COURSE OUTLINE

LIFE SCI 4L03 – Research Seminar
Extracellular Vesicles in Health and Disease
Fall 2017

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Course Description:
The release of extracellular vesicles (EVs) is a phenomenon shared by organisms across all three branches of life (bacteria, archaea, and eukaryotes). In metazoans, EVs are released by virtually all cell types. Although they were originally thought to function as cellular garbage disposals, in the last few years these vesicles have arisen as new avenues for intercellular communication, playing crucial roles in both physiological conditions and disease state. Students that take this course will critically examine the emerging research on the physio-pathological roles of extracellular vesicles. Discussions may include their implications in nervous system function, immune modulation, pregnancy, tissue repair, as well as aging, cancer, infectious diseases, and neurodegenerative diseases. In addition, students will evaluate and recognize potential clinical applications of extracellular vesicles as well as gain teamwork, writing, and oral presentation skills.

Class time:
Tues 1:30pm-2:20pm & Thurs 12:30pm-2:20pm in BSB 115.

Required Texts & Materials:
There is not required text for this course. Notes (PDFs) and other materials will be posted on the course website (http://avenue.mcmaster.ca/). Please make sure you check the course website frequently!
NOTE: Students will need to bring a laptop to complete the Avenue quizzes in class and for their group presentations (see schedule below). If this is a problem, please contact Dr. Rodriguez Moncalvo immediately.

Course Objectives:
By the end of this course, students should be able to:
- Explain the structure, composition, and main steps involved in the biogenesis of EVs
- Recognize the diversity and different functions of extracellular vesicles in both physiological and disease states
- Analyze, interpret, and summarize information gained by using research literature
- Critically evaluate and recognize clinical applications of extracellular vesicles for diagnostics and therapeutics
- Effectively communicate concepts orally, graphically, and in writing
- Work cooperatively and synergistically as a team

Format:
Introductory lectures will take place during the first three weeks of classes. The rest of the weeks will be used for student seminars, group reflections, and avenue quizzes (see schedule below). In addition, during
the last week of class, students will present their group project topic in poster format in a ‘simulated’
conference/symposium setting open to faculty and students of the School.

Schedule of Topics:
Any changes to the tentative schedule below will be posted on Avenue to Learn.

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
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| I (Sept 5) | Introduction to the course  
Academic integrity and tips on oral presentations and writing (Abeer Siddique– Science Librarian)  
Introduction to extracellular vesicles: history, biogenesis, and composition |
| II (Sept 11) | Introduction to extracellular vesicles: history, biogenesis, and composition  
Group reflection 1 (in class) |
| III (Sept 18) | Avenue Quiz 1 (in class)  
Tips on preparing a poster (including a graphical abstract) and giving constructive feedback (Abeer Siddique– Science Librarian) |
| IV (Sept 25) | Guest speaker: Dr. Khalid Al-Nedawi (McMaster University – Medical Sciences)  
Symposium I and peer-evaluation |
| V (Oct 2) | Group reflection 2 (in class)  
Symposium I and peer-evaluation |
| Oct 9-15 | Midterm recess |
| VI (Oct 16) | Avenue Quiz 2 (in class)  
Symposium I and peer-evaluation |
| VII (Oct 23) | Group reflection 3 (in class)  
Symposium I and peer-evaluation |
| VIII (Oct 30) | Avenue Quiz 3 (in class)  
Symposium II and peer-evaluation |
| IX (Nov 6) | Group reflection 4 (in class)  
Symposium II and peer-evaluation |
| X (Nov 13) | Avenue Quiz 4 (in class)  
Symposium II and peer-evaluation |
| XI (Nov 20) | Group reflection 5 (in class)  
Symposium II and peer-evaluation (Critical essay due Friday Nov 24th) |
| XII (Nov 27) | Avenue Quiz 5 (in class)  
Poster Session |
| XIII (Dec 4) | Group reflection 6 (in class) |
**Evaluation:**

<table>
<thead>
<tr>
<th>Evaluation Category</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Avenue quizzes (4/5 x 5%)</td>
<td>20%</td>
</tr>
<tr>
<td>Group project</td>
<td></td>
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<tr>
<td>Seminar presentations (2 x 12%)</td>
<td>24%</td>
</tr>
<tr>
<td>Poster presentation</td>
<td>15%</td>
</tr>
<tr>
<td>Group reflections</td>
<td>6%</td>
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<tr>
<td>Class participation</td>
<td>5%</td>
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<tr>
<td>Peer evaluation</td>
<td>5%</td>
</tr>
<tr>
<td>Critical Essay</td>
<td>25%</td>
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**Avenue Quizzes**
There will be 5 quizzes throughout the term to be completed in class on Avenue to Learn, but only the best 4/5 will count towards your final grade. The quizzes will test your overall understanding of assigned readings and what has been discussed in the previous weeks and should be answered individually. Answers will be posted on Avenue along with your grade, in order to provide you with formative feedback. Given appropriate documentation (e.g., MSAF), the weight of a missed quiz will be redistributed among the other quizzes.

**Group Project**
This assignment is designed to help students build their research, communication, and teamwork skills. In groups of 3-4, students will investigate a current area on extracellular vesicles that will be approved by Dr. Rodriguez Moncalvo. The project will consist of 3 components:

A) Two seminar presentations (Symposium I and II). Presentation dates will be assigned randomly to each group.

