FLORIDA ATLANTIC UNIVERSITY

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	(*L = Lab Course; C = Combined Lecture/Lab; add if appropriate*) **Lab Code**	**Type of Course** Lecture ▼	**Course Title** Cryptocurrencies and Blockchain Technologies
Number 6735			

Credits (*Review Provost Memorandum*)

3

Effective Date (*TERM & YEAR*)

Grading (Select One Option)

Regular ◉

Sat/UnSat ○

Course Description (*Syllabus must be attached; see Guidelines*)

The course introduces technical aspects of blockchains, public distributed ledgers, and cryptocurrency systems. Students will also learn the concepts and tools for developing distributed and secure applications with public distributed ledgers.

Prerequisites

(Graduate standing or permission of the instructor) and programming skills

Prerequisites, Corequisites and Registration Controls are enforced for all sections of course.

Academic Service Learning (ASL) course ☐

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
″Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction″, Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller, and Steven Goldfeder, Princeton University Press, 2016. ISBN 978-691-17169-2.

Faculty Contact/Email/Phone
Dr. Hanqi Zhuang, zhuang@fau.edu
561.297.3413

List/Attach comments from departments affected by new course

ITOM

Approved by		**Date**
Department Chair	_____	1/26/2022
College Curriculum Chair	_____	01-26-2022
College Dean	_____	1/26/22
UGPC Chair	_____	_____
UGC Chair	_____	_____
Graduate College Dean	_____	_____
UFS President	_____	_____
Provost	_____	_____

Email this form and syllabus to UGPC@fau.edu 10 days before the UGPC meeting.

CIS 6735
Cryptocurrencies and Blockchain Technologies
Day/Time: TBD
3 credits

Semester: TBD
Instructor: TBD
Office: TBD
Office hours: TBD
Classroom: TBD
Telephone: 561-297-TBD
Email: TBD

TA name	TBD
Office	
Office hours	TBD
Telephone	561-297-TBD
Email	TBD

Course Description

The course introduces technical aspects of blockchains, public distributed ledgers, and cryptocurrency systems. Students will also learn the concepts and tools for developing distributed and secure applications with public distributed ledgers.

Instructional Method

In-Person

Prerequisites:

(Graduate standing or permission of the instructor) and programming skills

Student Learning Outcomes

Upon successful completion of this course the student should be able to:

1. Understand the fundamentals of blockchain and cryptocurrencies.
2. Understand purpose of each technical component of blockchain based cryptocurrencies.
3. Understand applicability of blockchain technology to real-world problems.
4. Adopt Blockchain technology for solving problems.

COVID-19 Statement

Due to the surge in COVID-19 cases and the omicron variant, all students regardless of vaccination status are expected to wear masks while indoors in any FAU facilities, including classrooms and laboratories. Students experiencing flu-like symptoms (fever, cough, shortness of breath) or students who have come in contact with confirmed positive cases of COVID-19 should immediately contact FAU Student Health Services (561-297-3512). Symptomatic students will be asked to leave the classroom to support the safety and protection of the university community. For additional information visit www.fau.edu/coronavirus. In classes with face-to-face components, quarantined students should notify me immediately as you will not be able to attend class. I will not be able to offer an online version of the class but will make reasonable efforts to assist students in making up the work. should notify me immediately as you

will not be able to attend class. I will

not be able to offer an online version

of the class but will make reasonable

Course Evaluation Method and Scale

Course Evaluation;
4 Homework Assignments (10% each) 40%
Exam   25 %
Programming Project   35%

Project: students will do a programming project on blockchains. As part of the deliverables, they will submit the source code, a written report and will have a class presentation.

Grading Scale:
93 and above: "A", 90-92: "A-", 87-89: "B+", 83-86: "B", 80-82 : "B-", 77-79: "C+", 73-76: "C", 70-72: "C-", 67-69: "D+", 63-66: "D", 60-62: "D-", 59 and below: "F."

Policy on Makeup Tests, Late Work, and Incompletes
Makeup tests are given only if there is solid evidence of a medical or otherwise serious emergency that prevented the student of participating in the exam. Makeup exams will be administered and proctored by department personnel unless there are other pre-approved arrangements

Late work is not accepted.

A grade of incomplete will be assigned only in the case of solid evidence of medical or otherwise serious emergency situation.

No extra work will be assigned to improve course grade.

Special Course Requirements
Students must be able to access the course material and submit the assignments and the project on Canvas. Submissions by email, hardcopy, or other means are not accepted.

Classroom Etiquette Policy
All materials will be posted on Canvas. Students should log in at least two times per week to make sure they are up to date with announcements, postings, and assignments.

Policy on the Recording of Lectures (optional)
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

 "Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction", Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller, and Steven Goldfeder, Princeton University Press, 2016. ISBN 978-691-17169-2.

Course Topical Outline

Weeks	Topics	
1	Trust and Introduction to Bitcoin: Trust Models, Financial Systems, Non-repudiation, Double Spending, Privacy and Decentralized Trust.	
2	Computer Networks fundamentals (5 Layer Model, Protocols, PDUs, SAPs and subnets and NAT. P2P Networks: Overlay networks and Gossip Protocol)	HW 1
3	Data Structures basics: Linked Lists, Stacks, Hash Tables.	
4, 5	Introduction to Cryptography, Security Services, and Digital Signatures.	HW2
6, 7	Data structures for Blockchains: Hash Pointers and Hypothetical Digital currencies.	HW3
8, 9	Distributed Ledger: Distributed Consensus and Proof of Work.	Project proposal
10	Discussion on Project Expectation and Delivery. Introduction to Bitcoin Scripts.	
11, 12	Bitcoin Scripts and Contracts. Bitcoin Mining, and Mining Pools.	HW 4
13	Alternative Mining Puzzles.	
14	Applications of Blockchains.	
15	Student Project Presentation	
16	Exam	

From: Tamara Dinev <tdinev@fau.edu>
Sent: Wednesday, January 26, 2022 11:50 AM
To: Hanqi Zhuang <zhuang@fau.edu>
Cc: Mihaela Cardei <mcardei@fau.edu>
Subject: RE: CIS 6735 Cryptocurrencies and Blockchain Technologies

Dear Hanqi

This is a great course, ITOM has no concerns.

Best Regards:
Tamara
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Tamara Dinev, Ph.D.,
Department Chair and Professor
Dean's Distinguished Research Fellow
Department of Information Technology and Operations Management, FL 219
College of Business
Florida Atlantic University
Boca Raton, Florida 33431
tel. (561) 297-3181, email: tdinev@fau.edu
Google Scholar:
https://scholar.google.com/citations?user=YH8QZ-YAAAAJ&hl=en

From: Hanqi Zhuang <zhuang@fau.edu>
Sent: Tuesday, January 25, 2022 2:48 PM
To: Tamara Dinev <tdinev@fau.edu>
Cc: Mihaela Cardei <mcardei@fau.edu>
Subject: CIS 6735 Cryptocurrencies and Blockchain Technologies

Hi Tamara,

Happy new year!

The EECS is proposal CIS 6735. Would you take a look and approve it? If you have any concerns, please let me know too.

Best,
Hanqi