STUDENT WARNING: This course syllabus is from a previous semester archive and serves only as a preparatory reference. Please use this syllabus as a reference only until the professor opens the classroom and you have access to the updated course syllabus. Please do NOT purchase any books or start any work based on this syllabus; this syllabus may NOT be the one that your individual instructor uses for a course that has not yet started. If you need to verify course textbooks, please refer to the online course description through your student portal. This syllabus is proprietary material of APUS.

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The Ultimate Advantage is an Educated Mind

School of Science and Technology **Department of Information Technology** **INFO620: Enterprise Database Systems** **3 Credit Hours** **8 Week Course** **Prerequisite(s): None**

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Instructor Information

Instructor: (Bio)
Email:
Phone:
Office Hours:

NOTE: IT IS IMPORTANT THAT THE STUDENT READ THE ENTIRE STUDENT SYLLABUS THOROUGHLY. THIS DOCUMENT DETAILS MY GOALS AND EXPECTATIONS FOR THIS COURSE AND PROVIDES ALL OF THE NECESSARY INFORMATION CONCERNING ASSIGNMENTS, GRADING AND ADDITIONAL COURSE REQUIREMENTS. PAY VERY CLOSE ATTENTION TO THE CLASS ANNOUNCEMENTS. UPDATES TO THIS SYLLABUS, DIRECTIONS, AND ADDITIONAL INSTRUCTIONS, FOR WHICH YOU WILL BE ACCOUNTABLE FOR WILL BE SHOWN IN DETAIL THERE.

Course Description (Catalog)

This course examines the principles, practices, and methodologies of enterprise database systems from conceptual design to implementation; this includes architectures, models, design, management, implementation, and security. Included is a total life-cycle database design and implementation project that entails conceptual design, data modeling, normalization, optimization, and implementation. This course appraises object-relational and relational databases, examines Entity-Relationship (ER), Extended Entity-Relationship (EER), and Unified Modeling Language (UML) data models, and investigates relational algebra, calculus, dependencies, keys, relationships, cardinality, and referential integrity. It also evaluates query processing, performance tuning, transaction processing, concurrency, data integrity, database recovery, data security, data warehousing, data mining, and emerging technologies.
Prior knowledge in a procedural database language such as PL/SQL or T/SQL using Oracle or MSSQL respectively is highly recommended.

Course Scope

This course is a formal study of enterprise database system theories, models, design, and practical applications of database systems. We will use Oracle by example to illustrate the model for practical purposes.

Course Objectives

- Analyze the architecture, structure, purpose, characteristics, design, administration, and efficiency of various database systems; also assess three-schema architecture, and data independence, logical and physical data
- Analyze and develop Entity-Relationship (ER) models using entity types, entity sets, value sets, attributes, and keys; integrate relationship types, relationship sets, relationship degrees, roles, and structural constraints into the design; also develop enhanced entity-relationship (EER) and UML models
- Examine relational model theory, concepts, constraints, schemas, update operations anomalies, constraints violations, relational algebra and calculus (select and project, rename, union, intersection, minus, product, division, and join)
- Assess functional dependencies and normalization; also synthesize the 2nd, 3rd, Boyce-Codd, 4th and 5th normal forms, and appraise use case, sequence, collaboration, state charts, transition diagrams, and activity diagrams
- Examine object database and object-oriented database concepts, and apply these concepts to the database design, operations, and constructs; also appraise type and class hierarchies, inheritance, polymorphism, extensibility, and complexity
- Assess and expound on database security and authorization; also compare and contrast discretionary, mandatory, and role-based access controls
- Investigate data warehousing and OLAP (data modeling, cubes, functionality, and technology issues); also appraise focused applications such as mobile, multimedia, geographic information systems, and biological genome database systems

Course Delivery Method

This Masters of Science in Information Technology course – Enterprise Database Systems – delivered via distance learning will enable students to complete academic work in a flexible manner, completely asynchronous and 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.** Assigned faculty will support the students throughout this eight-week course.

