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**School of Science and Technology
Department of Information Technology
INFO221: Relational Database Concepts
3 Credit Hours
Length of Course: 8 weeks**

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Instructor Information

Instructor: ([Bio](#))

Contact:

Phone:

Office Hours:

Course Description (Catalog)

This course is an introduction to the concepts, management issues, and advantages of relational database management systems. Topics include data definition, data manipulation, relational algebra, Structured Query Language (SQL), and OnLine Transaction Processing (OLTP) systems. This course examines database design, normalization for OLTP systems, Codd's rules for OLTP systems, data integrity, database system functions (journaling, forward recovery, backward recovery), database security (authentication and authorization), and database administration. This course also explores distributed databases, OnLine Analytic Processing (OLAP) systems, data warehouses, and object-oriented databases. Students must have access to Microsoft Access 2007 software.

Note: Access 2007 or any later version applicable required..

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Course Scope

In this course several database systems are discussed with particular emphasis on the similarities and differences that define OnLine Transaction Processing (OLTP) systems, Distributed OLTP systems, and OnLine Analytic Processing (OLAP) systems. The Rules of Normalization for OLTP systems are covered in detail.

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Course Objectives

The successful student will fulfill the following learning objectives:

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1. Explain the history and evolution of database management systems; also discuss the impact of relational databases on Information Technology Management and on business.
2. Explain the architecture of a relational database system.
3. Discuss the characteristics and pitfalls of Distributed Databases
4. Discuss data integrity in the context of relational databases.
5. Compare and contrast Online Analytic Processing (OLAP) and Online Transaction Processing (OLTP); also discuss Codd's rules for OLTP databases and OLAP databases.
6. Examine the objective for performing Normalization and discuss its impact on database performance.
7. Explain the process for designing and developing database applications; also list some tools that support these processes.
8. Discuss Query-By-Example (QBE) and assess the rudiments of the Structured Query Language (SQL).

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Course Delivery Method

This course delivered via distance learning will enable students to complete academic work in a flexible manner completely online. Course materials and access to an online learning management system will be made available to each student. **Online assignments are due by the last day of each week** and include Forum questions (accomplished in groups through a threaded Forum), examinations and quizzes (graded electronically), and individual assignments (submitted for review by the Faculty Member). Assigned faculty will support the students throughout this eight-week course.

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Course Materials

Authors	Book Title	Publication Info	ISBN-13
Philip J. Pratt and Joseph J. Adamski	<i>Concepts of Database Management, 7th ed.</i>	Course Technology	978-1-4239-0147-1

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Evaluation Procedures

Evaluation Criteria:

Course Requirements: Your final grade will be based on the following course requirements and percentages:

Course Requirement	Percent
Ch 2 Relational Algebra	6.25
DB System Paper	5
Ch 3 SQLExercise	6.25
Ch 4 Assignment Products SQL	6.25
Ch 5 SQLExercise	6.25
Ch 6 SQLExercise	6.25
Ch 7 SQLExercise	6.25
Ch 8 DB Administration	6.25
Ch 9 DB Mgt Paper	5
Forums (7)	45 (5.63 points each)
Total	100

Submit all assignments in Assignment folder for the appropriate assignment. Post all Forums under the appropriate Forum

Assignment Requirements

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This course has a strong writing component. The goal is to organize, synthesize, and demonstrate your comprehension of core concepts investigated during this course by applying a combination of the terms, concepts, and details you have learned in a systematic way. As important as "the details" that you analyze and arrange in your writing, however, are the conclusions you draw from those details, and your predictions, responses to, and ultimate interpretation of those details.

Forum Introduction:

You are required to introduce yourself to your classmates in an online discussion. There are also eight Forum topics for students to participate in.

