**Course Code:** MMG 1353H

**Course Title:** Experimental Techniques in Developmental Biology

**Course Location:** PGCRL

**Course Time and Date:** TBD; typically Wednesdays Oct/Nov

**Course Instructor(s):** Dr. Sevan Hopyan

**Instructor Contact Information (email):** sevan.hopyan@sickkids.ca

**Additional Lecturers (list name, email, Department):**

**Course Overview:**

The goal of this topics course is to get a thorough understanding of the main techniques used in Developmental Biology and their history in the lab. The format of this course will be journal club style presentation and general discussion of selected review articles and primary research papers. Below, you will find the reading list for each class, which was carefully chosen to represent a variety of developmental model organisms as well as techniques that are used in Developmental Biology. All students are expected to read each of the assigned papers prior to class, and come prepared to actively participate in group discussions regarding the application, merits, and limitations of experimental techniques across various animal model systems. Presentations should focus on the techniques used in the current manuscript, as well as the technology that allowed for the technique to be used (as opposed to covering the biological data in the papers)

**Course Objectives:**

* Read new and classic literature in Developmental Biology
* Gain a thorough understanding of experimental techniques used in Developmental Biology
* Think outside of the box to apply a new technique to a new model system in your proposal

**Marking Scheme:**

* 30%: Group and discussion participation
* 30%: Presentation of the assigned paper
* 40%: 3-page NSERC style proposal

NSERC proposal final guidelines:

* 3 pages: included text and any figs, does not include references.
* No diseases!
* No proposals in your field nor on organisms/techniques used in your lab.
* You can take liberties and assume you have some general tools to perform certain techniques in a different system (e.g. planarian transgenics).
* Try to take an unknown about anything in developmental biology in all of the animal kingdom, and tackle it with the techniques we have used in this course.

Policy for any absence.

*If you anticipate missing a class you must let the instructor know in advance, given the weight on participation and the fact that there are only six classes.*

Final proposals will be docked 10% for each day late.

Topics:

Week 1: Transplantation and fate mapping (Oct. 7, 2020)

Week 2: Lineage tracing (Oct. 11, 2020)

Week 3: Forward genetic screens in development (Oct. 18, 2020)

Week 4: Gene targeting and mosaics (Oct. 25, 2020)

Week 5: Genomics of development (Nov. 4, 2020)

Week 6: Biophysics, modeling, and live imaging of development (Nov. 11, 2020)