CS 421  **Progrmg Languages & Compilers**  credit: 3 OR 4 hours.
Structure of programming languages and their implementation. Basic language design principles; abstract data types; functional
languages; type systems; object-oriented languages. Basics of lexing, parsing, syntax-directed translation, semantic analysis, and code
generation. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 233 and CS 373.

<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>30128</td>
<td>Lecture-Discussion</td>
<td>D3</td>
<td>02:00 PM - 03:15 PM</td>
<td>TR</td>
<td>1404 - Siebel Center for Comp Sci</td>
<td>Gunter, E</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>40087</td>
<td>Lecture-Discussion</td>
<td>D4</td>
<td>02:00 PM - 03:15 PM</td>
<td>TR</td>
<td>1404 - Siebel Center for Comp Sci</td>
<td>Gunter, E</td>
</tr>
</tbody>
</table>

Credit Hours: 4 hours
Restricted to Graduate - Urbana-Champaign.