Papers:

You will be required to write two short papers this session. The specifications are as follows:

1. Font (double-spaced) Arial 12 pt font.
2. In addition to the required number of pages for the assignment, you must also include a reference page (bibliography), written in **APA style** and a title page. Be sure to give all of your papers a descriptive title! The APA style is located at the <http://www.apus.edu/Online-Library/tutorials/apa.htm>
3. Papers must be uploaded inside the electronic classroom.
4. Page margins Top, Bottom, Left Side and Right Side = 1 inch, with reasonable accommodation being made for special situations
5. Your paper must be in your own words, representing original work.
6. Be sure to run a Spell / Grammar checker.

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Grading Scale

Please see the [student handbook](#) to reference the [University's grading scale](#).

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Course Outline

<u>Week</u>	<u>Topic(s)</u>	<u>Weekly Course Objective(s)</u>	<u>Reading(s)</u>	<u>Assignment(s)</u>
1	Database Management and the Relational Model	Explain the history and evolution of database management systems; also discuss the impact of relational databases on Information Technology Management and on business.	Pratt Ch 1 & 2 And Web References	Upload Week 1 Relational Algebra (Chap 2) Answers and Upload Paper in Assignments Forum: Introduction Forum Week 1
2	SQL	Explain the architecture of a relational database system.	Pratt Ch 3 Web References	Upload Premiere Products SQL Exercise (Ch 3) Answers in Assignments Forum Week 2

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3	Advanced Topics of the Relational Model	Discuss the characteristics and pitfalls of Distributed Databases	Pratt Ch 4	Upload Premiere Products SQL Exercise (Ch 4) Answers in Assignments Forum Week 3
4	Normalization	Discuss data integrity in the context of relational databases.	Pratt Ch 5 Web References	Upload Premiere Products SQL Exercise (Ch 5) Answers in Assignments Forum Week 4
5	Design Methodology	Discuss Query-By-Example (QBE) and assess the rudiments of the Structured Query Language (SQL).	Pratt Ch 6	Upload Premiere Products SQL Exercise (Ch 6) Answers in Assignments Forum Week 5
6	DBMS Functions	Examine the objective for performing Normalization and discuss its impact on database performance.	Pratt Ch 7	Upload Premiere Products SQL Exercise (Ch 7) Answers in Assignments Forum Week 6
7	Database Administration	Explain the process for designing and developing database applications; also list some tools that support these processes.	Pratt Ch 8	Upload Database Administration Exercises utilizing the Premiere Products DB (Ch 8) in Assignments Forum Week 7
8	Database Management Approaches	Compare and contrast Online Analytic Processing (OLAP) and Online Transaction Processing (OLTP); also discuss Codd's rules for OLTP databases and OLAP databases.	Pratt Ch 9	Premier Products Exercises(Ch 9) in Assignments Forum Week 8

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Policies

Please see the [student handbook](#) to reference all University policies. Quick links to frequently asked question about policies are listed below.

[Drop/Withdrawal Policy](#)

[Plagiarism Policy](#)

[Extension Process and Policy](#)

WRITING EXPECTATIONS

All written submissions should be submitted in a font and page set-up that is readable and neat. It is recommended that students try to adhere to a consistent format, which is described below.

- Typewritten in double-spaced format with a readable style and font and submitted inside the electronic classroom (unless classroom access is not possible and other arrangements have been approved by the professor).
- Arial 11 or 12-point font or Times New Roman styles.

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- Page margins Top, Bottom, Left Side and Right Side = 1 inch, with reasonable accommodation being made for special situations and online submission variances.

CITATION AND REFERENCE STYLE

Assignments completed in a narrative essay or composition format must follow APA guidelines. This course will require students to use the citation and reference style established by the American Psychological Association (APA), in which case students should follow the guidelines set forth in *Publication Manual of the American Psychological Association* (6th ed.). (2010). Washington, D.C.: American Psychological Association.

LATE ASSIGNMENTS

Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. As adults, students, and working professionals I understand you must manage competing demands on your time. Should you need additional time to complete an assignment please contact me before the due date so we can discuss the situation and determine an acceptable resolution. Routine submission of late assignments is unacceptable and may result in points deducted from your final course grade.

DISCLAIMER STATEMENT

Course content may vary from the outline to meet the needs of this particular group.

