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, or MATH 410. 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>37957</td>
<td>Lecture-Discussion</td>
<td>A13</td>
<td>08:00 AM - 08:50 AM</td>
<td>MWF</td>
<td>245 - Altgeld Hall</td>
<td>Validashti Dizgam, J</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37960</td>
<td>Lecture-Discussion</td>
<td>A14</td>
<td>08:00 AM - 08:50 AM</td>
<td>MWF</td>
<td>245 - Altgeld Hall</td>
<td>Validashti Dizgam, J</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>56172</td>
<td>Lecture-Discussion</td>
<td>B13</td>
<td>09:00 AM - 09:50 AM</td>
<td>MWF</td>
<td>345 - Altgeld Hall</td>
<td>Bergvelt, M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>56173</td>
<td>Lecture-Discussion</td>
<td>B14</td>
<td>09:00 AM - 09:50 AM</td>
<td>MWF</td>
<td>345 - Altgeld Hall</td>
<td>Bergvelt, M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37967</td>
<td>Lecture-Discussion</td>
<td>C13</td>
<td>10:00 AM - 10:50 AM</td>
<td>MWF</td>
<td>245 - Altgeld Hall</td>
<td>Bergvelt, M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37970</td>
<td>Lecture-Discussion</td>
<td>C14</td>
<td>10:00 AM - 10:50 AM</td>
<td>MWF</td>
<td>245 - Altgeld Hall</td>
<td>Bergvelt, M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40670</td>
<td>Online</td>
<td>EGR</td>
<td>ARRANGED</td>
<td>-</td>
<td></td>
<td>Carpenter, B Woods, D</td>
</tr>
</tbody>
</table>

Credit Hours: 3 hours
Open to both undergraduate and graduate students.

Credit Hours: 4 hours
Instructor Approval Required
Not intended for Undergrad - Urbana-Champaign.
Instructor approval forms available in 313 Altgeld Hall beginning on the first day of spring semester.
Online
Restricted to MS: Civil Engr - Online - UIUC, MCS:Computer Sci Online -UIUC, MS:Mechanical Engineering -UIUC, or NDEG:Grad Nondegree-CE-UIUC.
Restricted to online non-degree, online MCS, online MSME and online MS CE students. Instructor permission and an extra substantive project are required for students enrolling for 4 hours. Online & Continuing Education (OCE) restrictions and assessments apply, see http://www.oce.illinois.edu. For more details on this course section, please see http://online.engineering.illinois.edu/descriptions/spring2012.htm. OCE Tuition $988.00 per Bill Hour, and OCE Fees $50.00 per Bill Hour.

<table>
<thead>
<tr>
<th>Course</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>37980</td>
<td>Lecture-Discussion</td>
<td>F13</td>
<td>02:00 PM - 02:50 PM</td>
<td>MWF</td>
<td>223 - Gregory Hall</td>
<td>Muncaster, R</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Credit Hours: 3 hours
Open to both undergraduate and graduate students.

<table>
<thead>
<tr>
<th>Course</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>37983</td>
<td>Lecture-Discussion</td>
<td>F14</td>
<td>02:00 PM - 02:50 PM</td>
<td>MWF</td>
<td>223 - Gregory Hall</td>
<td>Muncaster, R</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Credit Hours: 4 hours
Instructor Approval Required
Not intended for Undergrad - Urbana-Champaign.
Instructor approval forms available in 313 Altgeld Hall beginning on the first day of spring semester.

<table>
<thead>
<tr>
<th>Course</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>37984</td>
<td>Lecture-Discussion</td>
<td>G83</td>
<td>03:00 PM - 03:50 PM</td>
<td>W</td>
<td>156 - Henry Administration Bldg</td>
<td>Ando, M</td>
</tr>
<tr>
<td></td>
<td>Lecture-Discussion</td>
<td>G83</td>
<td>03:00 PM - 03:50 PM</td>
<td>MWF</td>
<td>-</td>
<td>Ando, M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Credit Hours: 3 hours
Uses Mathematica courseware. See http://www.math.uiuc.edu/timetable/ for details. Open to both undergraduate and graduate students.

<table>
<thead>
<tr>
<th>Course</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>37986</td>
<td>Lecture-Discussion</td>
<td>G84</td>
<td>03:00 PM - 03:50 PM</td>
<td>W</td>
<td>156 - Henry Administration Bldg</td>
<td>Ando, M</td>
</tr>
<tr>
<td></td>
<td>Lecture-Discussion</td>
<td>G84</td>
<td>03:00 PM - 03:50 PM</td>
<td>MWF</td>
<td>-</td>
<td>Ando, M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Credit Hours: 4 hours
Instructor Approval Required
Not intended for Undergrad - Urbana-Champaign.
Uses Mathematica courseware. See http://www.math.uiuc.edu/timetable/ for details. Instructor approval forms available in 313 Altgeld Hall.

<table>
<thead>
<tr>
<th>Course</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>53682</td>
<td>Lecture-Discussion</td>
<td>M13</td>
<td>09:30 AM - 10:50 AM</td>
<td>TR</td>
<td>245 - Altgeld Hall</td>
<td>Kedem, R</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Credit Hours: 3 hours
Open to both undergraduate and graduate students.

<table>
<thead>
<tr>
<th>Course</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>53683</td>
<td>Lecture-Discussion</td>
<td>M14</td>
<td>09:30 AM - 10:50 AM</td>
<td>TR</td>
<td>245 - Altgeld Hall</td>
<td>Kedem, R</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Credit Hours: 4 hours
Instructor Approval Required
Restricted to Undergrad - Urbana-Champaign.
Instructor approval forms available in 313 Altgeld Hall beginning on the first day of spring semester.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>37972</td>
<td>Lecture-Discussion</td>
<td>P13</td>
<td>11:00 AM - 12:20 PM</td>
<td>TR</td>
<td>245 - Altgeld Hall</td>
<td>Duursma, I</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Credit Hours: 3 hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Open to both undergraduate and graduate students.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37974</td>
<td>Lecture-Discussion</td>
<td>P14</td>
<td>11:00 AM - 12:20 PM</td>
<td>TR</td>
<td>245 - Altgeld Hall</td>
<td>Duursma, I</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Credit Hours: 4 hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Instructor Approval Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not intended for Undergrad - Urbana-Champaign.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Instructor approval forms available in 313 Altgeld Hall beginning on the first day of spring semester.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37976</td>
<td>Lecture-Discussion</td>
<td>Q13</td>
<td>12:30 PM - 01:50 PM</td>
<td>TR</td>
<td>245 - Altgeld Hall</td>
<td>Duursma, I</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Credit Hours: 3 hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Open to both undergraduate and graduate students.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37979</td>
<td>Lecture-Discussion</td>
<td>Q14</td>
<td>12:30 PM - 01:50 PM</td>
<td>TR</td>
<td>245 - Altgeld Hall</td>
<td>Duursma, I</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Credit Hours: 4 hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Instructor Approval Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not intended for Undergrad - Urbana-Champaign.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Instructor approval forms available in 313 Altgeld Hall beginning on the first day of spring semester.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>