COURSE FORMAT
This four-credit course will be taught through a combination of lecture, demonstration, and group and individual exercises. Exams, projects and assignments will be completed and submitted manually and electronically. CIS112 is a prerequisite for taking CIS351.

CIS351 fulfills the Coding and Production requirement for the CIS program. As such, this course requires students to undertake significant implementations and construction projects designed to strengthen development skills. Specifically, the course will require you to direct and develop multiple projects of significant scope. At least half of your time in the course will be spent on development work.

COURSE DESCRIPTION AND OBJECTIVES
This course provides the essential modeling and technical skills required to analyze, design and implement modern relational database applications in a client/server enterprise environment. By the conclusion of the course, students will develop their ability to:
- Demonstrate advanced skills in using a robust DBMS
- Reinforce and enhance the practical aspects of the relational data model
- Apply database architecture and database programming principles
- Gain hands-on experience with a widely used DBMS through focus on DML, DDL, DCL and procedural database programming

READINGS

SUPPLEMENTAL READING:
The instructor will introduce supplemental articles or readings during the course to emphasize key points or emerging issues.

ASSIGNMENTS & GRADING POLICIES
Class Participation
You are expected to come to each class prepared to participate. Prepared students are those who have:
- read the assigned texts and multimedia materials in Sakai prior to the class meeting;
- reviewed the notes in Sakai;
- studied the concepts to be discussed;
- collected questions regarding the material and the course.

In addition to these preparatory steps, I assume that you check your W&J Email at least once per day. When you cannot attend class due to a conflict, I expect that you will contact me via your W&J Email as soon as possible. In the event of a major illness or other long-term conflict, please contact me immediately to make arrangements so that you do not fall behind in the class. Students needing to contact the instructor for any reason during the semester may do so by email, phone, or in person.

Students accrue participation points every day based on attendance and attentiveness to classroom activities. Students cannot make up missed classes, and therefore, they should consider attendance mandatory. Your presence in class is a necessary, but not a sufficient condition to earn participation points for a class. If students distract themselves or others from the planned activities for the day, those students will not receive participation.
Occasionally, a student will demonstrate outstanding participation and will be awarded additional participation points for this effort.

**Quizzes**
Quizzes are relatively straight-forward, unannounced assessments delivered at random to verify that students are comprehending readings and course content. The quizzes are designed to reward students who regularly read and study the course content. Students cannot make up missed quizzes. Quizzes are closed book.

**Homework Assignments**
Homework assignments are designed to help students practice the core skills and review the important concepts of the course. Students should work on homework assignments individually.

**Projects**
The two projects ask students to create a complex database application. These projects are largely self-directed and require students to work independently.

**General Comments about Homework and Projects**
- Late homework assignments and projects will be subject to a 5% deduction per day.
- Homework assignments and projects must be completed independently.
- Homework assignments and projects must be submitted via Sakai and manually.
- Homework assignments and projects are due by class time on the assignment due date.

**Short Format Exams and Final Exam**
All exams are comprehensive. Students may use books and notes for all exams, but I strongly encourage students to study for these exams as if they were closed book exams.

**Summary of Graded Activities**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Occurrences</th>
<th>Points/Occurrence</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation &amp; Quizzes</td>
<td>Every class</td>
<td>5</td>
<td>200</td>
</tr>
<tr>
<td>Homework Assignments</td>
<td>5</td>
<td>40</td>
<td>200</td>
</tr>
<tr>
<td>Projects</td>
<td>2</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>Short Format Exams</td>
<td>4</td>
<td>50</td>
<td>200</td>
</tr>
<tr>
<td>Final Exam</td>
<td>1</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>1200</strong></td>
</tr>
</tbody>
</table>

**Point-to-Final Letter Grade Conversion:**
A >= 1140 | A- >= 1080 | B+ >= 1060 | B >= 1000 | B- >= 960 | C+ >= 940 | C >= 880 | C- >= 840 |
D+ >= 820 | D >= 760 | D- >= 720 | F < 720

**COMFORTABLE LEARNING ENVIRONMENT**
Students with medical, psychological, learning or other disabilities desiring academic adjustments, accommodations, or auxiliary aids will need to contact the instructor. Students have the right to learn in a non-threatening environment that is free from intimidation or harassment. Shared resources such as computer labs or classroom computers must be kept free from offensive material. Students experiencing incidents which cause them to become uncomfortable should report these incidents to the instructor immediately. If the instructor is the source of intimidation or harassment, students should contact the department chair. As a courtesy to the instructor and to other students, please turn off electronic devices which may cause a distraction during class. Please do not allow your computer to become a distraction during class time – it is a tool for learning. **Playing games, checking email, and instant messaging are not acceptable activities on the computers during class.**

**ACADEMIC HONESTY**
The instructor assumes that each student has read the college’s Academic Honesty Policy, which can be found online in the 2013-2014 College Catalog. The instructor assumes that a student's work represents a sincere attempt to engage with the course of study outlined for this class. Do not use the words of another without properly citing the source. All cases of academic misconduct will be handled according to the
procedures defined in the Academic Honesty Policy. In this class you are **NOT** permitted to work together on assignments and projects.

