Canisius College
Richard J. Wehle School of Business
Marketing & Information Systems Department
Fall 2021
Course: ISB 340 online, Data Management
Online delivery+

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Required Texts:  


Office Hours: Virtual: via Zoom & by appointment. Please email first, Garrity@canisius.edu; or call 716-888-2267.

Note: Use of Desire2Learn, Zoom and email is mandatory. Students must check frequently.

Course Objectives and Outcomes: This course introduces Data Management and Database Management Systems (DBMS). Important fundamental concepts in the design and management of large databases are presented. The student is given hands-on experience with a commercial microcomputer DBMS (MS Access), as well as practical experience in data analytics using Python and Microsoft Power Pivot technology. Emphasis is on fundamental concepts, tools and methodologies involved in the design, implementation, and management of databases. Outcomes: Students will have gained skills in DBMS processing, learned new problem-solving techniques and logic, and will have acquired skills in logical database design, SQL, data analytics and programming with Python and information processing with DBMS. Certain advanced concepts and technologies will be covered, including client-server databases, big data and data mining, data analytics, and access to databases over the Internet.

Specific Course Objectives: Student interaction and involvement in labs and in class course work is aimed at improving students’ analytical skills, reflective thinking (especially as it relates to design projects), oral communication skills (especially as students are required to work in groups or pairs to solve design problems in class and to formulate logical queries), written communication skills (as it relates to required, individual projects), and of course all of the course work helps to develop and improve students’ information literacy skills.

Learning Goals: We are committed to developing professionals who have depth of expertise in business functions combined with breadth of leadership and professional skills for success in today’s dynamic business environment. Students graduating from the Wehle School of Business will:
• Understand ethical behavior and sustainability concepts
• Make well-informed business decisions by demonstrating the ability to solve business problems through quantitative and qualitative reasoning
• Understand how functional areas of business impact business strategy
• Be career-ready professionals who are prepared to lead

The learning goals for all students graduating from the Wehle School of Business:
https://www.canisius.edu/academics/our-schools/richard-j-wehle-school-business/about-wehle-school/program-learning-goals

AIS majors:
Goal 1: Graduates will be able to evaluate an organization’s system development process, the conceptual design of organizational systems and determine methods to provide information for business decision-making.

Objectives: Students will be able to:
B Apply principles of database design and effectively create database schemas based on conceptual business models.
C Apply concepts for effectively retrieving information from relational databases.

And finally, we’ll cover an introduction to programming with Python. Python is a very good language to help with the process of data analysis.

Note to students with disabilities:
"If you have any condition, such as a physical or mental disability, which will make it difficult for you to carry out the work as I have outlined it or which will require extra time on examinations, please notify me in the first two weeks of the course so that we may make appropriate arrangements. Thank you." Accessibility Support (716-888-2170), which is located in the Griff Center for Academic Engagement (OM 013), is responsible for arranging appropriate academic accommodations for students with documented disabilities. If anyone in this course falls into this category, please contact Accessibility Support so that an appropriate course of action may be determined. For additional information, see https://www.canisius.edu/student-experience/student-support-services/griff-center/accessibility-support

Need help? The GRIFF Center for Academic Engagement provides comprehensive programs, tutoring services, and resources to support student academic and career success. If you would like to learn more about academic support, please stop in Old Main 013 or call 716-888-2170. Withdrawal: Please check with Griff Center.
Visit the GRIFF Center webpage at: http://www.canisius.edu/griff-center/

Lectures and Group Discussion:
Labs will be online using SQL, MS Access, and Python. Lectures are virtual via D2L+. Lecture content and labs will be posted as MP4 audio/video files in D2L. Some lecture and lab content may occasionally be through Zoom software and teleconferencing.

