

## **Regenerative Medicine - MSBS 5085S**

**Spring 2022**

### **Course Overview**

Regenerative medicine is an emerging field in medicine that holds promise for replacement or regeneration of failing organs or tissues. It refers to a group of biomedical approaches to clinical therapies that may involve the use of stem cells. Given the emerging importance of stem cells in the field of medical practice this elective will be a timely addition to the list of elective courses available to the MBS students. This 2 credit elective course will expose students to various important aspects of this field from basic science to current clinical trials in the broad area of regenerative medicine. This course will provide an elective choice for students interested in basic science aspects of molecular and translational medicine.

### **Topics to be covered include:**

1. Current perspectives in Regenerative Medicine/Introduction
2. Diseases impacted by Regenerative Medicine /Replacement Therapy
3. Cellular Aspects of Regenerative Medicine. Concept of Stem Cells
4. Adult Stem Cells
5. Embryonic Stem Cells
6. Induced Pluripotent Stem Cells
7. Hematopoietic Stem Cells
8. Clinical applications

In class lectures will be followed by student presentations of papers assigned by lecturer or course director. Students will be graded based on

1. in class presentations 40% of grade
2. final exam 60% of grade

Grading policy of SGS at RWJMS will be followed: A, B+, B, C+, C and F.

Classes will be held on line on Mondays 9.30 to 11.15 am

### **Course Director:**

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## Course Schedule 2022

<b>Faculty</b>	<b>Topic</b>	<b>Time</b>	<b>Day/Date</b>
Banerjee	Introduction to Regen Medicine:		Jan 24
Banerjee	Stem Cells		Jan 31
Banerjee	Mesenchymal Stem Cells		Feb 7
Banerjee	Paper discussion		Feb 14
Assigned	Paper Discussion* Grps 1 and 2		Feb 21
Banerjee	Hematopoietic Stem Cells		Feb 28
Assigned	Groups 3 and 4		March 7
No Class	Spring Break		Mar 14
Banerjee	Induced pluripotent stem cells		Mar 21
Assigned	Paper discussion* Grps 5, 6 and 7		Mar 28
Banerjee	Ethics of stem cell research		Apr 4
Banerjee	Retroviral vectors for Gene Therapy		April 11
Banerjee	Thalassemia/Sickle cell disease Gene therapy		April 18
	Final Exam** submit online		April 25

\*: students will be assessed in class based on presentation and participation 40% percent of final grade

Final Exam\*\*: will count for 60% of final grade