use of titles, headings and sub-headings should be meaningful, and all words should be your own. Because you will not be presenting the deck, it should exist as a stand-alone product, meaning someone should be able to look through it and come away with an understanding with the need for a voice over.

Late submissions will be assessed late penalties according to the following schedule. 2.5% per day for the first two days. 5% per day for each following day.

Papers will be submitted online through the Quercus Assignments page and will be passed through plagiarism detection.

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>).

Help with Writing

If you would like help with academic writing, the following resources are available to you:

- The Centre for Teaching and Learning (AC312) Writing Centre offers students oneto-one appointments and supplementary materials to help improve upon their writing skills. <http://ctl.utsc.utoronto.ca/home/> <http://ctl.utsc.utoronto.ca/twc/>
- The English Language Development Centre offers support and specialized writing programs for students who do not speak English as their primary language. <http://ctl.utsc.utoronto.ca/eld/>
- Advice on academic writing <http://www.writing.utoronto.ca/advice>

Literature Searches

Students can use the following resources when conducting literature searches to find relevant articles for their presentation and final essay:

The UTSC Library (AC235)

<http://www.library.utoronto.ca/utsc/>

PubMed

<http://www.ncbi.nlm.nih.gov/pubmed>

PsychINFO

<http://www.apa.org/pubs/databases/psycinfo/index.aspx>

Google Scholar

<http://scholar.google.ca/>

Lecture Date	Lecture Topic	Readings
Week 1 (Sep 6)	Introduction	Chapter 1 (& Appendix)
Week 2 (Sep 13)	Top down vs. Bottom up Systems	Chapter 9
Week 3 (Sep 21)	Vision	Chapter 7
Week 4 (Sep 27)	Skin & Proprioception	Chapter 4,5
Week 5 (Oct 4)	Hearing, Smell & Taste	Chapter 6,8
Reading week Oct 7- 13		
Week 6 (Oct 18)	In-class term test	
Week 7 (Oct 25)	Motor Systems & Local Motor Control	Chapter 9 (review), 10

Week 8 (Nov 1)	Posture	Chapter 11
Week 9 (Nov 8)	Higher Motor Functions	Chapter 12
Week 10 (Nov 15)	Pointing, reaching and grasping	Chapter 12
Week 11 (Nov 22)	Behavioural Control 1	

Week 12 (Nov 29)	Behavioural Control & Putting it all together	Chapters 13-14
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*Please note that this outline is subject to change depending on the needs of the class (we may need additional time to cover a topic). Any changes to the syllabus will be announced ahead of time. However, the test dates will be fixed.

Disability-Related 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 (<http://www.utsc.utoronto.ca/ability/>) 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. Please contact 416-287-7560 (tel/TTY) or email ability.utsc@utoronto.ca for more information.

The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

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.

UNIVERSITY LAND ACKNOWLEDGEMENT

I wish to acknowledge this land on which the University of Toronto operates. For thousands of years, it has been the traditional land of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit. Today, this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land.

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.uts@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

MASKS IN THE CLASSROOM

While the mask mandate has been paused as of 1 July 2022, the use of medical masks continues to be strongly encouraged at U of T Scarborough in indoor settings where physical distancing is not possible. We ask everyone to respect each other's decisions, comfort levels, and health needs. Masks are available at all building entrances at U of T Scarborough and in all classrooms.

MISSED TERM WORK POLICY

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 NROC64.f2023@gmail.com according to the instructions specified below.

Supporting Documentation Requirements and Deadlines:

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

Grade Scale

NUMERICAL MARKS	LETTER GRADE	GRADE POINT VALUE
90 - 100%	A+	4.0
85 - 89%	A	4.0
80 - 84%	A-	3.7
77 - 79%	B+	3.3
73 - 76%	B	3.0
70 - 72%	B-	2.7
67 - 69%	C+	2.3
63 - 66%	C	2.0
60 - 62%	C-	1.7
57 - 59%	D+	1.3
53 - 56%	D	1.0
50 - 52%	D-	0.7
0 - 49%	F	0.0