Course Materials

Elmasri, R., & Navathe, S. B. (2010). *Fundamentals of Database Systems, 6th ed.* New York, NY. Pearson Addison-Wesley. ISBN: 0-136-08620-9 / 978-0-136-08620-8.

Download resources from the authors' companion site at: http://www.pearsonhighered.com/elmasri/

Software Requirements
1. Microsoft Office (MS Word, MS Excel, MS PowerPoint)
2. Adobe Acrobat Reader (Click here for free download)

Evaluation Procedures

This course is based on both practical and theoretical aspects of advanced database management concepts, rules, techniques, applications, and deductions. It requires hands-on practices on databases techniques based on theories introduced in the class, the derivation of practicality in today's capabilities on techniques presented in the class, as well as deducing the means by which they can be applied to

today's work environments with currently available technologies. The fundamental theory is introduced – how we can apply them – is left to individual scenarios. 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 projects and exercises, however, are the conclusions you draw from those details, and your predictions, responses to, and ultimate interpretation of those details.

1. **Forum Assignments:** There will be eight Forum assignments and 8 Summaries for the weekly forums during the course. This will count as 24% of the final grade.

2. **Problem & Lab Assignments:** There will be eight problem assignments and four lab assignments during the course. The assignments will count as 40% & 8 % resp. of the final grade.

3. **Research Paper Topic:** You must submit a Research Paper Topic in Week 2 of the course, an Annotated Bibliography in week 3, an Outline in Week 5, and the Project Paper in Week 7. In week 8 you will post your paper for peer review onto the Forum area. These count as a total of 18%, with the peer review, of the course grade.

See **Appendix A – Grading Rubric** for Grading Criteria on assignments listed above.

Grade Instruments	Points Possible	% of Final Grade
Forum Assignments (8x2%)	16	16%
Weekly Discussion Summary (8x0.5)	8	8%
Weekly Assignments (8x5)	40	40%
Lab Assignments (4.5% x 2)	18	18%
Research Paper Topic	1	1%
Research Paper Bibliography	2	2%
Research Paper Outline	2	2%
Research Paper Final with Acceptable Originality Report	10	10%
Project Peer Review (Forum)	3	3%
TOTAL	**100 Points**	**100%**

Course Outline

Week	Topic(s)	Learning Objective(s)	Assignment(s)
1	Chapters 1, 2, 3, & 4 of the Elmasri textbook	CO – 1: Analyze the architecture, structure, purpose, characteristics, design, administration, and efficiency of various database systems; also assess three-schema architecture, and data independence, logical and physical data	**Forum postings for Week 1** • **Intro/Bio** • **Forum 1 - Topic 1** • **Forum 1 - Topic 2** **Readings:** Chapters 1-4 **Lesson 1:** Lectures 1-4 **Assignment #1**
2	Chapters 5, 6, & 7 of the Elmasri textbook	CO – 2: Analyze and develop Entity-Relationship (ER) models using entity types, entity sets, value sets, attributes, and keys; integrate relationship types, relationship sets, relationship degrees, roles, and structural constraints into the design; also develop enhanced entity-relationship (EER) and UML models	**Forum postings for Week 2** • **Forum 2 - Topic 1** • **Forum 2 - Topic 2** **Readings:** Chapters 5-7 **Lesson 2:** Lectures 1-3 **Assignment #2** **Lab #1** **Project Topic Selection**
3	Chapters 8, 9, & 10 of the Elmasri textbook	CO – 3 : Examine relational model theory, concepts, constraints, schemas, update operations anomalies, constraints violations, relational algebra and calculus (select and project, rename, union, intersection, minus, product, division, and join)	**Forum postings for Week 3** • **Forum 3 - Topic 1** • **Forum 3 - Topic 2** **Readings:** Chapters 8-10 **Lesson 3:** Lectures 1-3 **Assignment #3** **Lab #2**
4	Chapters 11, 12, & 13 of the Elmasri textbook	CO – 4: Assess functional dependencies and normalization; also synthesize the 2nd, 3rd, Boyce-Codd, 4th and 5th normal forms, and appraise use case, sequence, collaboration, state charts, transition diagrams, and activity diagrams	**Forum postings for Week 4** • **Forum 4 - Topic 1** • **Forum 4 - Topic 2** **Readings:** Chapters 11-13 **Lesson 4:** Lectures 1-3 **Assignment #4** **Lab #3** **Project Annotated Bibliography**
5	Chapters 15 & 16 of the Elmasri textbook	CO – 5: Examine object database and object-oriented database concepts, and apply these concepts to the database design, operations, and constructs; also appraise type and class hierarchies, inheritance, polymorphism, extensibility, and complexity	**Forum postings for Week 5** • **Forum 5 - Topic 1** • **Forum 5 - Topic 2** **Readings:** Chapters 15-16 **Lesson 5:** Lectures 1-2 **Assignment #5** **Lab #4**

