USCMarshall
School of Business

FBE-599: Bitcoin and Digital Assets
Fall 2023, 3 units, 6:30 p.m., Tuesday, 8 weeks

Professor:	**Nik Bhatia**
Email:	**Nikhil.Bhatia@marshall.usc.edu**
Office Hours:	**please email anytime to set up a Zoom/in-person meeting**

Course Description

This course is a detailed study of bitcoin, the digital asset ecosystem, and the coming changes to our monetary system, thanks to the introduction of cryptocurrency, stablecoins, and central bank digital currencies (CBDCs). The course covers bitcoin's origins, technical components including public-key cryptography and mining, and its network. Differences between bitcoin and Ethereum are discussed, including frameworks for comparing various cryptocurrencies. The course will introduce valuation methodologies using data of bitcoin's blockchain and discuss the market value of bitcoin relative to the metrics. Finally, the course will cover the Federal Reserve's ongoing CBDC efforts and the role of stablecoins in our evolving financial system. The course will consistently challenge students to predict how our monetary and financial system will evolve due to digital assets.

Learning Objectives

Upon successful completion of this course, students will be able to:

1. Explain how bitcoin addresses existing problems in the current monetary and financial infrastructure.
2. Summarize the evolution of the international monetary system and describe our current dollar-based monetary system.
3. Explain bitcoin's technical components and network infrastructure.
4. Differentiate between various cryptocurrencies and compare key characteristics across various cryptocurrencies.
5. Identify established valuation metrics for bitcoin using on-chain data.
6. Explain Lightning Network, bitcoin's secondary layer of payments and scaling solution.
7. Describe how central bank digital currencies (CBDCs) and stablecoins are changing monetary policy and banking payment infrastructure.
8. Predict some aspects of the future's monetary system.

Required Materials

Each week will cover one required reading. Please complete each reading before class**, including the first week.**

Week 1	**Bitcoin: A Peer-to-Peer- Electronic Cash System** (Satoshi Nakamoto) – available on Blackboard **Bitcoin 101**: Bitcoin's History, Design, and Development (NYDIG report) – available on Blackboard
Week 2	**A Primer On Bitcoin Mining** (NYDIG report) – available on Blackboard
Week 3	**Layered Money**: From Gold and Dollars to Bitcoin and Central Bank Digital Currencies (Nik Bhatia) – available on Blackboard
Week 4	**Bitcoin First**: Why investors need to consider bitcoin separately from other digital assets (Fidelity report) – available on Blackboard **Insights From the 4th Largest Lightning Network Node** (River Financial report) – available on Blackboard
Week 5	**On-Chain Data**: A Framework to Evaluate Bitcoin, p. 1-17 (ARK Invest) – available on Blackboard **Valuing Bitcoin**: Modeling the price of bitcoin as a monetary asset through market forces (Fidelity) – available on Blackboard
Week 6	**Money and Payments**: The U.S. Dollar in the Age of Digital Transformation (Federal Reserve Board of Governors) – available on Blackboard
Week 7	Student Presentations
Week 8	Final Exam

Grading Detail

Assignments	Points	% of Grade
Class Participation + Homework	10	10%
Midterm	20	20%
Paper/Presentation (individual)	30	30%
Final Exam	40	40%
Total	100	100%

Final grades represent how you perform in the class relative to other students. The average grade for this class is expected to average about 3.5. Three items are considered when assigning final grades:

1. Your average weighted score as a percentage of the available points for all assignments (the points you receive divided by the number of points possible).
2. The overall average percentage score within the class.
3. Your ranking among all students in the class.

Class Participation

Class participation is an extremely important part of the learning experience in this course as the richness of the learning experience will be largely dependent upon the degree of preparation by *all* students prior to each class session. In-class participation grading will be based on students' demonstrated willingness to participate and the quality of the comments expressed, rather than quantity. While some students are far more comfortable than others with class participation, *all* students should try to contribute meaningfully. There will be one homework assignment that teaches students how to setup a bitcoin wallet.

