COP XXXX

APPLICATION DEVELOPMENT WITH NON-TRADITIONAL DATABASES

SECTION(S) TBD

TERM: TBD

COURSE MEETING DAY / TIME: TBD

COURSE MEETING LOCATION: TBD

TRADITIONAL:

Instructor: **TBD**
Email: **TBD**
Office: **TBD**
Phone: **TBD**
Office Hours: **TBD**

Teaching Assistant(s): **TBD**
Email: **TBD**

CREDIT HOURS 3 HOURS

PREREQUISITES

The prerequisite is COP 3330 (Data Structures, Algorithms, and Generic Programming I), or equivalent courses, or permission of the instructor. *Students not meeting the prerequisite requirements will be dropped from the class.*

COURSE DESCRIPTION

This course is an introduction to application development using non-traditional databases (non-relational databases). Students will learn how to develop and implement applications that utilize the four different types of NoSQL databases (such as Document-oriented, Key-Value Pair, Column-oriented, and Graph).

COURSE OBJECTIVES

By the end of the course, students will demonstrate the ability to:

- Understand the properties and implementation design of Key Value Pair Databases
- Implement an application that properly uses a Key Value Pair Database
- Understand the properties and implementation design of Document Databases
- Implement an application that properly uses a Document Database
- Understand the properties and implementation design of Graph Databases
- Implement an application that properly uses a Graph Database
- Understand the properties and implementation design of Column-oriented Databases
- Implement an application that properly uses a Column-oriented Database

- Compare and contrast the properties and implementation design of four different types of NoSQL Databases (Document-oriented, KeyValue Pairs, Column-oriented, and Graph).

COURSE MATERIALS

For this course, you will not need to purchase any textbox or supplemental materials.

Course Assignments and Evaluation

Your grade will be based upon the following components: quizzes, assignments, projects and exams.

Quizzes and Assignments:
Quizzes and/or assignments will measure your understanding of the materials that have been covered and your ability to apply covered concepts and methods to general problems.

Projects:
Programming projects measure your ability to apply the concepts to an actual software application. During the course you will develop applications that utilize non-traditional databases. Some will be designed to support databases created by user input. Others will be designed to support creating databases by processing information from large data files.

Exams:
There are two exams in this course. Both exams will assess the learning outcomes of this course. They will be closed book / closed notes. The exams will include both questions on understanding the materials and writing code to solve problems. There are no final exams in this course.

GRADING

GRADE CALCULATION

Course Grade. There are 100 total percentage points to be earned in the course, distributed as shown in the table below.

Course Points

Item	**Total**
Quizzes/Assignments	20%
Projects	40%
Exams	40%
Total Points:	**100%**

ATTENDANCE/PARTICIPATION

Attendance in all lectures and recitations is necessary to do well in this course, whether online or face to face.

Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

FINAL GRADES

The following grading standards will be used in this class:

A	93 – 100	C	73 – 76
A-	90 – 92	C-	70 – 72
B+	87 – 89	D+	67 – 69
B	83 – 86	D	63 – 66
B-	80 – 82	D-	60 – 62
C+	77 – 79	F	0 – 59

COURSE SCHEDULE

This schedule is tentative and may change from instructor to instructor and with time.

Course Calendar:	
Wk	***Material Covered***
1	Lesson 1 What is a modern general purpose database? SQL and MQL Non-relational databases
2	Lesson 2 Introduction to Key Value Databases and Python – Designing and creating Key Value Databases
3	Lesson 3 Implementing applications that properly incorporate CRUD and Querying In Key Value Store Databases
4	Lesson 4 Implementing applications that properly incorporate CRUD and Querying In Relational Databases and Key Value Store Databases
5	Lesson 5 Application Design Patterns and Implementing application that properly incorporate advanced CRUD and Querying In Relational Databases and Key Value Store Databases
6	Lesson 6 Introduction to Document Databases Designing and creating Document Databases
7	Lesson 7 Implementing applications that properly incorporate CRUD and Querying In Document Databases
8	Lesson 8 Application Design Patterns and Implementing application that properly incorporate advanced CRUD and Querying In Document Databases
9	**Exam 1**
10	Lesson 9 Introduction to Graph Databases Designing and creating Graph Databases
11	Lesson 10 Implementing applications that properly incorporate CRUD and Querying In Graph Databases
12	Lesson 11 Application Design Patterns and Implementing application that properly incorporate advanced CRUD and Querying

	In Graph Databases
13	Lesson 12 Introduction to Column Store Databases Designing and creating Column Store Databases
14	Lesson 13 Implementing applications that properly incorporate CRUD and Querying In Column Store Databases
15	Lesson 14 Application Design Patterns and Implementing application that properly incorporate advanced CRUD and Querying In Column Store Databases
16	**Exam 2**

CLASS HOMEPAGE

Course Website: TBA

This website contains all information related to this class including lecture slides, assignments, extra material handed out during class and links to some useful resources. The class will also have a Canvas page which will ONLY be used to submit assignments, post grades and for sending out announcements.

