Mathematics

MATH 518  Differentiable Manifolds I  credit: 4 hours.
Definitions and properties of differentiable manifolds and maps, (co)tangent bundles, vector fields and flows, Frobenius theorem, differential forms, exterior derivatives, integration and Stokes' theorem, DeRham cohomology, inverse function theorem, Sard's theorem, transversality and intersection theory. Prerequisite: MATH 423 or MATH 481, or 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>
</tr>
</thead>
<tbody>
<tr>
<td>52652</td>
<td>Lecture-Discussion</td>
<td>X1</td>
<td>11:00 AM - 11:50 AM</td>
<td>MWF</td>
<td>341 - Altgeld Hall</td>
<td>Hirani, A</td>
</tr>
</tbody>
</table>

Undergraduate students may register with approval. For more information go to room 313 AH. Students from the following programs must contact the Director of Graduate Studies in Mathematics <rdeville@illinois.edu> to request permission to register for the course: MS:Economics:Policy Econ -UIUC or MS: Financial Engineering. Restricted to Graduate - Urbana-Champaign. Not intended for MS:Economics:Policy Econ -UIUC, MS:Economics:Policy Econ -UIUC, MS: Financial Engineering, MENG: Mechanical Engineering-UIUC, MENG: Elec & Computer Eng-UIUC, or MENG: Engineering: Comp Eng-UIUC.