Mathematics

MATH 505  **Homological Algebra**  credit: 4 hours.
Topics include: 1. Snake lemma, homology, long exact sequence in homology; 2. Projective and injective modules and resolutions; 3. Categories, functors and derived functors. Tor and Ext, local cohomology; 4. Group cohomology, bar resolution; 5. Spectral sequences, techniques of computation, Serre spectral sequence. Grothendieck spectral sequence of composite functors; 6. Time permitting: Derived categories, Gysin sequence, Kunneth formula, universal coefficient theorem, Eilenberg-Moore sequence. Prerequisite: MATH 501 or equivalent.

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<thead>
<tr>
<th>CRN</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>40559</td>
<td>Lecture-Discussion</td>
<td>F1</td>
<td>02:00 PM - 02:50 PM</td>
<td>MWF</td>
<td>443 - Altgeld Hall</td>
<td>Mineyev, I</td>
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