WESTERN UNIVERSITY
LONDON CANADA
Department of Psychology
2018-2019

Psychology 4295G Section 001
Special Topics in Behavioural and Cognitive Neuroscience

Sensorimotor Control

1.0 CALENDAR DESCRIPTION

Selected topics of current interest in Behavioural and Cognitive Neuroscience.

Antirequisite: Not Applicable

Prerequisite: Psychology 2220A/B, Psychology 2221A/B or Neuroscience 2000, and registration in third or fourth year Honours Specialization in Psychology, Honours Specialization in Developmental Cognitive Neuroscience, Honours Specialization in Neuroscience, or Honours Specialization in Animal Behaviour. Other Psychology students and Psychology Special Students who receive 70% in the prerequisite course(s) may enrol in this course.

3 seminar hours; Course Weight: 0.5

Unless you have either the prerequisites for this course or written special permission from your Dean to enrol 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.

2.0 COURSE INFORMATION

Instructor:	Dr. Paul Gribble
Office and Phone Number:	WIRB 4122
Office Hours:	by appointment
Email:	paul@gribblelab.org
Teaching Assistant:	n/a
Office:	
Office Hours:	
Email:	
Time and Location of Classes:	Thursdays 9:30-12:30pm; WIRB TBA

If you or someone you know is experiencing distress, there are several resources here at Western to assist you. Please visit: http://www.uwo.ca/uwocom/mentalhealth/ for more information on these resources and on mental health.

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 519-661-2111 ext 82147 for any specific question regarding an accommodation.

3.0 TEXTBOOK

No textbook. Required readings will be provided electronically on the OWL course website.

4.0 COURSE OBJECTIVES

The general goal of the course is to review current neuroscience research and theories in sensorimotor control and motor learning. The specific goals are:

1. To provide a comprehensive research-oriented overview of key findings, methodology, theories, and contentious issues in the study of sensorimotor control and motor learning, drawing from the neuroscience literature on both human and animal studies.

2. To encourage reading and writing about primary source material in neuroscience research; to encourage critical thinking about the topics; to explore and appreciate the limits of current scientific knowledge in the field.

3. To provide training for public (in-class) presentations on a specific research question and its empirical study; to encourage discussion of contentious issues in neuroscience research.

4.1 STUDENT LEARNING OUTCOMES

Learning Outcome	Learning Activities	How Assessed
Knowledge and Understanding		
Describe and explain key concepts and research findings in the field of human sensorimotor control and motor learning Describe and explain key methods used to study sensorimotor control and motor learning in humans	Reading Participation in class discussions Preparing class presentations Writing short papers	Class participation Class presentations Short papers
Critical Thinking		
Organize and synthesize research results Describe and explain limits of current knowledge in research on human sensorimotor control and motor learning Design novel future studies Develop hypotheses and predictions for future studies	Preparing class presentations Participation in class discussions Writing short papers Writing final essay	Class presentations Class participation Short papers Final essay
Communication		
Communicate ideas, methods, and findings from research on human sensorimotor control and motor learning orally	Participation in class discussion Preparing class presentations	Class participation Class presentations Short papers

Communicate ideas, methods, and findings from research on human sensorimotor control and motor learning in written form	Writing short papers Writing final essay	Final essay

5.0 EVALUATION

Students are expected to attend all classes and to read all assigned material including background readings.

Students will select an assigned primary research article and they will prepare (i) a presentation and (ii) a short thought paper. Students will usually present in groups of two but each student must submit their own original short paper. Students will also select one of the topics discussed in the course and write an essay, which must be submitted at the end of term.

For undergraduate students, evaluation will be based on: (1) two in-class presentations, (2) two short papers, (3) one end of term essay, and (4) class participation:

2 x Presentations (12.5% each) 2 x Short papers (10% each)	25 % 20 %
End of term Essay (35%) & proposal presentation (10%)	45 %
Participation in class discussions	10 %

For graduate students, evaluation will be based on: (1) two in-class presentations, (2) two short papers, (3) two essays, and (4) class participation:

2 x Presentations (10% each) 2 x Short papers (10% each)	25 % 20 %
2 x Essays (17.5% each) & 2 x proposal presentations (5% each)	45 %
Participation in class discussions	10 %

Presentations
Students are required to give two presentations on the assigned primary research papers over the course of the term. Each presentation will typically be given by groups of two students, but the course size may also require presentations in other formats. Presentations should be 15–20 min in length, and must be supported by visual aids (e.g., Keynote/PowerPoint). They should offer a summary of the article, including coverage of (i) background and motivation of the study; (ii) the specific research question addressed, (iii) the specific hypotheses tested (if any), (iv) the design and methods used, (v) the main results reported (with Figures and/or Tables), and (vi) the main conclusions drawn. Students are strongly encouraged to link the study to broader issues discussed in the background readings. Students are invited to consult other academic resources (papers, books, online resources) for inclusion of additional background, but they should reference them when used. In the final section of the presentation, students are asked to include questions and critique so as to stimulate class discussion. The presenters should consider themselves as experts on the topic and the study they present. They are expected to take on an active role in the discussion and should also be prepared to answer related questions.

In addition to these two paper presentations, all students are expected to orally present and defend the study they propose in their essay in the last course session (last week of classes). These presentations will be brief (3 – 5 min plus 2 min for discussion each).