**COURSE SCHEDULE**
This course schedule is intended to outline student responsibilities for each week of study, including activities which will be graded for that week. Details for successfully completing each graded activity are available in Sakai. The course schedule may change.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic of Study/Reading Assignments</th>
<th>Graded Activities Due</th>
</tr>
</thead>
</table>
| Week 1 1/29, 1/31 | W: Introduction to Advanced DB Concepts  
F: Database Concepts Review  
Read: Phlonx Normalization Tutorial (Sakai) |                                                     |
| Week 2 2/3, 2/5, 2/7 | M: Normalization to BCNF  
Read: *Learning*, Ch. 4  
W: ER Modeling  
Read: Dimensional Data Modeling (Sakai)  
F: ER Modeling |                                                     |
| Week 3 2/10, 2/12, 2/14 | M: Normalization beyond BCNF  
Read: Simple Guide to Five NF(Sakai)  
Rules of Data Normalization (Sakai)  
W: Advanced DB Modeling  
F: Modeling and Design Exam | Homework 1 due 2/12  
Modeling and Design Exam 2/14 |
| Week 4 2/17, 2/19, 2/21 | M: DDL & DML  
Read: *Learning*, Ch. 5 & 6  
W: Cartesian Product, Joins, Unions  
Read: *Learning*, Ch. 7 pp. 237 - 250  
F: Functions and Aggregates  
Read: Learning, Ch. 7 pp. 223 - 236 |                                                     |
| Week 5 2/24, 2/26, 2/28 | M: Subqueries  
Read: *Learning*, Ch. 7 pp. 250 - 266  
W: Views  
Read: *Learning*, Ch. 8 pp. 277 - 285 | Homework 2 due 2/24 |
| Week 6 3/3, 3/5, 3/7 | M: SQL and Transactions  
Read: *Learning*, Ch. 7 pp. 266 - 275  
*Stored Procedure*, Ch. 8 pp. 179 - 183  
W: SQL and Transactions  
F: Advanced SQL Exam | Homework 3 due 3/5  
Advanced SQL Exam 3/7 |
| Week 7 3/10, 3/12, 3/14 | M: Introduction to Stored Programs  
Read: *Stored Procedure*, Ch. 2-3.  
W: Fundamentals of Stored Programs  
Read: *Stored Procedure*, Ch. 4  
F: Control Flow in Stored Programs |                                                     |
| Week 8 3/24, 3/26, 3/28 | M: Stored Programs with SQL  
Read: *Stored Procedure*, Ch. 5-6.  
W: Error Handling in Stored Procedures  
F: Managing Stored Procedures  
Read: *Stored Procedure*, Ch. 7 | Project 1 Due 3/28 |
| Week 9 3/31, 4/2, 4/4 | M: Stored Functions  
Read: *Stored Procedure*, Ch. 9-10.  
W: Stored Functions  
F: Stored Functions |                                                     |
<table>
<thead>
<tr>
<th>Week 10</th>
<th>Monday: Stored Program Project</th>
<th>Homework due 4/9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tuesday: Stored Program Project</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thursday: Stored Program Exam</td>
<td>Stored Program Exam 4/11</td>
</tr>
<tr>
<td>4/7, 4/9, 4/11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Week 11</th>
<th>Monday: Transactional Systems</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tuesday: Business Logic and Triggers</td>
<td>Read: Stored Procedure, Ch. 8</td>
</tr>
<tr>
<td></td>
<td>Thursday: Data Warehouse Applications and ETL</td>
<td>Read: Stored Procedure, Ch. 11</td>
</tr>
<tr>
<td>4/14, 4/16, 4/18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Week 12</th>
<th>Monday: Reporting, OLAP, Data Mining</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tuesday: Performance Tuning</td>
<td>Read: Stored Procedure, Ch. 19-20</td>
</tr>
<tr>
<td></td>
<td>Thursday: Performance Tuning and Indices</td>
<td>Read: Stored Procedure, Ch. 21-22</td>
</tr>
<tr>
<td>4/21, 4/23, 4/25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Week 13</th>
<th>Monday: Database Security: DCL</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tuesday: Database Security:</td>
<td>Read: Learning, Ch. 9</td>
</tr>
<tr>
<td></td>
<td>Thursday: Database Applications Exam</td>
<td>Read: Stored Procedure, Ch. 18</td>
</tr>
<tr>
<td>4/28, 4/30, 5/2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Week 14</th>
<th>Monday: Final Review</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5/5</td>
<td>Tuesday: Database Applications Exam</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thursday: Database Applications Exam</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Final Exam: Monday, May 12th 9:00 AM - 12:00 PM</td>
<td>Project 2 due 5/5</td>
</tr>
</tbody>
</table>