Academic Services

ONLINE LIBRARY RESEARCH CENTER & LEARNING RESOURCES

The Online Library Resource Center is available to enrolled students and faculty from inside the electronic campus. This is your starting point for access to online books, subscription periodicals, and Web resources that are designed to support your classes and generally not available through search engines on the open Web. In addition, the Center provides access to special learning resources, which the University has contracted to assist with your studies. Questions can be directed to orc@apus.edu.

- **Charles Town Library and Inter Library Loan:** The University maintains a special library with a limited number of supporting volumes, collection of our professors' publication, and services to search and borrow research books and articles from other libraries.
- **Electronic Books:** You can use the online library to uncover and download over 50,000 titles, which have been scanned and made available in electronic format.
- **Electronic Journals:** The University provides access to over 12,000 journals, which are available in electronic form and only through limited subscription services.
- **Turnitin.com:** Turnitin.com is a tool to improve student research skills that also detect plagiarism. Turnitin.com provides resources on developing topics and assignments that encourage and guide students in producing papers that are intellectually honest, original in thought, and clear in expression. This tool helps ensure a culture of adherence to the University's standards for intellectual honesty. Turnitin.com also reviews students' papers for matches with Internet materials and with thousands of student papers in its database, and returns an Originality Report to instructors and/or students.
- **Smarthinking:** Students have access to 10 free hours of tutoring service per year through Smarthinking. Tutoring is available in the following subjects: math (basic math through advanced calculus), science (biology, chemistry, and physics), **accounting, statistics, economics, Spanish,**writing, grammar, and more. Additional information is located in the Online Research Center. From the ORC home page, click on either the "Writing Center" or "Tutoring Center" and then click "Smarthinking." All login information is available.

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Grading Rubrics

APUS Assignment Rubric Undergraduate Level	EXEMPLARY LEVEL 4	ACCOMPLISHED LEVEL 3	DEVELOPING LEVEL 2	BEGINNING LEVEL 1	TOTAL POINTS
FOCUS/THESIS	Student exhibits a defined and clear understanding of the assignment. Thesis is clearly defined and well constructed to help guide the reader throughout the assignment. Student builds upon the thesis of the assignment with well-documented and exceptional supporting facts, figures, and/or statements.	Establishes a good comprehension of topic and in the building of the thesis. Student demonstrates an effective presentation of thesis, with most support statements helping to support the key focus of assignment.	Student exhibits a basic understanding of the intended assignment, but the thesis is not fully supported throughout the assignment. While thesis helps to guide the development of the assignment, the reader may have some difficulty in seeing linkages between thoughts. While student has included a few supporting facts and statements, this has limited the quality of the assignment.	Exhibits a limited understanding of the assignment. Reader is unable to follow the logic used for the thesis and development of key themes. Introduction of thesis is not clearly evident, and reader must look deeper to discover the focus of the writer. Student's writing is weak in the inclusion of supporting facts or statements.	20
CONTENT/SUBJECT KNOWLEDGE	Student demonstrates proficient command of the subject matter in the assignment. Assignment shows an impressive level of depth of student's ability to relate course content to practical examples and applications. Student provides comprehensive analysis of details, facts, and concepts in a logical sequence.	Student exhibits above average usage of subject matter in assignment. Student provides above average ability in relating course content in examples given. Details and facts presented provide an adequate presentation of student's current level of subject matter knowledge.	The assignment reveals that the student has a general, fundamental understanding of the course material. Whereas, there are areas of some concerning in the linkages provided between facts and supporting statements. Student generally explains concepts, but only meets the minimum requirements in this area.	Student tries to explain some concepts, but overlooks critical details. Assignment appears vague or incomplete in various segments. Student presents concepts in isolation, and does not perceive to have a logical sequencing of ideas.	20
CRITICAL THINKING SKILLS	Student demonstrates a higher-level of critical thinking necessary for 300-400 level work. Learner provides a strategic approach in presenting examples of problem solving or critical thinking, while drawing logical conclusions which are not immediately obvious. Student provides well-supported ideas and	Student exhibits a good command of critical thinking skills in the presentation of material and supporting statements. Assignment demonstrates the student's above average use of relating concepts by using a variety of factors. Overall, student provides adequate conclusions, with 2 or fewer errors.	Student takes a common, conventional approach in guiding the reader through various linkages and connections presented in assignment. However, student presents a limited perspective on key concepts throughout assignment. Student appears to have problems applying information in a	Student demonstrates beginning understanding of key concepts, but overlooks critical details. Learner is unable to apply information in a problem-solving fashion. Student presents confusing statements and facts in assignment. No evidence or little semblance of	20

