

NEUR 605 – Control of Neural Development - 2015

Course Instructors: Drs. Michel Cayouette, Jean-Francois Cloutier, Artur Kania, Timothy Kennedy, Edward Ruthazer, Stefano Stifani (course coordinator).

Lecture Times: Tuesdays, 10:00 – 11:30.

Location: Montreal Neurological Institute – Room 188 (unless otherwise indicated).

This course will focus mostly on the discussion of molecular and cellular mechanisms that are involved in the differentiation, growth, survival and function of neural cells. Emphasis will also be placed on addressing mechanisms involved in the construction of neural circuits, as well as on mechanisms underlying major diseases of the nervous system.

The course will take an interactive approach. The first 50-60 minutes of each class will be devoted to a lecture presented by faculty involved in the course. The last 30-40 minutes will be devoted to a student-led round-table discussion of a recent paper related to the lecture. Students will be provided with the assigned papers in advance of the lecture. They will be expected to read the papers before attending the discussion sections and will be called upon to participate in the discussion.

Course grading will be assessed by a final exam (35%), preparation and participation in the discussions (30%), and one assigned project (35%). This project will consist of a CIHR-style grant proposal based on topics discussed during the course. The project will be due on 17 April 2014. The final exam will consist of essays and short answers (date of the final exam: 14 April 2014 – Room 188).

McGill University values academic integrity. Therefore all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see <http://www.mcgill.ca/integrity> for more information).

L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et des procédures disciplinaires (pour de plus amples renseignements, veuillez consulter le site <http://www.mcgill.ca/integrity>).

In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded.

Lecture Schedule:

Jan 6 (Rm 188) *Introduction, Course Overview, Questions and Answers.*
Stifani.

Jan 13 (Rm de Grandpre) *Neural Stem/Progenitor Cells.* **Stifani.**

Assigned paper: TBD

Suggested reviews: TBD

Jan 20 (Rm 188) *Asymmetric Cell Divisions in the Nervous System.*
Cayouette.

Assigned paper: TBD

Suggested reviews: TBD

Jan 27 (Rm 188) *Neuronal and Astrocyte Differentiation.* **Stifani.**

Assigned paper: TBD

Suggested reviews: TBD

Feb 3 (Rm 188) *Oligodendroglial Development 1: Oligo Progenitor Birth
and Cell Migration.* **Kennedy**

Assigned paper: TBD

Suggested Reviews: TBD

Feb 10 (Rm de Grandpre) *Oligodendroglial Development 2: Maturation and
Myelination.* **Kennedy.**

Assigned paper: TBD

Suggested Reviews: TBD

Feb 17 (Rm 188) *Activity-dependent refinement of neuronal connectivity.*
Ruthazer.

Assigned paper: TBD

Suggested Reviews: TBD

Feb 24 (Rm 188) *Activity-Independent Synapse Formation.* **Ruthazer.**

Assigned paper: TBD

Suggested review: TBD

Mar 3 **No class – Study Break**

Mar 10 (Rm 188) *Axon Guidance I: Families of Axon Guidance Cues.*
Cloutier.

Assigned paper: TBD

Suggested reviews: TBD

Mar 17 (Rm de Grandpre) *Axon Guidance II: Modulation of Axonal Responses to Axon Guidance Cues.*
Cloutier.

Assigned paper: TBD

Suggested Reviews: TBD

Mar 24 (Rm de Grandpre) *Motor Neuron Development and Motor Neuron Diseases.*
Kania.

Assigned paper: TBD

Suggested review: TBD

Mar 31 (Rm 188) *Cancer Stem Cells.* **Stifani.**

Assigned papers: TBD

Suggested reviews: TBD

April 7 (Rm 188) *Stem Cells in Neurodegenerative Diseases.* **Stifani.**

Assigned paper: TBD

Suggested review: TBD