

MPET 6820

Regenerative Medicine: Principles to Practice

Faculty: Anthony J. Windebank, M.D.

Credits: 2

Quarter: Spring

Prerequisites: Proficiency in fundamental cell biology, genomics, and pharmacology

Overview

This course is designed to introduce students to principles of stem cell biology, and provide an appreciation for applications in regenerative medicine and surgery. Presenters will stress fundamental principles. Applied topics will include lectures on core principles of regenerative medicine with examples of stem cell use in regenerative pharmacology and cell replacement therapy, diagnostics, toxicology or as vehicle for gene therapy, prospects for clinical therapy, stem cell banking, tissue engineering, ethical and regulatory affairs, intellectual property rights and patenting issues. The course will follow a discovery-translation-application curriculum. Attendance and participation in each class is required. By course end, students should become proficient in the comprehension of fundamental concepts underlying stem cell platforms as well as obtain insight in new therapeutic/diagnostic opportunities.

This course is in collaboration with Karolinska Institutet in Stockholm, Sweden.

Objectives

- Identify the fundamental principles of stem cell biology
- Describe the spectrum of applications in regenerative medicine and surgery

Evaluation

Students will be evaluated on a paper presentation based on an assigned article, four short-answer problem sets, an essay, and a final exam. Class attendance and participation is mandatory and contributes to the overall course grade.

Students will be expected to spend approximately four to six hours per week on this 2-credit course.

For specific dates and times this course is provided, please see the [quarterly detailed course schedule](#).