			Project Outline
6	Chapters 17, 18, &19 of the Elmasri textbook	CO – 6: Assess and expound on database security and authorization; also compare and contrast discretionary, mandatory, and role-based access controls	**Forum postings for Week 6** • **Forum 6 - Topic 1** • **Forum 6 - Topic 2** **Readings:** Chapters 17-19 **Lesson 6:** Lectures 1-3 **Assignment #6**
7	Chapters 20, 21, & 22 of the Elmasri textbook	CO – 7; Investigate data warehousing and OLAP (data modeling, cubes, functionality, and technology issues); also appraise focused applications such as mobile, multimedia, geographic information systems, and biological genome database systems	**Forum postings for Week 7** • **Forum 7 - Topic 1** • **Forum 7 - Topic 2** **Readings:** Chapters 20-22 **Lesson 7:** Lectures 1-3 **Assignment #7** **Project Final Paper**
8	Chapters 23 & 24 of the Elmasri textbook	CO – 8: Continue investigating data warehousing and OLAP (data modeling, cubes, functionality, and technology issues); also appraise focused applications such as mobile, multimedia, geographic information systems, and biological genome database systems	**Forum postings for Week 8** • **Forum 8 - Topic 1** • **Forum 8 - Topic 2** • **Peer Review of Week 7 Project Paper** **Readings:** Chapters 23-24 **Lesson 8:** Lectures 1-2 **Assignment #8**

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Grading Scale

Please see the student handbook to reference the University's grading scale.

Policies

Please see the student handbook to reference all University policies. Quick links to frequently question asked 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*** 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..

- ***Peer-reviewed Sources:*** Students are expected to become familiar with the use of peer-review articles/journals. Peer review (also known as refereeing) is the process of subjecting an author's work, research, or ideas to the scrutiny of others who are experts in the same field. Pragmatically, peer review refers to the work done during the screening of submitted manuscripts and funding applications. This process encourages authors to meet the accepted standards of their discipline and prevents the dissemination of irrelevant findings, unwarranted claims, unacceptable interpretations, and personal views. Publications that have not undergone peer review are likely to be regarded with suspicion by scholars and professionals.

Webliography – Enterprise Database Systems

1. The authors' companion site: http://www.pearsonhighered.com/elmasri
2. ACM digital library: http://portal.acm.org/dl.cfm
3. Google Scholar : http://scholar.google.com/
4. IEEE digital library: http://www.computer.org/portal/web/csdl/home

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Appendix A – Grading Rubric

All written assignments will be assessed according to this rubric. Note that a score of 0 may be assigned in any category where your work does not meet the criteria for the beginning level.

APUS Assignment Rubric Graduate Level 600+	EXEMPLARY LEVEL 4	ACCOMPLISHED LEVEL 3	DEVELOPING LEVEL 2	BEGINNNIG 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.	10
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	Student demonstrates a	Student exhibits a good	Student takes a common,	Student demonstrates	20

SKILLS	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 reflection with a variety of current and/or world views in the assignment. Student presents a genuine intellectual development of ideas throughout assignment.	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.	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 problem-solving manner.	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 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.	20
WRITING	Student demonstrates an	Student provides an	Assignment reflects basic	Topics, concepts, and	20

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