Program: Kinesiology  
Course #: KIN 568, Section 001  
Term/Year: Jan – April 2022  
Course Title: Seminar in Human Sensorimotor Control  
Location: TBA

Instructor: Dr. Romeo Chua  
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Course Description:

The focus of this seminar is upon *mechanisms and principles in human sensorimotor control* as well as the research methods commonly used in sensorimotor control research. KIN 568 draws primarily upon the frameworks offered by the fields of human motor behaviour, cognitive neuroscience, neuroscience, and experimental psychology.

*It is assumed and expected that students have an undergraduate background in motor control and learning or related area in cognitive neuroscience, neurophysiology or experimental psychology.*

Emphasis is placed on a critical analysis of the scientific literature, seminar presentations, and on the development of a research proposal.

The theme for KIN 568 will be *Sensorimotor Transformations in Human Motor Control* and *Computational Principles and Approaches to Human Sensorimotor Control*. We will be covering research issues pertaining to the sensorimotor neuroscience of action – e.g., the reafference principle, inverse and forward models, sensorimotor adaptation, sensorimotor transformations, sensory prediction, error correction, multi-sensory integration, motor learning and adaptation, etc.

Objectives:

1. Review historical and recent research on issues pertaining to human sensorimotor control.
2. Develop the background and tools to critically analyze and assess the research.
3. Allow students to present their ideas on a topic and have these ideas subjected to evaluation and feedback by their peers.
4. Develop a study proposal for an in-depth investigation into a specific research topic.
Required Readings:

1st Set of Required Readings: These reviews are intended to provide a background and non-exhaustive sample of the research themes and concepts for the course. Students will facilitate discussions of the topics within these review articles.


Additional readings will consist of research articles from peer-reviewed journals.

*Research and presentation topics must be selected from the research themes covered in the 1st set of readings.*

Course Evaluation:

A. Seminar Presentations: 45%

Critically review and present research. Students will lead 15-minute seminar presentations on a current research topic fitting the theme of the course and the articles selected.

(Seminars must include presentations in PowerPoint).

B. Presentation of Research Proposal: 10%

A 20-minute oral presentation of the proposal.

(This would be similar to an actual thesis proposal as required of graduate students in the School).

C. Research Proposal: 35% (Due Date: April 15, 2022)

A document that provides a detailed proposal for a research study. The proposal should include a review of relevant literature, a clear statement and rationale for the purpose of the study, a clear hypothesis, a detailed description of the study methods and procedures, as well as hypothesized results and a discussion of the implications of potential results of the proposed study.

Maximum: 20 pages (excluding references, figures, tables etc.), double-spaced, in APA format.

D. Participation: 10%

Students will be evaluated on a 10-point scale for the extent of their participation in discussions during presentations.