UNIVERSITY POLICIES

University Attendance Policy:
Excused absences include documented illness, deaths in the family, and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

Academic Honor Policy:
The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "...be honest and truthful and...[to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at http://fda.fsu.edu/Academics/Academic-Honor-Policy)

Academic Success:
Your academic success is a top priority for Florida State University. University resources to help you succeed include tutoring centers, computer labs, counseling and health services, and services for designated groups, such as veterans and students with disabilities. The following information is not exhaustive, so please check with your advisor or the Department of Student Support and Transitions to learn more.

Americans With Disabilities Act:
Florida State University (FSU) values diversity and inclusion; we are committed to a climate of mutual respect and full participation. Our goal is to create learning environments that are usable, equitable, inclusive, and welcoming. FSU is committed to providing reasonable accommodations for all persons with disabilities in a manner that is consistent with academic standards of the course while empowering the student to meet integral requirements of the course.
Students with disabilities needing academic accommodation should: (1) register with and provide documentation to the Office of Accessibility Services (OAS); and (2) request a letter from Office of Accessibility Services to be sent to the instructor indicating the need for accommodation and what type; and, (3) meet (in person, via phone, email, skype,

zoom, etc...) with each instructor to whom a letter of accommodation was sent to review approved accommodations. Please note that instructors are not allowed to provide classroom accommodations to a student until appropriate verification from the Office of Accessibility Services has been provided. This syllabus and other class materials are available in an alternative format upon request. For the latest version of this statement and more information about services available to FSU students with disabilities, contact the Office of Accessibility Services, 874 Traditions Way, 108 Student Services Building, Florida State University, Tallahassee, FL 32306-4167; (850) 644-9566 (voice); (850) 644-8504 (TDD), oas@fsu.edu, https://dsst.fsu.edu/oas/

Confidential campus resources:
Various centers and programs are available to assist students with navigating stressors that might impact academic success. These include the following:

Victim Advocate Program
University Center A,
Room 4100, (850) 644-7161, Available 24/7/365,
Office Hours: M-F 8-5
https://dsst.fsu.edu/vap

Counseling and Psychological Services (CAPS)
Florida State University's Counseling and Psychological Services (CAPS) primary mission is to address psychological needs and personal concerns, which may interfere with students' academic progress, social development, and emotional well-being. The following in-person and virtual (tele-mental health) services are available to all enrolled students residing in the state of Florida:

1. Individual therapy
2. Group therapy
3. Crisis Intervention
4. Psychoeducational and outreach programming
5. After hours crisis-hotline
6. Access to community providers for specialized treatment

Call 850-644-TALK (8255) for more information on how to initiate services.
Counseling & Psychological Services
250 Askew Student Life Building
942 Learning Way
Tallahassee, Florida 32306
Phone: 850-644-TALK (8255)
Walk-in and Appointment Hours:
M-F 8 am – 4 pm

Services at UHS are available to all enrolled students residing in Florida:

The mission of University Health Services (UHS) is to promote and improve the overall health and well-being of FSU students. UHS provides a coordinated continuum of care through prevention, intervention, and treatment. Services include general medical care, priority care, gynecological services, physicals, allergy injection clinic, immunizations, diagnostic imaging, physical therapy, and a medical response unit. The Center for Health Advocacy and Wellness (CHAW) assists students in their academic success through individual, group, and population-based health and wellness initiatives. Topics include wellness, alcohol and other drugs, hazing prevention, nutrition and body image, sexual health, and power based personal violence prevention. For more information, go to https://uhs.fsu.edu/

University Health Services
Health and Wellness Center
960 Learning Way
Tallahassee, Florida 32306
Hours: M-F, 8 am – 4 pm
Phone: 850-644-6230

Free Tutoring from FSU:

On-campus tutoring and writing assistance is available for many courses at Florida State University. For more information, visit the Academic Center for Excellence (ACE) Tutoring Services' comprehensive list of on-campus tutoring options at http://ace.fsu.edu/tutoring or contact tutor@fsu.edu. High-quality tutoring is available by appointment and on a walk-in basis. These services are offered by tutors trained to encourage the highest level of individual academic success while upholding personal academic integrity.

SYLLABUS CHANGE POLICY

Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.