COURSE INFORMATION
Biology 532 Winter 2022
DEVELOPMENTAL NEUROBIOLOGY SEMINAR
Wednesday and Friday, 10:00-11:30am
Remote via MyCourses/Zoom <u>OR</u> Stewart Biology Bldg. S3/4
(as per McGill's COVID-19 recommendations)

Instructors
Dr. Don van Meyel (Coordinator)
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Dr. Edward Ruthazer
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Dr. Alyson Fournier
Neurology & Neurosurgery	MNI (398-3154)	alyson.fournier@mcgill.ca

Main Topics Covered
1. Births, Migrations and Deaths
2. Specification and Diversification of Neurons
3. Neuronal Polarity, Neurite Outgrowth, and Dendrite Morphogenesis
4. Axon Guidance
5. Topographic Map Formation: Interplay of Guidance Cues and Neuronal Activity
6. Formation of Synapses and Neural Circuits
7. Neural Stem Cells in Adults, and for Biomedical Research
8. Axon Regeneration

Course Format
This course has Units in which introductory lectures by the professors are followed by Roundtable discussions, MyCourses assignments, and student seminar presentations. There is also a term paper. Background reading is suggested for each Unit.

An important aspect of this course involves <u>regular participation</u> in Roundtables and class discussions. Because communication is a key element in this course, it is desirable for participants to be visible, as well as audible, to each other on Zoom.

Meaningful participation and learning in this course require advance preparation and a commitment to <u>read the assigned papers</u>, which have been selected from the recent literature in developmental neurobiology. These papers are listed in the Course Readings document found on the website for the course on MyCourses, where PDF files for each paper can be accessed.

For each paper selected for Roundtable or Student Seminar Presentation, the goal is to try to answer the following questions:

- What are the authors trying to demonstrate: What question(s) are they asking?
- Why is this question worth asking?
- What methods did they use to answer the question?
- What did they find?
- Did they succeed in answering their question?
- Where do they go from here?

Evaluation

Summary of Mark Distribution

Roundtables	32
Student Seminar Presentation	20
Assignments/Participation	28
Term Paper	<u>20</u>
Total	**100%**

1. Roundtables – 32%

<u>Each student</u> is expected to read the whole paper and to make brief notes on each figure/table. Everyone is encouraged and expected to contribute to the Roundtable, where you may be asked to introduce the paper, or to present a figure, or to discuss strengths and weaknesses, potential future directions

etc. To facilitate class discussions, the instructor may post a list of manuscript components randomly paired with a student name. Of course, any student can contribute ideas or questions at any point along the way, but this list can be used as a framework to move the discussion along.

2. Student Seminar Presentations- 20%

In pairs, students will give an oral presentation of one of the papers selected for Student Presentations. Each student presentation is allotted 45 minutes. They should be well organized and clearly presented and must remain within the prescribed time limits. After the presentation, discussion of various points that have been raised will continue. While the presentation is expected to be divided equally among the individuals in the pairing, both are responsible for the content of the entire paper, including supplementary material that can be accessed on-line. Therefore, if one individual in a group is unavoidably absent, the presentation will be made by the other member. Some Guidelines for an Effective Presentation will be provided in the introductory lecture.

2. Assignments and Participation (for Student Presentations) 28%

Assignments: Students will submit 3 questions relevant to each paper selected for Student Presentations, excluding those for which they are the presenter. These are **due at midnight on the eve of each presentation**. The questions are to be submitted using the Assignments section on the course site on MyCourses. Please submit your 3 questions by attaching a single file (.doc, .docx, or .pdf) that has your name written at the top. Failure to submit questions results in a mark of zero for that assignment. If you are a presenter for the paper, simply do not complete the assignment.

Participation: Students should inform the discussion with questions from their Assignments or insight gained during the presentation. Evaluation will emphasize the quality of the contributions over the quantity.

3. Term Paper - 20%

Students will write a 2000-3000-word Term Paper on some aspect of developmental neurobiology, usually focusing on one or two important papers from the literature of the past year. The topic and papers must receive prior approval from Dr.van Meyel and one of the other Instructors if the paper relates to that Instructor's Unit. These term papers can be modeled along the lines of several examples provided on MyCourses, which provide commentary and critical assessment of selected papers covered in class. The term paper is to be submitted through MyCourses along with PDF file(s) of the selected paper(s). It

is due on **Tuesday April 19, 2022 at 12 noon**. The penalty for late submission is 10% per day. <u>Submissions will not be accepted after Friday, April 22 at noon</u>.

Criteria for grading Term Papers:

A: A paper that is excellent in both scientific content and presentation. The background information is succinct but sufficient to provide context, and the objective of the research highlighted well. The synopsis of the approaches used, and the findings made, is clear and well synthesized. There is insightful commentary and critical assessment of the work, and suggestions made to resolve controversies or test unanswered questions. The style is grammatically correct and easy to understand. Relevant literature is cited appropriately, with all statements of others duly referenced.

A-: A strong paper, though lacking in one of the criteria outlined above.

B+: A well written paper that summarizes the research well but lacks commentary or critical assessment. Or a paper that is very insightful, but not particularly well-written and organized.

B: Similar to B+, but lacking in focus, missing some information, or containing misinterpretations or inconsistencies.

B-: The paper makes good points, but key elements are missing or poorly understood, and there is little or no synthesis and interpretation.

C+: Similar to B, but in addition the paper is poorly organized, the style is awkward, and there are many grammatical and spelling errors.

C, D, or F: The paper poorly addresses the assigned topic and has major deficiencies.

On-line Course Evaluation

Each year, students are asked to provide an anonymous assessment and constructive feedback for Bio 532 on-line. This evaluation helps in our ongoing efforts to strengthen and improve the course. **The period for evaluation opens on March 22, 2022**.

Submission of written work in French or English

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.

Academic Integrity Statement

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 www.mcgill.ca/students/srr/honest/ for more information).