THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Engineering Cell Plasticity

BIOMEDE 6530

Credit Hours:
3.00 - 3.00

Course Levels:
Graduate (5000-8000 level)

Course Components:
Lecture

Course Description:
Exploration of underlying mechanisms of inherent and/or induced cell and tissue plasticity within the context of disease and therapy, as well as a number of engineering approaches (e.g., cellular, molecular) towards modulating cellular plasticity for therapy.

Prerequisites and Co-requisites:
Prereq: Grad standing in Engineering, or permission of instructor.

Course Goals / Objectives:
- Be able to identify and explain instances of cellular plasticity associated with pathophysiological processes
- Be able to identify and explain therapeutic approaches based on controlling cell and tissue plasticity
- Be able to explain how engineering approaches can be applied towards developing cell and tissue reprogramming methodologies.
- Students will be able to identify and explain what are some of the barriers to cell and tissue reprogramming

Course Topics:
- Cell and tissue plasticity within the context of disease
- Methods to control cell and tissue plasticity
- Reprogramming models: direct vs. indirect reprogramming
- Underlying mechanisms of cellular reprogramming
- Barriers to cellular reprogramming
- Cell and gene therapies
- Leveraging cellular reprogramming for therapeutic applications

Designation:
Required