American Public University System

The Ultimate Advantage is an Educated Mind

School of Science and Technology
Department of Information Technology
INFO161: Relational Databases with MS Access
Credit Hours: 3
Length of Course: 8 Weeks
Prerequisite(s): None

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Instructor Information

Instructor: **Bio**)
Email:
Phone:

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Course Description (Catalog)

This course focuses on the role, function, and operations of relational databases in the management of information. The course will be taught from a mixture of analytical and practical methods. This course introduces the student to the concepts of relational databases and to the principles of relational database design in the context of the Microsoft Access Relational Database Management System (RDBMS). Students will apply their knowledge of the principles of data design and database engineering to design and develop a database application that includes user interfaces, form design, data analysis, and data presentation. They will examine the rudiments of referential integrity and normalization and apply this knowledge to design the database tables that implement validation rules to ensure application integrity. They will also examine and develop advanced queries such as: top values, list of values, cross tab, find duplicates, and find unmatched. Students must have access to Microsoft Access software. This software is not provided by the course material grant and must be purchased/provided by the student. The book meets the topical requirements for the Microsoft Office Specialist (MOS). Course software requirements with the appropriate versions are listed under the course materials site.

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Course Scope

This course is an introduction to relational databases in the context of the Microsoft Access database. Topics covered include how to open database files and save files, open and manipulate tables, as well as the process of creating and managing forms and reports. The guidelines for designing a database, as well as choosing field properties, are applied to build a new database in Access. The query window will be used to create and run a query. Queries accessing multiple tables will be included as well as query logic. Also, table relationships will be covered including referential integrity. The wizard will be utilized to create Forms and Reports. Forms will be used to maintain table data and Subforms are used as controls on other forms. Reports will be used to display data based on criteria. Other items related to reports such as adding graphics are also included. They will also examine and develop advanced queries such as: top values, list of values, cross tab, find duplicates, and find unmatched. Students must have access to Microsoft Access 2010 software. This software is not provided by the course material grant and must be purchased/provided by the student. The book meets the topical requirements for the Microsoft Certified Application Specialist (MCAS): Using Microsoft Office Access 2010 certification.

Course Objectives

The successful student will fulfill the following learning objectives:

1. Explain the history and evolution of databases; and differentiate between the hierarchical, network, and relational database models.
2. Discuss the architecture and the components of a relational database.
3. Examine the process for developing database applications; and discuss its role in Information Technology Management and application quality.
4. Assess the principles of normalization; appraise the concept of cardinality of relationships between tables (relations), and analyze the concepts of primary key integrity, referential integrity and transactional integrity.
5. Examine the rudiments of the Structured Query Language (SQL) and apply this knowledge to design, develop, and interact with a relational database.

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 (Sunday)** and include Forum questions (accomplished in groups through a threaded online discussion), written textbook assignments and other written assignments as assigned and submitted for review by the Faculty Member. Assigned faculty will support the students throughout this eight-week course.

Course Materials

Required Text

Microsoft Office Access 2010 Examination 77-885, John Wiley and Sons, ISBN 978-1-118-10134-6

Software Requirements

- Microsoft Access 2010
- Microsoft Word 2003 or any word processor with the ability to export a *.txt file.

Evaluation Procedures

Your final course grade will be based upon the following:

Course Requirement	*Percent*
Forum Activities	16
Assignment 1	21
Assignment 2	21
Assignment 3	21
Assignment 4	21
Total	100

Access Assignments

You will complete the assignments as directed in the textbook. The required data files are on the disk that comes with your text or on the companion website.

Participation Points

Classroom interaction is a vital part of the online experience. Valuable knowledge can be gained from understanding the experiences of other class participants. You will earn participation points for activity in the online discussion.

I monitor the forum for participation so there is no reason for you to submit your comments and peer reviews as separate assignments.

Forums

Each week one or more questions will be posted in the online discussion. Each student will provide at a minimum a 150-word response no later than each Wednesday, to answer the online discussion questions. Additionally, you must provide a peer review of similar length in response to another student's online discussion input. Your peer review will review/analyze an input and provides justification why you agree/disagree with the information in the student input. You must always be courteous (professional) even in disagreement.