+ Note: All lectures and lab content will be placed online in D2L; Please note that the class is in online format (the instructor has a family member who is at increased risk for Covid-Delta complications.) The course lecture content will be posted online in D2L as audio/video, MP4 files (like YouTube videos).
Should we switch to Hybrid format, see below:
**In person, lab requirement:** Due to the pandemic, **all students are required to wear face masks that cover their mouth and nose.**

**Academic Integrity:** Students are expected to know and understand college policies with regard to the Academic Integrity Code ([https://www.canisius.edu/academics/academic-affairs/academic-integrity-canisius](https://www.canisius.edu/academics/academic-affairs/academic-integrity-canisius)). Violations of academic integrity will be prosecuted fully. Please note that you are responsible for reporting any instances where other students have violated these policies. Failure to do so will result in penalties as well. If you have any questions about this policy, please see the instructor.

No cell phone use and no texting is allowed in class (if hybrid format).

**Attendance Policy:** Students are expected to attend all classes (hybrid), and to keep up with all content posted online in D2L.

**Grading and Learning Strategies:**

<table>
<thead>
<tr>
<th>Project 1</th>
<th>Project 2</th>
<th>Project 3</th>
<th>Project 4</th>
<th>Project 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQL 1</td>
<td>Design 1</td>
<td>SQL–2</td>
<td>Design 2</td>
<td>Data Analytics 1, Python</td>
</tr>
</tbody>
</table>

- Projects\(^1\) (5 @ 5% each) (Hands-on, learning & problem solving) **25%**
- 2 Exams (@ 20% each) (Individual hands-on, design skills, assessment) **40%**
- Final Exam: (Individual hands-on, design skills, assessment) **30%**
- Instructor Evaluation (Labs – team learning, participation, attendance) **5%**
- Note: This course is 3 credits and required for AIS majors. **100%**

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<thead>
<tr>
<th>A or A- 90% and above</th>
<th>C or +/- 70% and above</th>
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<tbody>
<tr>
<td>B or +/- 80% and above</td>
<td>D 60% and above</td>
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</table>

\(^1\) Generally, late assignments are reduced 20% if received after they are due in class and by 30% after 1 day, but before the next penalty. Assignments are reduced by 50% at 1 week (e.g. due 9/11 turned in on 9/18) or if graded projects are returned to the class, whichever comes first.
## Tentative Course Outline

<table>
<thead>
<tr>
<th>Week of:</th>
<th>Topic</th>
<th>Readings &amp; Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 8/30 Monday</td>
<td>The Relational Model, Creating DBs &amp; tables, queries, <strong>DB intro</strong> Zoom, data integrity</td>
<td>Chapt. 1, problems with lists, 2, MS Access intro</td>
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<tr>
<td></td>
<td>**What is/are data? What is a DB? Creating tables, DB, <strong>Data Integrity Lab</strong></td>
<td>types of DBs, download <strong>MS Office 365</strong>, my.canisius.edu</td>
</tr>
<tr>
<td>2. 9/8, Wednesday</td>
<td><strong>No Classes Monday, 9/6</strong>, Creating DBs &amp; tables, queries, simple reports, <strong>Intro E-R diagrams</strong>, download, install Python 3.7 or greater, see: <a href="https://www.python.org/downloads">https://www.python.org/downloads</a></td>
<td>Chapt. 3 SQL, 4 ER, QBE, SQL intro.</td>
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<tr>
<td>3. 9/13</td>
<td>Data Integrity, Queries, Simple Reports, <strong>SQL Zoom</strong></td>
<td>Chapt. 1, 2, 3, 4, Multi-table queries, <strong>SQL lab-1</strong>, <strong>SQL Tutorial</strong></td>
</tr>
<tr>
<td>4. 9/20</td>
<td>Database Design, <strong>ER MP4, Zoom ER, Amazon ER</strong></td>
<td>adv. Queries, QBE, Chapt. 2, 4, <strong>SQL Tutorial</strong></td>
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<tr>
<td>5. 9/27</td>
<td><strong>Amazon design</strong>, DB, <strong>SQL (T) part 1</strong>, Database Design,</td>
<td><strong>Project 1 due, SQL</strong>, Chapt. 5, 3, Multi-table</td>
</tr>
<tr>
<td>6. 10/4</td>
<td><strong>ER reports, E-R part 2, &amp; design</strong>, Data Modeling, <strong>SQL (T), part 2, Zoom</strong></td>
<td>Chapt. 5, 2, 3</td>
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<tr>
<td>7. 10/13</td>
<td><strong>No classes Monday, Fall Holiday</strong>, <strong>SQL, lab Convert, MP4 Rules</strong>, data modeling, Converting to Relational tables</td>
<td>Chapt. 5, <strong>Project 2 due, design 1, ER</strong></td>
</tr>
<tr>
<td>8. 10/18</td>
<td>Data Modeling, , <strong>Anomalies lab</strong>, SQL (2), <strong>Exam 1, SQL</strong></td>
<td>Exam 1 SQL, Chapt. 5, 4, 2, 3</td>
</tr>
<tr>
<td>9. 10/25</td>
<td><strong>Intro. To Python, primary keys, Anomalies review</strong></td>
<td>Chapt. 5, 2, 3, 4, P2, <strong>Project 3, SQL 2 due</strong></td>
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<tr>
<td>Week of:</td>
<td>Topic</td>
<td>Readings &amp; Work</td>
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<tr>
<td>10. 11/1</td>
<td><em>Intro. To Python, CCR Design, Normalization, multi-valued attributes</em></td>
<td>Chapt. 3, 4, 5, 2, Python ch.s P2-5, P7, P10</td>
</tr>
<tr>
<td>11. 11/8</td>
<td>SQL, Python lists, Normalization, DB design</td>
<td>P3-5, 7, <strong>Project 4 due, design 2</strong></td>
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<tr>
<td>12. 11/15</td>
<td><em>Python Data analysis, SQL, Exam 2 design</em></td>
<td>P10, P15-16</td>
</tr>
<tr>
<td>13. 11/22</td>
<td><em>Python Data analysis, No classes Wed., 11/24, Thanksgiving</em></td>
<td>SQL wrap-up</td>
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<tr>
<td>14. 11/29</td>
<td>SQL wrap-up, design review, normalization</td>
<td><strong>Proj 5 data analytics due</strong></td>
</tr>
<tr>
<td>15. 12/6</td>
<td>Review SQL</td>
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See Final Exam Schedule, week of Dec. 13

