



**THE OHIO STATE UNIVERSITY**  
COLLEGE OF ENGINEERING

# Advanced Tissue Engineering

## BIOMEDE 5510

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**Credit Hours:**

3.00 - 3.00

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**Course Levels:**

Undergraduate (1000-5000 level)

Graduate (5000-8000 level)

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**Course Components:**

Lecture

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**Course Description:**

The incorporation of living components and compatible biomaterials to study, repair, or replace biological functions.

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**Prerequisites and Co-requisites:**

Prereq: 4510 or equiv, and Sr standing; or Grad standing; or permission of instructor.

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**Course Goals / Objectives:**

- List general classes of factors regulating the growth and function of tissue and illustrate such factors with specific examples
  - Apply knowledge of mathematics, science, and engineering to propose novel and modify existing tissue engineering applications
  - Evaluate pending/existing tissue engineering applications with respect to realistic constraints such as economic, environmental, ethical, health and safety, manufacturability, and sustainability
  - Illustrate the role of a specific governing process in applications of tissue engineering
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**Course Topics:**

- Principles of tissue engineering from natural examples: Developmental biology, wound healing, and regeneration
  - Methods of tissue engineering
  - Regulation and control of cell/tissue growth and differentiation.
  - Applications of tissue engineering
  - Regulatory and economic aspects of tissue engineering
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**Designation:**

Elective