Submission of Textbook Assignments and Project Documents

Please include your name, course number (ex. INFO161), Student ID, assignment name and due date at the top of your submissions*.* Then Upload assignment

Weekly learning objective details:

Week 1: Open and close an existing database; Define data needs and types; Define table fields; Define data types for fields; Define database tables; Create a database; Use a template to create a database; Create a blank database; Create a database table; Create a table from another table; Create a table from a template
Week 2: Navigate among records; Enter, edit and delete records; Create and modify a primary key; Define and modify a primary key; Find and replace data; Attach and detach documents; Sort data within a table; Filter data within a table; Remove a filter; Understand table relationships; Define table relationships; Modify table relationships; Print table relationships; Modify a database table; Modify table properties; Rename a table; Delete a table; Create fields and modify field properties

Week 3: Create forms; create a simple form; create a form in Design View; create a form in Layout View; Create a datasheet form; Apply AutoFormat; Sort data within a form; Filter data within a form; Filtering data within a table; Create a simple report; Use the Report Wizard; Create a report in Design View; Sort data within a report; Filter data within a report

Week 4: Modify a database table; Add controls; Add unbound controls; Add bound controls; Add calculated controls; Format controls; Create conditional formatting on controls; Arrange control layout; Arrange control alignment, size and position; Define control tab order ; Create a query; Create a query from a table; Create a query from multiple tables

Week 5: Create a custom table; Use the table analyzer; Summarize table data; Create forms; Create a multi-item form; Create a split form; Create a subform; Create a PivotTable form

Week 6: Define group headers; Create aggregate fields; Create the print layout; Use the Label Wizard; Create crosstab queries; Save a filter as a query; Create action queries; Create a join; Create a calculated field query; Add an alias to a query field; Save and run export specifications;

Week 7: Create a chart using the Chart Wizard; Format a chart; Change chart types; Build a PivotChart; Save a database object as another file type; Print a database object; Import data; Import data from a specific source; Link to an external data source; Save and run import specifications; Export data; Export from a table; Export from a query; Save and run export specifications;

Week 8: Back up a database; Compact and repair a database; Set database properties; Save as a previous version; Encrypt a database; Identify object dependencies; Use the Database Documenter; Use the Linked Table Manager; Split a database;

Grading

Please see the Student Handbook to reference the University's Grading Scale.

Course Outline

WEEK	TOPICS	LEARNING OBJECTIVES	READINGS	ASSIGNMENTS
1	Database Essentials Create Database Tables	CO-1	Microsoft Access 2010 Lessons 1&2	Complete Lessons 1&2 Knowledge Assessments Week 1 forum Input/Peer Review
2	Working with Tables Database Records: Modifying Tables and Fields	CO-1, CO-2	Microsoft Access 2010 Lessons 3&4	Complete Lessons 3&4 Knowledge Assessments Week 2 forum Input/Peer Review
3	Create Forms Create Reports	CO-2, CO-3	Microsoft Access 2010 Lessons 5&6	Complete Lessons 5&6 Knowledge Assessments Week 3 forum Input/Peer Review
4	User Controls in Reports and Forms Create and Modify Queries	CO-3	Microsoft Access 2010 Lessons 7&8	Complete Lessons 7&8 Knowledge Assessments Week 4 forum Input/Peer Review
5	Advanced Tables Advanced Forms	CO-3, CO-4	Microsoft Access 2010 Lessons 9&10	Complete Lessons 9&10 Knowledge Assessments
6	Advanced Reports Advanced Queries	CO-4	Microsoft Access 2010 Lessons 11&12	Complete Lessons 11&12 Knowledge Assessments
7	Display and Share Data Import and Export Data	CO-4, CO-5	Microsoft Access 2010 Lessons 13&14	Complete Lessons 13&14 Knowledge Assessments Week 7 forum Input/Peer Review

8	Database Tools	CO-5	Microsoft Office Project 2010 Lessons 15	Complete Lessons 15 Knowledge Assessment Week 8 forum Input/Peer Review

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.
- 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.

Selected Bibliography

Grading Rubrics

APUS Assignment Rubric Undergraduate Level	EXEMPLARY LEVEL 4	ACCOMPLISHED LEVEL 3	DEVELOPING LEVEL 2	BEGINING 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	Student exhibits a good command of critical thinking skills in the	Student takes a common, conventional approach in guiding the reader through	Student demonstrates beginning understanding of key	20

	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 reflection with a variety of current and/or world views in the assignment. Student presents a genuine intellectual development of ideas throughout assignment.	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.	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 problem-solving manner.	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 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	Student demonstrates an	Student provides an	Assignment reflects basic	Topics, concepts, and	15

CONVENTIONS (GRAMMAR & MECHANICS)	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.	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.	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.	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.	
USE OF COMPUTER TECHNOLOGY/ APPLICATIONS	Student provides a high-caliber, formatted assignment. Learner exhibits excellent use 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.	Assignment presents an above-average use of formatting skills, with less than 3 errors. Students 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.	Student demonstrates a basic knowledge of computer applications. Appearance 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.	Student needs to develop better formatting skills. The student may need to take 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.	10
TOTAL POINTS					100