1. Course number and name: CSCI 4890 Directed Study in Computer Science

2. Credits and contact hours: 1 credit, 1 contact

3. Instructor’s or course coordinator’s name: Wen-Ran Zhang, PhD

4. Text book, title, author and year:
a. Other supplemental materials: None

5. Specific course information
a. Brief description of the content of the course (Catalog Description) Directed study under faculty supervision. Seminar with at least one hour to be used as student engagement in service work.
Prerequisites: Permission of Instructor and Department Chair
b. Indicate whether a required, elective, or selected elective course in the program
Required course for BS-CS.

6. Specific goals for the course
a. Specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.

<table>
<thead>
<tr>
<th>Course Learning Outcomes</th>
<th>Student Outcomes</th>
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</thead>
<tbody>
<tr>
<td>Ability to participate in research work in language models (other than procedural and object oriented) and contemporary examples, attend seminars and presentations as instructed</td>
<td>1a, 1c, 2b</td>
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<tr>
<td>Ability to display independence and self-learning</td>
<td>1c, 1d, 1i, 2b</td>
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<td>Ability to participate effectively on a team</td>
<td>1d</td>
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<td>Ability to display support and respect for others without bias or prejudice</td>
<td>1d</td>
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<td>Ability to convey technical materials through persuasive and clear oral and written communication, multimedia, and interaction with an audience</td>
<td>1f</td>
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<tr>
<td>Ability to recognize the need for life-long learning</td>
<td>1h</td>
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</tbody>
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b. Student Outcomes:
   - 1a: An ability to apply knowledge of computing and mathematics appropriate to the discipline
   - 1c: An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs
   - 1d: An ability to function effectively on teams to accomplish a common goal
   - 1f: An ability to communicate effectively with a range of audiences
   - 1h: Recognition of the need for, and an ability to engage in, continuing professional development
1i: An ability to use current techniques, skills, and tools necessary for computing practice
2b: An ability to apply design and development principles in the construction of software systems of varying complexity

7. Brief list of topics to be covered
   - Faculty / Student selected topics.