CS 491  Seminar  credit: 0 TO 4 hours.
Seminar on topics of current interest as announced in the Class Schedule. 0 to 4 undergraduate hours. 0 to 4 graduate hours. Approved for S/U grading only. May be repeated in the same or separate terms if topics vary to a maximum of 4 hours. Prerequisite: As specified for each topic offering, see Class Schedule or departmental course description.

<table>
<thead>
<tr>
<th>CRN</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Instructor</th>
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<tr>
<td>65816</td>
<td>Laboratory</td>
<td>CAP</td>
<td>02:00 PM - 02:50 PM</td>
<td>F</td>
<td>1320 - Digital Computer Laboratory</td>
<td>Beckman, A</td>
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<td>54321</td>
<td>Lecture</td>
<td>CB</td>
<td>05:00 PM - 06:50 PM</td>
<td>M</td>
<td>301 - Coordinated Science Lab</td>
<td>Bashir, M Campbell, R</td>
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<td>69569</td>
<td>Discussion/Recitation</td>
<td>FPL</td>
<td>ARRANGED -</td>
<td>ARR - Siebel Center for Comp Sci</td>
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<tr>
<td>69458</td>
<td>Discussion/Recitation</td>
<td>TC</td>
<td>11:00 AM - 11:50 AM</td>
<td>R</td>
<td>0220 - Siebel Center for Comp Sci</td>
<td>Davis, N</td>
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Credit Hours: 1 hours
Adv Competitive Algorithm Prog
Title: Introduction to Competitive Algorithmic Programming This course introduces the algorithms and concepts necessary to compete effectively in the ACM International Collegiate Programming Contest (ICPC) and similar contests. It is highly recommended for students intending to compete in the 2016 ICPC Mid-Central Regional contest. The course requires participation in practice contests and weekly completion of short problem sets. Topics covered include standard library classes and data structures useful for programming contest problems, basic complexity analysis, dynamic programming, graph algorithms, number theory, combinatorics, computational geometry, combinatorial games, and competitive programming contest strategy. Prerequisites: Must have programming competency in Java or C++ and preferably have taken CS 225 Data Structures.

Credit Hours: 2 hours
Cyber Security Scholar Program
Instructor Approval Required
Topic: Information Assurance and Trust Seminar. This course is an undergraduate seminar for students admitted to the Illinois Cyber Security Scholar Program. In addition, this course would be open and serve as an orientation seminar to all college of engineering undergraduate student interested in topics of information assurance and trust. The seminars will feature information assurance subject matter expert guest speakers from industry and government, community leaders, distinguished external researchers, faculty, and students discussing both the technical challenges and limitations of IA. Standard information assurance topics such as authentication, data integrity, ethics, and cyber security will be covered.

Credit Hours: 1 hours
Functional Programming Languages
Instructor Approval Required
Topic: Functional Programming Languages and related mathematical constructs

Credit Hours: 1 hours
Tradecraft for Coders
Restricted to students with Junior, Senior, or Graduate I class standing.
Topic: Tradecraft for Coders Introduces fundamental software tools and code management skills for coders, including Unix command-line tools; version control; tools for writing and building code (including libraries, debugging, and profiling); cluster
computing and basic cloud computing; LaTeX; and data and workflow management. Targeted towards juniors through first-year MS students; others please contact instructor.