

# Stem Cell Engineering

Spring 2012

BIOE 498: CRN 44074 | ME 498: CRN 58102

*3 credit hours*

**Live videoconferenced lectures**

**UIUC campus on Tuesdays and Thursdays, 12:30-2:00 PM CST**

Taught by Professor Todd McDevitt (Georgia Institute of Technology)

Local Instructor: Professor Rashid Bashir, rbashir@illinois.edu

**Prerequisites:** Graduate level course in molecular/cell biology, or local instructor's permission

This course is intended to provide a foundation in the application of analytical engineering approaches for the quantitative study of stem cell biology and effective translation of stem cells into therapies and diagnostics. The progression of the course content is intended to lead students through the conceptual process of identifying an appropriate type of stem cell based on functional attributes for a desired application, isolation and purification of desired cell type(s), expansion in a stable state, directing the differentiation to specific phenotype(s), and use of appropriate characterization techniques and quality control metrics to quantitatively assess cell phenotype for the development of stem cell-based technologies.

## Course Topics

- Stem cell biology basics
- Directing cell fate
- Assaying cell phenotype
- Stem cell biomanufacturing



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