**Mathematics**

**MATH 413  Intro to Combinatorics  credit: 3 OR 4 hours.**

Permutations and combinations, generating functions, recurrence relations, inclusion and exclusion, Polya's theory of counting, and block designs. Same as CS 413. 3 undergraduate hours. 3 or 4 graduate hours. 4 hours of credit requires approval of the instructor and completion of additional work of substance. Prerequisite: MATH 347 or MATH 348 or equivalent experience.

<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>33533</td>
<td>Lecture-Discussion</td>
<td>D13</td>
<td>11:00 AM - 11:50 AM</td>
<td>MWF</td>
<td>156 - Henry Administration Bldg</td>
<td></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."

| 39117| Lecture-Discussion    | D14     | 11:00 AM - 11:50 AM | MWF  | 156 - Henry Administration Bldg |            |

Credit Hours: 4 hours
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.

| 62937| Lecture-Discussion    | E13     | 01:00 PM - 01:50 PM | MWF  | 245 - Altgeld Hall        |            |

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.

| 62938| Lecture-Discussion    | E14     | 01:00 PM - 01:50 PM | MWF  | 245 - Altgeld Hall        |            |

Credit Hours: 4 hours
Departmental 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.