



**THE OHIO STATE UNIVERSITY**  
COLLEGE OF ENGINEERING

# Materials Science and Engineering Lab I

## MATSCEN 3331

**Credit Hours:**

2.00

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**Course Levels:**

Undergraduate (1000-5000 level)

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**Course Components:**

Lecture

Lab

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**Course Description:**

Laboratory experiments related to materials processes and properties. Introduction to experimental techniques used in materials fields. Data analysis, presentation, and technical writing skills.

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**Prerequisites and Co-requisites:**

Prereq: 2331, and enrollment as MatScEn-BS major; or permission of instructor.

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**Course Goals / Objectives:**

- Ability to conduct simple experiments in materials synthesis, processing and process control
  - Ability to conduct simple experiments in materials continuum property measurement
  - Skills in reduction, analysis and presentation of redundant and less accurate data
  - Computer data acquisition, analysis and process control
  - Ability to write, clear, concise, complete and correct technical reports
  - Building students' portfolio of important accomplishments
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**Course Topics:**

- Materials synthesis and processing.
  - Transport: modes, species, continuity. Solid state, and irreversible thermodynamics.
  - Process control for temperature, atmosphere, and vacuum.
  - LabVIEW instrumentation.
  - Continuum properties and their analysis in time and frequency domain.
  - Data reduction, derivations, error analysis and statistics.
  - Document formatting and processing.
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**Designation:**

Required