

 FLORIDA ATLANTIC UNIVERSITY	NEW COURSE PROPOSAL Graduate Programs		UGPC Approval _____ UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner _____ Catalog _____	
	Department Electrical Engineering and Computer Science College Engineering and Computer Science (To obtain a course number, contact erudolph@fau.edu)			
Prefix CIS Number 5645	(L = Lab Course; C = Combined Lecture/Lab; add if appropriate) Lab Code	Type of Course Lecture	Course Title Introduction to Cloud Security	
Credits (See Definition of a Credit Hour) 3	Grading (Select One Option) Regular <input checked="" type="radio"/> Sat/UnSat <input type="radio"/>	Course Description (Syllabus must be attached; see Template and Guidelines) This course provides a ground-up coverage of the high level concepts of the cloud landscape, architectural principles, techniques, design patterns and real-world best practices applied to Cloud service providers and consumers and delivering secure Cloud based services. The course will describe the Cloud security architecture and explore the guiding security design principles, design patterns, industry standards, applied technologies and addressing regulatory compliance requirements critical to design, implement, deliver and manage secure cloud based services.		
Effective Date (TERM & YEAR) Fall 2024				
Prerequisites graduate standing <i>Prerequisites, Corequisites and Registration Controls are enforced for all sections of course.</i>		Academic Service Learning (ASL) course <input type="checkbox"/> Academic Service Learning statement must be indicated in syllabus and approval attached to this form.		
		Corequisites	Registration Controls (For example, Major, College, Level)	
Minimum qualifications needed to teach course: Member of the FAU graduate faculty and has a terminal degree in the subject area (or a closely related field).		List textbook information in syllabus or here		
Faculty Contact/Email/Phone Michael DeGiorgio / mdegior@fau.edu / 561-297		List/Attach comments from departments affected by new course		

Approved by Department Chair <u>Hani Kalva</u> College Curriculum Chair <u>Masoud Jahandar Lashaki</u> College Dean <u>M. Cardei</u> UGPC Chair _____ UGC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____	Date 3/11/2024 7/29/2024 7/29/2024 _____ _____ _____ _____ _____
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Email this form and syllabus to UGPC@fau.edu 10 days before the UGPC meeting.

CIS 5645 Introduction to Cloud Security

DAY X – X
3 credits

Semester, Year
Prof. XXXXX YYYYY
Office: XXXXX
Office hours: DAY X-X
Classroom: XXXX
Telephone: 561-297-XXXX
Email: zzzzz@fau.edu



TA name	xxxxxx xxxxxxxxx
Office	xxxxxx
Office hours	DAY xx:xx – xx:xx
Telephone	561-297-xxxx
Email	xxxxxx@fau.edu

Course Description

This course provides a ground-up coverage of the high level concepts of the cloud landscape, architectural principles, techniques, design patterns and real-world best practices applied to Cloud service providers and consumers and delivering secure Cloud based services. The course will describe the Cloud security architecture and explore the guiding security design principles, design patterns, industry standards, applied technologies and addressing regulatory compliance requirements critical to design, implement, deliver and manage secure cloud based services.

Instructional Method

In-Person. There is no remote option for this course.

Prerequisites

Graduate standing

Course Objectives/Student Learning Outcomes

Upon completion of this course the student will be able to:

- Fundamentals of cloud computing architectures
- Identify current known threats, risks, vulnerabilities and pricing issues associated with Cloud based IT services.
- Understand the concepts and guiding principles for designing and implementing appropriate safeguards and countermeasures for Cloud based IT services.
- Approaches to designing cloud services that meets essential Cloud infrastructure characteristics – on demand computing, shared resources, elasticity and measuring usage.
- Understand system administration essentials.

- Design security architectures that assure secure isolation of physical and logical infrastructures including compute, network and storage, comprehensive data protection at all layers, end-to-end identity and access management, monitoring and auditing processes and compliance with industry and regulatory mandates.
- Get a practical taste of what sysadmins do in industry.
- Understand the industry security standards, regulatory mandates, audit policies and compliance requirements for Cloud based infrastructures.

Course Evaluation Method

6 take-home assignments	10% each
2 in-class assignments	10% each
Class participation	20%
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Total	100%

Course Grading Scale

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

Policy on Makeup Tests, Late Work, and Incompletes

Late work will not be accepted. All assignments will be posted well in advance, and students may submit assignments early. Any assignment not turned in by the due date will result in a zero.

Incomplete grades are against the policy of the department, and they will only be assigned if there is solid evidence of medical or otherwise serious emergency situation.

Policy on the Recording of Lectures

Students enrolled in this course may record video or audio of class lectures for their own personal educational use. A class lecture is defined as a formal or methodical oral presentation as part of a university course intended to present information or teach students about a particular subject. Recording class activities other than class lectures, including but not limited to student presentations (whether individually or as part of a group), class discussion (except when incidental to and incorporated within a class lecture), labs, clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, and private conversations between students in the class or between a student and the lecturer, is

prohibited. Recordings may not be used as a substitute for class participation or class attendance and may not be published or shared without the written consent of the faculty member. Failure to adhere to these requirements may constitute a violation of the University's Student Code of Conduct and/or the Code of Academic Integrity.

Attendance Policy

Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance. Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

Counseling and Psychological Services (CAPS) Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to <http://www.fau.edu/counseling/>

Disability Policy

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

Code of Academic Integrity

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see [University Regulation 4.001](#).

Required Texts/Readings

Related papers and reading materials will be distributed over Canvas.

Course Topical Outline

Introduction

Fundamentals of Cloud Computing and Architectural Characteristics

Design and Architecture for Cloud Computing

Secure Isolation of Physical and Logical Infrastructure

Isolation, Attack vectors, Secure isolation Strategies

Infrastructure and Services

Enforcing Access Control for Cloud

Infrastructure based Services Monitoring, Auditing and Management

Introduction to Cloud design Patterns

Introduction to Identity Management in

Cloud Computing Policy, Compliance & Risk

Management in Cloud Computing