Students will offer their opinions in group settings many times in their careers; thus, class participation serves to prepare students for this business experience. The evaluation of in-class participation is based on the following:

- *Relevance* – Does the comment or question meaningfully bear on the subject at hand? Irrelevant or inappropriate comments can detract from the learning experience.
- *Responsiveness* – Does the comment or question connect to what someone else has said?
- *Analysis* – Is the reasoning employed consistent and logical? Has data from course materials, personal experience, or general knowledge been employed to support the assertions/findings?
- *Value* – Does the contribution further the understanding of the issues at hand?
- *Clarity* – Is the comment concise and understandable?

During class sessions, I frequently assume the role of a facilitator to encourage a discussion that includes perspectives from a variety of viewpoints and, secondly, to help pull together prevailing analyses and recommendations. The direction and quality of a discussion is the *collective responsibility of the class*.

Excellent Performance
- Initiates information relative to topics discussed
- Accurately exhibits knowledge of assignment content
- Clarifies points that others may not understand
- Shares personal experiences or opinions related to topic
- Offers relevant / succinct input to class
- Actively participates in class exercises
- Demonstrates ability to apply, analyze, evaluate & synthesize course material.
- Demonstrates willingness to attempt to answer unpopular questions
- Builds on other students' contributions

Average Performance
- Participates in group discussions when asked
- Demonstrates knowledge of course material
- Offers clear, concise, "good" information on class assignments
- Offers input, but tends to reiterate the intuitive
- Attends class regularly

Unacceptable Performance
- Fails to participate even when directly asked
- Gives no input to discussions
- Does not demonstrate knowledge of the readings
- Shows up to class: does nothing
- Distracts group / class
- Irrelevant discussion

Paper and Presentation

Students are required to submit a position paper by Week 7 and will be asked to give a 5-minute presentation on their topic. The paper must be between 1,000 and 2,000 words. Please use standard MLA style formatting. Papers and presentations should be submitted to me via email prior to your presentation.

You may choose 1 of the following 3 topics to focus on:
1) A noteworthy period in monetary history and how it has influenced today's monetary system
2) Bitcoin valuation methodology
3) Future interactions between cryptocurrency, stablecoins, and CBDCs

A position paper presents an arguable opinion about an issue. The goal of a position paper is to convince the audience that your opinion is valid and worth listening to. Ideas that you are considering need to be carefully examined in choosing a topic, developing your argument, and organizing your paper. It is very important to ensure that you are addressing all sides of the issue and presenting it in a manner that is easy for your audience to understand. Your job is to take one side of the argument and persuade your audience that you have well-founded knowledge of the topic being presented. It is important to support your argument with evidence to ensure the validity of your claims, as well as to address the counterclaims to show that you are well informed about both sides.

Your presentation should be a 5-minute summary of your position with visual aids, such as a PowerPoint. The paper is worth 20 points, and the presentation is worth 10 points.

Course Calendar

Week	Topics/Daily Activities	Readings and Homework	Deliverables/Due Dates
Week 1	Introduction to bitcoin and paper guidelines	Bitcoin: A Peer-Peer Electronic Cash System, Bitcoin 101 (NYDIG)	Read before class
Week 2	Bitcoin mechanics and network infrastructure	A Primer On Bitcoin Mining	Read before class
Week 3	Monetary history and modern financial system	Layered Money (Bhatia)	Read before class, homework due
Week 4	Midterm (week 1-3); Cryptocurrencies	Bitcoin First (Fidelity), Insights From the 4th Largest Lightning Network Node (River Financial)	**Midterm**, read before class
Week 5	Valuation	On-Chain Data (ARK) Valuing Bitcoin (Fidelity)	Read before class

Week 6	Central bank digital currencies (CBDCs) and stablecoins	Money and Payments (Federal Reserve)	Read before class
Week 7	Student presentations of their paper topics	Student presentations	Paper due, presentations in class
Week 8	Review and Final Exam	NA	**Final Exam*** The final exam will be taken in-class and is closed-book and closed-notes. More information will be provided prior to the exam. There will not be a make-up exam.

