### Courses

#### 805. Herbicide Action and Metabolism
Spring of even-numbered years, 3(3-0)
Properties and chemical mechanisms of herbicides. Processes involved in herbicide action, transport, and fate in plants and soils.
QA: CSS 860

#### 823. Methods in Genetic Engineering of Plants
Fall of even-numbered years, 4(0-5) Interdepartmental with Horticulture and Forestry.
Bacterial transformation, plant transformation via Ti-plasmid, protoplast/PET, and electroporation methods. Detection of foreign gene integration and expression.

#### 825. Clay Mineralogy and Soils Genesis
Spring of odd-numbered years, 4.5(2-0)
Interdepartmental with Geological Sciences.
R: Open only to graduate students in College of Agriculture and Natural Resources, College of Engineering, or College of Natural Science.
Mineral structures. X-ray diffraction, pedogenic processes, and mineral transformations and stability.
QA: CSS 811

#### 831. Soil and Plant Resources for Sustained World Food Production
Spring of even-numbered years, 5(3-0)
World food production capacities related to soil and climatic resources. Management and utilization of genetic resources for sustained production of human foods and animal feeds.
QA: CSS 851, CSS 480

#### 840. Soil Physics
Fall of even-numbered years, 3(3-0)
R: Open only to graduate students in College of Agriculture and Natural Resources, College of Engineering, or College of Natural Science.
Physical properties of soil including texture, structure, consistency, aeration, moisture content, and temperature. Quantitative measurement of plant growth, Agronomic and engineering practices.
QA: CSS 840

#### 850. Soil Chemistry
Spring, 3(0-3)
R: Open only to graduate students in College of Agriculture and Natural Resources, College of Engineering, or College of Natural Science.
Ion activities, ion exchange and equilibrium reactions. Soil pH, macro- and microconstituents, salinity soils and availability of nutrients to plants.
QP: CEM 383 QA: CSS 850

#### 853. Plant Mineral Nutrition
Fall of odd-numbered years, 3(0-3) Interdepartmental with Horticulture.
P: BOT 301.
QP: BOT 301 QA: CSS 853

#### 855. Interfacial Environmental Chemistry
Fall of even-numbered years, 4(4-0)
R: Open only to graduate students in College of Agriculture and Natural Resources, College of Engineering, or College of Natural Science.
QA: CSS 812

#### 865. Organic Chemistry of Soils
Spring of even-numbered years, 2(2-0)
Chemistry of natural and anthropogenic organic substances in soils.
QA: CSS 865

### EARTH SCIENCE

#### Department of Geological Sciences

#### College of Natural Science

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Enrollment</th>
<th>Prerequisites</th>
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</thead>
<tbody>
<tr>
<td>445. Field Studies in Earth Science</td>
<td>Fall, Spring, Summer, 1 to 4 credits</td>
<td>A student may earn a maximum of 12 credits in all enrollments for this course</td>
<td>R: Approval of department</td>
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<tr>
<td>446. Laboratory Investigations in Earth Science</td>
<td>Fall, Spring, Summer, 1 to 4 credits</td>
<td>A student may earn a maximum of 12 credits in all enrollments for this course</td>
<td>P: ES 445 or concurrently, R: Approval of department</td>
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### ECONOMICS

#### Department of Economics

The Eli Broad College of Business and The Eli Broad Graduate School of Management

<table>
<thead>
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<tr>
<td>201. Introduction to Microeconomics</td>
<td>Fall, Spring, Summer, 3(3-0)</td>
<td>R: Not open to students with credit in EC 251H.</td>
<td>Economic institutions, reasoning and analysis. Consumption, production, determination of prices and quantity in different markets. Income distribution, market structure and normative analysis.</td>
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<td>251H. Microeconomics and Public Policy</td>
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### Comparative Economic Systems

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<tr>
<td>201. Intermediate Microeconomics</td>
<td>Fall, Spring, Summer, 3(0-3)</td>
<td>Not open to students with credit in EC 251H.</td>
<td>Theories of consumer behavior, production and cost. Output and price determination in competition and monopsony. Welfare economics, general equilibrium, externalities, and public goods.</td>
</tr>
<tr>
<td>301. Intermediate Microeconomics</td>
<td>Fall, Spring, Summer, 3(0-3)</td>
<td>Not open to students with credit in EC 251H.</td>
<td>Theory of national income, unemployment, inflation and economic growth and its application to economic analysis and policy.</td>
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<tr>
<td>302. Intermediate Macroeconomics</td>
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<tr>
<td>306. Comparative Economic Systems</td>
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QA: EC 251H or EC 326
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QP: ES 445 QA: ES 446

QA: EC 251H or EC 252H or EC 252H QA: EC 434

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