Short Papers
Students are required to write two short papers (maximum 500 words; approx. 1.5–2 double-spaced pages in 12 point font) on the research articles they present in class (described above). Short papers should include a brief summary of the study as well as independent thoughts, which could focus on strength and weaknesses, alternative interpretations, comparisons to other research findings, proposals for follow-up research, or application to daily experiences outside the laboratory. Students are also strongly encouraged to link the study to issues discussed in the background readings. Short papers are meant to get students thinking about what they want to discuss in class. Short papers must be uploaded to the course website in PDF format no later than 11:55 pm 7 days after the student presents the research article on which the short paper is based.

Final Essay
Students are required to submit an essay on a topic covered in the course. The paper must be a proposal for a research project that would follow up on one of the studies covered in the primary research articles associated with the course. Essays are should include (i) an Introduction with a brief review of pertinent background, (ii) a clear specification of the research question and a statement about why it is important, (iii) a description of research methods and the proposed study design, (iv) a description of anticipated results, and (v) a summary of the conclusions that can be drawn if the outcome is as expected. Students will present these study proposals in the last week of classes in a brief 5-10 minute presentation. The paper should not exceed a maximum of 10 pages (12 point font, double-spaced, about 2500 words, excluding cover page and references) and should be written in the format of a typical article in Journal of Neurophysiology or Journal of Neuroscience. Essays must be submitted electronically through the course website no later than 11:55 pm on April 10, 2010. **Graduate Students** are required to submit two essays as described above. The first is required to be submitted no later than 11:55 pm on Feb 16, 2020. The second must be submitted no later than 11:55 pm on April 10, 2010.

Class Participation
Students are expected to participate regularly in class discussion, and they will be graded based on their participation.

PLEASE NOTE: Because this is an essay course, as per Senate Regulations, you must pass the essay component to pass the course. That is, the average mark for your written assignments must be at least 50%.

Although the Psychology Department does not require instructors to adjust their course grades to conform to specific targets, the expectation is that course marks will be distributed around the following averages:

70%	1000-level and 2000-level courses
72%	2100-2990 level courses
75%	3000-level courses
80%	4000-level courses

The Psychology Department follows Western's grading guidelines, which are as follows (see: http://www.uwo.ca/univsec/pdf/academic_policies/general/grades_undergrad.pdf)

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work that is clearly above average
B	70-79	Good work, meeting all requirements, and eminently satisfactory

C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable
F	below 50	Fail

6.0 TEST AND EXAMINATION SCHEDULE

There are no tests or examinations in this course. Evaluation is based on the components summarized in Section 5.0.

7.0 CLASS SCHEDULE

January 9	Introduction and Course Organization Background readings assigned
January 16	**Organization and Planning of Movement** Selected studies presented by students
January 23	**Spinal Cord** Selected studies presented by students
January 30	**Primary Motor Cortex** Selected studies presented by students
February 6	**Parietal, Premotor Cortex and SMA** Selected studies presented by students
February 13	**Basal Ganglia & Cerebellum** Selected studies presented by students
February 20	Reading week (no classes)
February 27	**Motor Learning I** Selected studies presented by students
March 5	**Motor Learning II** Selected studies presented by students
March 12	**Motor Learning III** Selected studies presented by students
March 19	**Motor Learning IV** Selected studies presented by students
March 26	no class—preparation time for study proposals/essays
April 2	Short presentations of studies proposed in final essays

8.0 STATEMENT ON ACADEMIC OFFENCES

Students are responsible for understanding the nature and avoiding the occurrence of plagiarism and other scholastic offenses. Plagiarism and cheating are considered very serious offenses because they undermine the integrity of research and education. Actions constituting a scholastic offense are described at the following link:
http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

As of Sept. 1, 2009, the Department of Psychology will take the following steps to detect scholastic offenses. All multiple-choice tests and exams will be checked for similarities in the pattern of responses using reliable software, and records will be made of student seating locations in all tests and exams. All written assignments will be submitted to TurnItIn, a service designed to detect and deter plagiarism by comparing written material to over 5 billion pages of content located on the Internet or in TurnItIn's databases. All papers submitted for such checking 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 and Turnitin.com (http://www.turnitin.com).

Possible penalties for a scholastic offense include failure of the assignment, failure of the course, suspension from the University, and expulsion from the University.

9.0 POLICY ON ACCOMMODATION FOR MEDICAL ILLNESS

Western's policy on Accommodation for Medical Illness can be found at:
http://www.westerncalendar.uwo.ca/PolicyPages.cfm?PolicyCategoryID=1&Command=showCategory&SelectedCalendar=Live&ArchiveID=#Page_12

Students must see the Academic Counsellor and submit all required documentation in order to be approved for certain accommodation:
http://counselling.ssc.uwo.ca/procedures/medical_accommodation.html

10.0 OTHER INFORMATION

Office of the Registrar web site: http://registrar.uwo.ca

Student Development Services web site: www.sdc.uwo.ca

Please see the Psychology Undergraduate web site for information on the following:

http://psychology.uwo.ca/undergraduate/student_responsibilities/index.html

- Policy on Cheating and Academic Misconduct
- Procedures for Appealing Academic Evaluations
- Policy on Attendance
- Policy Regarding Makeup Exams and Extensions of Deadlines
- Policy for Assignments
- Short Absences
- Extended Absences
- Documentation
- Academic Concerns
- 2018 Calendar References

No electronic devices, including cell phones and smart watches, will be allowed during exams.