Mathematics

MATH 415  **Applied Linear Algebra**  credit: 3 OR 4 hours.

Introductory course emphasizing techniques of linear algebra with applications to engineering; topics include matrix operations, determinants, linear equations, vector spaces, linear transformations, eigenvalues, and eigenvectors, inner products and norms, orthogonality, equilibrium, and linear dynamical systems. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Credit is not given for both MATH 415 and any of MATH 125, MATH 225, MATH 410, or MATH 416. Prerequisite: MATH 241 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>30979</td>
<td>Lecture-Discussion</td>
<td>B3</td>
<td>09:00 AM - 09:50 AM</td>
<td>MTWRF</td>
<td>245 - Altgeld Hall</td>
<td>Bergvelt, M</td>
</tr>
<tr>
<td></td>
<td>Lecture-Discussion</td>
<td>B3</td>
<td>10:00 AM - 10:50 AM</td>
<td>R</td>
<td>245 - Altgeld Hall</td>
<td>Bergvelt, M</td>
</tr>
</tbody>
</table>

Credit Hours: 3 hours

<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>30978</td>
<td>Lecture-Discussion</td>
<td>B4</td>
<td>09:00 AM - 09:50 AM</td>
<td>MTWRF</td>
<td>245 - Altgeld Hall</td>
<td>Bergvelt, M</td>
</tr>
<tr>
<td></td>
<td>Lecture-Discussion</td>
<td>B4</td>
<td>10:00 AM - 10:50 AM</td>
<td>R</td>
<td>245 - Altgeld Hall</td>
<td>Bergvelt, M</td>
</tr>
</tbody>
</table>

Credit Hours: 4 hours
Departmental Approval Required

<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>36763</td>
<td>Lecture-Discussion</td>
<td>E3</td>
<td>01:00 PM - 01:50 PM</td>
<td>MTWRF</td>
<td>245 - Altgeld Hall</td>
<td>Muncaster, R</td>
</tr>
<tr>
<td></td>
<td>Lecture-Discussion</td>
<td>E3</td>
<td>02:00 PM - 02:50 PM</td>
<td>R</td>
<td>245 - Altgeld Hall</td>
<td>Muncaster, R</td>
</tr>
</tbody>
</table>

Credit Hours: 3 hours

<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>36764</td>
<td>Lecture-Discussion</td>
<td>E4</td>
<td>01:00 PM - 01:50 PM</td>
<td>MTWRF</td>
<td>245 - Altgeld Hall</td>
<td>Muncaster, R</td>
</tr>
<tr>
<td></td>
<td>Lecture-Discussion</td>
<td>E4</td>
<td>02:00 PM - 02:50 PM</td>
<td>R</td>
<td>245 - Altgeld Hall</td>
<td>Muncaster, R</td>
</tr>
</tbody>
</table>

Credit Hours: 4 hours
Departmental Approval Required

<table>
<thead>
<tr>
<th>CRN</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Location</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>31858</td>
<td>Online</td>
<td>EGR</td>
<td>ARRANGED</td>
<td>-</td>
<td>Carpenter, B</td>
</tr>
</tbody>
</table>

Restricted to MS: Civil Engr - Online - UIUC, MCS:Computer Sci Online -UIUC, MS:Mechanical Engineering -UIUC, NDEG:Grad Nondegree-CE-UIUC, or NDEG:Undergrad Nondeg-CE-UIUC.
For more details on this course section, please see http://online.engineering.illinois.edu/current-students/course-information/summer-2013-credit-course-offerings.