Mathematics

MATH 412  **Graph Theory**  credit: 3 OR 4 hours.
Examines basic concepts and applications of graph theory, where graph refers to a set of vertices and edges that join some pairs of vertices; topics include subgraphs, connectivity, trees, cycles, vertex and edge coloring, planar graphs and their colorings. Draws applications from computer science, operations research, chemistry, the social sciences, and other branches of mathematics, but emphasis is placed on theoretical aspects of graphs. 3 or 4 undergraduate hours. 3 or 4 graduate hours. 4 hours of credit requires approval of the instructor and department with completion of additional work of substance. Prerequisite: MATH 347 or MATH 348 or equivalent experience or CS 374.

<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>30348</td>
<td>Lecture-Discussion</td>
<td>X13</td>
<td>12:00 PM - 12:50 PM</td>
<td>MWF</td>
<td>245 - Altgeld Hall</td>
<td>Balog, J</td>
</tr>
</tbody>
</table>

Credit Hours: 3 hours
Restricted to Mathematics or Math & Computer Science major(s).
This course is restricted to Mathematics and Math&CS majors initially, but the restriction will be removed during business hours on April 17, 2019. Some seats are reserved for off-campus transfer students in majors requiring this course. Any remaining seats would be released on the Friday before fall classes begin.

| 39116 | Lecture-Discussion     | X14     | 12:00 PM - 12:50 PM | MWF  | 245 - Altgeld Hall | Balog, J   |

Credit Hours: 4 hours
Restricted to Mathematics or Math & Computer Science major(s).
Instructor Approval Required
Restricted to Graduate - Urbana-Champaign.
Graduate students requesting the 4 credit hour section must first register for the 3 hour section. If the instructor is willing to offer extra work to graduate students for the 4-hour section, students can get an approval form from 313 Altgeld Hall between the first day of the semester and the 8th week of the semester.