Mathematics

MATH 551  **Dynamical Systems Theory**  credit: 4 hours.
Course is an introduction to the study of dynamical systems. Students who intend to do research in nonlinear dynamics are encouraged to take this course. Specific topics will be chosen to illustrate the theory and use of techniques from global analysis and nonlinear dynamics such as (1) discrete dynamical systems, (2) global theory of ordinary differential equations, (3) Hamiltonian systems, (4) KAM theory, (5) bifurcation and stability, (6) Hopf index theory of vector fields, (7) Morse theory of gradient vector fields, (8) Lyapunov theory, (9) infinite dimensional dynamical systems, (10) structural stability. Prerequisite: Consent of instructor.

<table>
<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>38181</td>
<td>Lecture-Discussion</td>
<td>B1</td>
<td>09:00 AM - 09:50 AM</td>
<td>MWF</td>
<td>347 - Altgeld Hall</td>
<td>Zharnitsky, V</td>
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