**Notes:** Chapter readings are from the Kroenke Database Concepts textbook, unless prefixed with a ‘G.’ In other words, G1 refers to my first handout on SQL. **Policies:**

**Attendance:** Students are expected to keep up with, and read and work on all material posted weekly to D2L. The course is designed to be online, however, reductions in final grade will occur for students who do not access content in D2L, participate in activities such as discussion lists, or for not turning-in lab assignments or other online activities. + **Note:** *lectures or lab content will be placed online in D2L, if students have illness (e.g. Covid/Delta, etc., you must still keep up with the course online).*

**Conduct:** Students are expected to conduct themselves in an ethical manner in this course. **Withdrawal:** Students may withdraw from the course prior to ... Please see the College Catalog for details. **Having trouble?:** Please contact me, using contact information at the top of the syllabus or please stop in OM 013, or call 716-888-2170. Visit the GRIFF Center webpage at: [http://www.canisius.edu/griff-center/](http://www.canisius.edu/griff-center/)

**Students must follow the Canisius policy on Academic Integrity:** [http://www.canisius.edu/academics/integrity/](http://www.canisius.edu/academics/integrity/) **Academic Integrity Code.**

**Chapter**

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Getting Started (Introduction)</td>
</tr>
<tr>
<td>2</td>
<td>The Relational Model</td>
</tr>
<tr>
<td>3</td>
<td>Structured Query Language (SQL)</td>
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</tbody>
</table>
Data Modeling and the ER Model
Database Design (Transforming data model to designs)
Database Administration
Database Processing Applications
Big Data, Data Warehouses and BI
I, PHP, J, BI, K Big Data

www.pearsonhighered.com/kroenke

Python Crash Course (P chapters). Important content is scattered throughout this excellent book. But, our main chapters are:
Ch 2 – Variables and simple data types
Ch 3 – Introducing lists
Ch 4 – Working with lists
Ch 5 – If statements
Ch 7 – User input and while loops
Ch 10 – Files and exceptions
Ch 15 – Generating data
Ch 16 – Downloading data