

## **COURSE OUTLINE**

### **CELL AND TISSUE ENGINEERING (BMDE 505)**

**COURSE START/END DATE:** Wednesday January 11, 2021: End: April 13, 2022.

**LECTURE PLACE AND TIME:** Duff Medical Building, 3775 University Street, Room 321; 4-7 PM.

**Special Note:**

- **Course to be held in person and subject to change as per McGill guidelines.**
- **Some component of course to be held on-line.**

**COURSE ADMINISTRATOR:** Dr. S. Prakash, Professor, Biomedical Engineering, Faculty of Medicine.  
Tel. 1-514-398-3676; Email: satya.prakash@mcgill.ca

<b><u>DATE</u></b>	<b><u>TOPICS</u></b>	<b><u>LECTURER</u></b>	<b><u>EXAMINER</u></b>
January 11	Introduction to Cell & Tissue Engineering and Methods	Dr. S. Prakash	Dr. S. Prakash
January 18	Microbiome and Probiotics in Cell Therapy	Dr. S. Prakash	Dr. S. Prakash
January 25	Cell Therapy for Myocardial Regeneration	Dr. D. Shum-Tim	Dr. S. Prakash
February 1	Tissue Engineering of Heart Valve & Vascular Conduit	Dr. D. Shum-Tim	Dr. S. Prakash
February 8	Postnatal Stem Cells - their Biology & Applications	Dr. M. Nagano	Dr. S. Prakash
February 15	3D Printing Technologies in Cell & Tissue Engineering	Dr. D. Rosenzweig	Dr. S. Prakash
February 22	Bone Tissue Engineering	Dr. B. M. Willie	Dr. S. Prakash
<b>Study Break (Feb 27-3 March, 2023)</b>			
March 8	Artificial Cells	Dr. T.M.S. Chang	Dr. S. Prakash
March 15	Ethics in Cell and Tissue Engineering	Dr. J. Kimmelman	Dr. S. Prakash
March 22	Seminar on Selected Topics I	Dr. S. Prakash	Dr. S. Prakash
March 29	Seminar on Selected Topics II	Dr. S. Prakash	Dr. S. Prakash
April 5	Seminar on Selected Topics III	Dr. S. Prakash	Dr. S. Prakash

**COURSE GRADING:**

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|--|------|
| A. Class Participation:                                    | 10 % |
| B. Class Reflection and Reading Assignments:               | 10 % |
| C. Written Exam:   | 20 % |
| D. Oral Assignments-Oral Presentation:                     | 30 % |
| E. Written Assignments-Term Paper/Research Grant Proposal: | 30 % |

**EXAMINATION AND ASSIGNMENT DETAILS:**

**A. CLASS PARTICIPATION:**

The class participation grades are based on class attendance. 10%.

**B. CLASS REFLECTION AND READING ASSIGNMENT:**

Participation, open discussion and question on 1 research paper given by lecturing professor 1 week before the class: Total grade: 10%.

**C. WRITTEN EXAM:**

Written quiz exam-5 objective type question on each lecture given by the lecturing professor immediately

after each lecture. Total grade: 20%.

#### D. ORAL ASSIGNMENTS:

**PRESENTATION:** A class 15-20 minutes seminar and question answer, covering the following aspects: **Topic:** Relevant area discussed in class. The seminar topic is due by **March 1**. Presentation slides (Power Point/ PDF) must be emailed to Dr. Prakash one day prior to your seminar date. **Format:** *Background/ introduction, Problems, Strategy and/or Research Methods, Results, Discussion and Conclusions*. Total grade: 30%.

#### E. WRITTEN ASSIGNMENTS: Term paper OR research grant proposal

**TERM PAPER:** A critical 20-page term paper. The subject choice is due by **March 1**.

**Details:** A 20-page (single spaced, including figures, excluding references) article.

**Topic:** Relevant area discussed in class. Format of the review paper: *Introduction. Research Methods, Results, Discussion, and Conclusions Reference Cited*.

Paper is due to Dr. Prakash by **April 1**. Total Grade: 30%.

OR

**RESEARCH GRANT PROPOSAL:** The subject choice is due by **March 1**.

**Details:** Follow the Canadian Institute of Health Research (CIHR) guidelines. You are requested to submit complete CIHR research module and budget modules (Except CV modules and detail budget justification). Grant Proposal is due to Dr. Prakash by **April 1**. Total Grade: 30%.

#### **PROFESSORS CONTACT:**

<b><u>Name</u></b>	<b><u>Telephone</u></b>	<b><u>Email</u></b>
Dr. T.M.S. Chang	1-514-398-3512	<a href="mailto:thomas.chang@mcgill.ca">thomas.chang@mcgill.ca</a>
Dr. D. Shum-Tim	1-514- 934-1934 ext.36873	dshumtim@yahoo.ca
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Dr. M. Nagano	1-514-934-1934 ext. 35250	makoto.nagano@muhc.mcgill.ca
Dr. R. Grygorczyk	1-514-890-8000 ext. 15089	ryszard.grygorczyk@umontreal.ca
Dr. D. Rosenzweig	1-514-398-1934 ext. 43238	<a href="mailto:derek.rosenzweig@mcgill.ca">derek.rosenzweig@mcgill.ca</a>
Dr. S. Prakash	1-514-398-3676	satya.prakash@mcgill.ca
Dr. Bettina M. Willie	1-514-282-7156	bwillie@shriners.mcgill.ca

#### **IMPORTANT INFORMATION:**

**1. Right to submit in English or French written work that is to be graded:**

*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.*

**2. Academic Integrity statement [approved by Senate on 29 January 2003]:**

*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/](http://www.mcgill.ca/students/srr/honest/)) 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 [www.mcgill.ca/students/srr/honest/](http://www.mcgill.ca/students/srr/honest/)).*