
USF Sarasota-Manatee - Substantive Undergraduate Course Proposal Form

1. College/School Contact Information

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<u>Discipline</u> Information Technology	<u>College/School</u>	<u>Budget Account Number</u> 380700004
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2. Course Information

<u>Prefix</u> COP	<u>Number</u> 3722	<u>Full Title</u> Advanced Database Systems Design	
Is the course title variable?			N
Is a permit required for registration?			N
Are the credit hours variable?			N
<u>Credit Hours</u> 3	<u>Section Type</u> Class Lecture (Primarily)	<u>Grading Option</u> Regular	

Abbreviated Title (30 characters maximum)
Advanced DB

5. Prerequisites

COP2700

6. Corequisites

7. Co-Prerequisites

8. Course Description

This course presents contemporary data modeling and database design techniques in a vendor-neutral manner. Students will learn to create conceptual, logical, and physical data models, specialized techniques for handling temporal and analytical data.

9. New Course Information

<u>New Prefix</u> N/A	<u>New Number</u> N/A	<u>New Full Title</u> N/A
Is the course title variable?		N
Is a permit required for registration?		N
Are the credit hours variable?		N
<u>New Credit Hours</u> N/A	<u>New Section Type</u> Class Lecture (Primarily)	<u>New Grading Option</u> Regular

New Abbreviated Title (30 characters maximum)

N/A

12. New Prerequisites
COP 3718 and COP 2700

13. New Corequisites
N/A

14. New Co-Prerequisites
N/A

15. New Course Description
N/A

16. **Justification**

A. Nature of change(s)

Without prerequisites listed in banner, students are entering this class unprepared. The result is students flounder in the course and end up having to drop it or get a poor grade. Explicitly stating the pre-reqs will ensure their inclusion in the catalog as well as preventing students from enrolling without taking the pre-reqs.

B. Indicate how this course will strengthen the Undergraduate Program.

Students will take courses in the correct sequence and be better prepared.

C. What specific area of knowledge is covered by this change that is not covered by courses currently listed.

n/a

D. What is the need or demand for this course? {Here you must indicate if this course is part of a required sequence in the major} What other programs would this course?

This course is an elective course for any of the concentrations. It is also a required course for the certificate in Database Systems. Attendance for this course has been around 25.

E. What qualifications for training and/or experience are necessary to teach this course?

Master's degree is required with 18 graduate credit hours in the discipline.

F. What will be the effect of this change on the program and on the students? Do you plan to drop a course if this change is made? (If dropping/deleting a course please complete the nonsubstantive course change form.)

No course will be dropped. Program will be more effective for students as they will build knowledge appropriately throughout their class sequence.

17. **Other Course Information**

A. Objectives

The modeling of Information systems took root in the late 1950s. However, a formal technique for data modeling didn't appear until the proposed Entity-Relationship model in 1976. As is the case with many fast-growing technologies, industry standards and best practices have lagged behind implementations of information systems. However, it has become clear that one of the keys to successful IT projects is an effective database design.

B. Learning Outcomes

After completing this course, students will have learned: " The fundamental concepts and definitions regarding data models, including the concept of data-centric design. " The basic components used to construct relational data models, including entities, attributes, relationships, business rules, tables, columns, constraints, and views. " Data and process modeling, including data model diagramming alternatives, process model diagrams, Unified Modeling Language (UML), and relating entities and processes. " How to organize database project work. " How to create conceptual, logical, and physical data models, as well as the normalization process used to create logical data models that will be best for transaction processing. " How to design specialized data structures for complex business rules, temporal (time-dependent) data, and analytical databases, as well as an overview of enterprise data modeling.

C. Major Topics

Course topics include: - Contemporary data modeling and database design techniques in a vendor-neutral manner that works for any database management system. - How to create conceptual, logical, and physical data models - Specialized techniques for handling temporal and analytical data such as that found in data warehouses and data marts.

D. Textbooks

Required Materials: Andy Opper, Data Modeling. McGraw-Hill, 2010 ISBN-13: 978-0-07-162398-8. Suggested Supplementary Materials: Toby J. Teorey et al, Database Design: Know It all. Morgan-Kaufmann, 2009 ISBN-13: 978-0-12-374630-6. Eric J. Naiburg and Robert A. Maksimchuk, UML for Database Design. Addison-Wesley, 2001 ISBN: 0-201-72163-5.