CSCE 520 - Database System Design

- **Credit Hours:** 3 hours
- **Contact Hours:** 3 lecture hours
- **Instructor:** Drs. Csilla Farkas and Stephen Fenner
- **Bulletin Description:** Database management systems; database design and implementation; security, integrity, and privacy.
- **Prerequisites:** CSCE 240 or GEOG 563
- **Required Course in CIS and Selected Elective in CE, CS**
- **Course Outcomes:** Students will be able to:
  1. Describe the major components of a database management system and state their functions and purpose.
  2. Develop a data model for a database application using an appropriate modeling tool such as ER diagrams.
  3. Use the concepts of data normalization to develop well-designed database applications.
  4. Implement a database application using an appropriate relational DBMS.
  5. Use SQL to access database information.
  6. Describe major operational issues associated with database applications, including transaction management, security, and integrity.

**Student Outcomes addressed by course**

<table>
<thead>
<tr>
<th>Program</th>
<th>Student Outcomes Addressed</th>
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</thead>
<tbody>
<tr>
<td>Computer Engineering</td>
<td>N/A</td>
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<tr>
<td>Computer Information Systems</td>
<td>6</td>
</tr>
<tr>
<td>Computer Science</td>
<td>N/A</td>
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</tbody>
</table>

**Topics covered**

1. E/R diagrams
2. The relational database models
3. Relational algebra
4. SQL
5. XML and semi-structured databases
6. Datalog
7. Transactions
8. Access control