B) A poster presentation on the topic chosen at the end of term in a simulated conference poster session.

C) Group reflections wherein groups will chronicle and reflect on their group work as well as their research progress.

Any late component of this assignment will be penalized (10-25% mark deduction per day late depending on the component and as specified in the guidelines). MSAFs for this group assignment will not be accepted. Further details regarding the group project assignment will be posted on the course website and discussed in class.

**Class participation and peer-evaluation**
Each student will be evaluated based on participation in class discussions and in the evaluation of the work of his/her peers after each seminar presentation.

**Critical Essay**
Each student will individually write a critical essay on a topic assigned by Dr. Rodriguez Moncalvo. Late submissions of this assignment will be deducted 10% per day late. MSAF for this assignment will not be accepted as the assignment is worth 25% of your final mark. Further details regarding this assignment will be posted on the course website and discussed in class.
Absences & Missed Work:
If you are absent from the university for a minor medical reason, lasting up to 3 calendar days, you may report your absence, once per term, without documentation, using the McMaster Student Absence Form (MSAF). Absences for a longer duration or for other reasons must be reported to your Faculty office, with documentation, and relief from term work may not necessarily be granted. When using the MSAF, immediately report your absence to Dr. Rodriguez Moncalvo by email (normally within 2 working days). Dr. Rodriguez Moncalvo will indicate what relief may be granted for the work you have missed, and relevant details such as revised deadlines, or time and location of a make-up exam/quiz/test. Please note that the MSAF may not be used for final deliverables, nor can it be used for a final examination or its equivalent.

Please read further details about the new MSAF policy here:

http://academiccalendars.romcmaster.ca/content.php?catoid=13&navoid=2208#Requests_for_Relief_for_Missed_Academic_Term_Work

Checking Your Grades:
All grade concerns and discrepancies must be reported to Dr. Rodriguez Moncalvo within a week of receiving the grade.

Re-mark Policy:
Requests for re-evaluation of quizzes or assignments must be made in writing to Dr. Rodriguez Moncalvo within one week of return of the marked quiz or assignment. Please be aware that an approval for a remark can result in an increase, decrease or no change to the original mark.

Communication between Students and Faculty:
The University’s official method of correspondence with students is through a valid McMaster University e-mail account. It is the student’s responsibility to keep his/her @mcmaster.ca account active and check it on a regular basis. All emails from students must include your full name and course code. Emails will be replied within 72 hours.

Student Responsibilities:
To get the most out of the course, you must be prepared to:

- attend all sessions, make up all missed work, and provide documentation for authorized absences;
- interact frequently with faculty, students, TAs, and other support staff;
- plan and manage your own time;
- complete preparatory tasks (such as reading, writing assignments, and initial research) in advance of sessions;
- develop and use reflective learning skills (for example identifying learning objectives, planning and carrying out research tasks, acting on academic feedback);
- work as an effective, efficient, and responsive team member on group assignments;
- follow all the guidelines as outlined in the Introduction section of the Laboratory Manual;
- check the course Avenue site, and your McMaster and Avenue e-mail daily for updates; and,
- follow all university policies and guidelines, and in all ways be a responsible university member.
Senate Student Policies
Students can view full policies here (http://www.mcmaster.ca/policy/Students-AcademicStudies/).
Senate Policy Statements are also available from the Senate Secretariat Office, Room 104, and Gilmour Hall.

Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty.

The following illustrate only four of many forms of academic dishonesty:
- plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained;
- copying or using unauthorized aids in laboratory exercises
- improper collaboration in group work; and
- copying or using unauthorized aids in quizzes, tests and examinations

All students are reminded of the importance of academic integrity, and the serious consequences of academic dishonesty.

Student Code of Conduct
You acknowledge that your behavior in all aspects of this course should meet the standards of the McMaster University Student Code of Conduct. You understand that any inappropriate behavior directed against any of your colleagues, teaching assistants, or the instructional team will not be tolerated. Disruptive behavior during any session (e.g. lecture, seminar, lab, tutorial) such as talking, sleeping or non-class computing while an individual presents information, or constantly being late, will also not be tolerated. Abuse, ridicule, slander, inappropriate language, and discrimination towards instructors teaching staff, teaching assistants and other students will not be tolerated in any capacity. Shared spaces including e-spaces such as the Avenue to Learn course discussion board are to be considered inclusive and safe.

Plagiarism Detection
In this course, we will be using a web-based service (Turnitin.com) to reveal plagiarism. Students will be expected to submit their work electronically to Turnitin.com and in hard copy so that it can be checked for academic dishonesty. Students who do not wish to submit their work to Turnitin.com must still submit a copy to the instructor. No penalty will be assigned to a student who does not submit work to Turnitin.com. All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, etc.). To see the Turnitin.com Policy, please go to www.mcmaster.ca/academicintegrity).

Copyright Policy
In this course you will have access to material that is subject to copyright laws. This includes (but is not limited to) textbooks and all resources developed by the instructors such as lab manuals, demonstration videos, quizzes, assignments, tests, class notes and class slides. Under no circumstance are you allowed to share or redistribute this material in any printed or electronic form without the explicit written consent of the copyright holder. This includes posting any course material on Internet bulletin boards, course repositories, social networks, etc.

The instructors and the university reserve the right to alter this outline if necessary.
The instructors and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.