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	reflection with a variety of current and/or world views in the assignment. Student presents a genuine intellectual development of ideas throughout assignment.		problem-solving manner.	critical thinking skills.	
ORGANIZATION OF IDEAS/FORMAT	Student thoroughly understands and excels in explaining all major points. An original, unique, and/or imaginative approach to overall ideas, concepts, and findings is presented. Overall format of assignment includes an appropriate introduction (or abstract), well-developed paragraphs, and conclusion. Finished assignment demonstrates student's ability to plan and organize research in a logical sequence. Student uses at least of 5-7 references in assignment.	Student explains the majority of points and concepts in the assignment. Learner demonstrates a good skill level in formatting and organizing material in assignment. Student presents an above average level of preparedness, with a few formatting errors. Assignment contains less than 5 resources.	Learner applies some points and concepts incorrectly. Student uses a variety of formatting styles, with some inconsistencies throughout the paper. Assignment does not have a continuous pattern of logical sequencing. Student uses less than 3 sources or references.	Assignment reveals formatting errors and a lack of organization. Student presents an incomplete attempt to provide linkages or explanation of key terms. The lack of appropriate references or source materials demonstrates the student's need for additional help or training in this area. Student needs to review and revise the assignment.	15
WRITING CONVENTIONS (GRAMMAR & MECHANICS)	Student demonstrates an excellent command of grammar, as well as presents research in a clear and concise writing style. Presents a thorough, extensive understanding of word usage. Student excels in the selection and development of a well-planned research assignment. Assignment is error-free and reflects student's ability to prepare a high-quality academic assignment.	Student provides an effective display of good writing and grammar. Assignment reflects student's ability to select appropriate word usage and present an above average presentation of a given topic or issue. Assignment appears to be well written with no more than 3-5 errors. Student provides a final written product that covers the above-minimal requirements.	Assignment reflects basic writing and grammar, but more than 5 errors. Key terms and concepts are somewhat vague and not completely explained by student. Student uses a basic vocabulary in assignment. Student's writing ability is average, but demonstrates a basic understanding of the subject matter.	Topics, concepts, and ideas are not coherently discussed or expressed in assignments. Student's writing style is weak and needs improvement, along with numerous proofreading errors. Assignment lacks clarity, consistency, and correctness. Student needs to review and revise assignment.	15
USE OF COMPUTER TECHNOLOGY/ APPLICATIONS	Student provides a high-caliber, formatted assignment. Learner exhibits excellent use	Assignment presents an above-average use of formatting skills, with less than 3 errors. Students	Student demonstrates a basic knowledge of computer applications. Appear	Student needs to develop better formatting skills. The student may need to take	10

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	of computer technology in the development of assignment. Quality and appropriateness of stated references demonstrate the student's ability to use technology to conduct applicable research. Given assignment includes appropriate word processing, spreadsheet and/or other computer applications as part of the final product.	has a good command of computer applications to format information and/or figures in an appropriate format. Student uses at least two types of computer applications to produce a quality assignment.	ance of final assignment demonstrates the student's limited ability to format and present data. Resources used in assignment are limited. Student may need to obtain further help in the use of computer applications and Internet research.	additional training or obtain help from the Educator Help Desk while preparing an assignment. Research and resources presented in the assignment are limited. Student needs to expand research scope. The number of formatting errors is not acceptable.	
TOTAL POINTS					100