* The date/time of the Final Exam is determined by the University. For the date and time of the final for this class, consult the USC Schedule of Classes at www.usc.edu/soc. Select the corresponding semester to view and click on the "Final Examinations Schedule" link on the left side of the screen.

ADDITIONAL INFORMATION

The Importance of Course Evaluations

The student course evaluations are valuable. This course is continuously improved, based on feedback from students and instructor observations.

Add/Drop Process

Most Marshall classes are open enrollment (R-clearance) through the Add deadline. If there is an open seat, you can add the class using Web Registration. If the class is full, you will need to continue checking Web Registration or the *Schedule of Classes* (classes.usc.edu) to see if a space becomes available. Students who do not attend the first two class sessions (for classes that meet twice per week) or the first class meeting (for classes that meet once per week) may be dropped from the course. There are no formal wait lists for Marshall undergraduate courses, and professors cannot add students or increase the course capacity. If all sections of the course are full, you can add your name to an interest list by contacting the Office of Undergraduate Advising & Student Affairs; if new seats or sections are added, students on the interest list will be notified.

Please review the USC Schedule of Classes Registration Calendar for information on the last day to add the class or withdraw without receiving a "W" (and receive a refund) is TBD and the last day to drop with a mark of a "W" (no refund).

If you are absent TBD or more times prior to TBD (the last day to withdraw from a course with a grade of "W"), I may ask you to withdraw from the class by that date.

Technology Policy

Laptop and Internet usage is not permitted during academic or professional sessions unless otherwise stated by the respective professor and/or staff. Use of other personal communication devices during academic or professional sessions is considered unprofessional and is not permitted. ANY e-devices (cell phones, iPads, other texting devices, laptops, I-pods) must be completely turned off during class time. Upon request, you must comply and put your device on the table in off mode and FACE DOWN. You might also be asked to deposit your devices in a designated area in the classroom. Videotaping faculty lectures is not permitted due to copyright infringement regulations. Audiotaping may be permitted if approved by the professor. Use of any recorded or distributed material is reserved exclusively for the USC students registered in this class. Exceptions to this policy may be granted to individual students with appropriate documentation on a case-by-case basis.

Use of Recordings

Pursuant to the USC Student Handbook (www.usc.edu/scampus, Part B, 11.12), students may not record a university class without the express permission of the instructor and announcement to the class. In addition, students may not distribute or use notes or recordings based on University classes or lectures without the express permission of the instructor for purposes other than personal or class-related group study by individuals registered for the class. This restriction on unauthorized use applies to all information that is distributed or displayed for use in relationship to the class.

USC Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, "Behavior Violating University Standards" policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on Research and Scholarship Misconduct.

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can

be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
studenthealth.usc.edu/counseling
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org
Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press "0" after hours – 24/7 on call
studenthealth.usc.edu/sexual-assault
Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office for Equity, Equal Opportunity, and Title IX (EEO-TIX) - (213) 740-5086
eeotix.usc.edu
Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
usc-advocate.symplicity.com/care_report
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

The Office of Student Accessibility Services (OSAS) - (213) 740-0776
osas.usc.edu
OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.
USC Campus Support and Intervention - (213) 821-4710
campussupport.usc.edu
Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity, Equity and Inclusion - (213) 740-2101
diversity.usc.edu
Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call
dps.usc.edu, emergency.usc.edu
Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call
dps.usc.edu
Non-emergency assistance or information.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)
ombuds.usc.edu
A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

*Occupational Therapy Faculty Practice - (323) 442-33*40 or otfp@med.usc.edu
chan.usc.edu/otfp
Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.

Emergency Preparedness/Course Continuity

In case of a declared emergency if travel to campus is not feasible, the *USC Emergency Information* web site (http://emergency.usc.edu/) will provide safety and other information, including electronic means by which instructors will conduct class using a combination of USC's Blackboard learning management system (blackboard.usc.edu), teleconferencing, and other technologies.