# USC Viterbi
School of Engineering

**ISE 599 Special Topics: Introduction to Blockchain Systems**
**Units:** 4
**Term—Day—Time:** [Summer 2024] — [TBA]
**Location:** TBA

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## Catalogue Description
The primary objective of the course is to provide students with a comprehensive understanding of various financial and technological concepts, enabling them to navigate the dynamic landscape of cryptocurrencies and financial markets effectively.

## Course Description
This course provides a multifaceted exploration of finance, technology, and market dynamics, covering topics such as supply and demand, inflation, and stocks. It delves into the intricacies of cryptography, blockchain technology, and the motivations behind its adoption. Students will examine mining processes, decentralization, and the functionalities of Ethereum, including smart contract creation. The curriculum also addresses the diverse landscape of alternative cryptocurrencies, distinguishing between serious projects and speculative tokens. Market psychology, technical analysis, and trading strategies are thoroughly explored, with a focus on understanding Wyckoff theory and navigating bull and bear markets. The course encompasses practical skills in trading, the significance of NFTs, and the application of Fibonacci tools in technical analysis.

## Learning Objectives
Course Learning Objectives:
**Module 1: Supply and Demand, Inflation, and Stocks**
- Understand the fundamental principles of supply and demand in economic contexts.
- Analyze the impact of inflation on financial markets and investment strategies.
- Gain insight into stock market dynamics, including key concepts like stock valuation and market trends.

**Module 2: Cryptography**
- Develop a foundational understanding of cryptography and its applications in securing digital transactions.

- Explore the principles behind cryptographic algorithms and protocols.

**Module 3: Why Blockchain?**
- Examine the motivations behind the development and adoption of blockchain technology.
- Evaluate the advantages and challenges associated with blockchain implementation.

**Module 4: Mining, Proof of Work, and Decentralization**
- Understand the mining process and its role in securing blockchain networks.
- Explore the concept of proof of work and its significance in decentralized systems.

**Module 5: Ethereum and Smart Contracts**
- Analyze the features and functionalities of the Ethereum blockchain.
- Gain proficiency in understanding and creating smart contracts.

**Module 6: Altcoins, Memecoins, and Sh*tcoins**
- Explore various alternative cryptocurrencies and their unique attributes.
- Differentiate between serious altcoins, meme coins, and less reputable projects.

**Module 7: Market Psychology**
- Understand the psychological factors influencing market participants and trading decisions.
- Analyze market sentiment and its impact on asset prices.

**Module 8: Technical Analysis**
- Develop skills in technical analysis, including chart pattern recognition and trend analysis.
- Apply technical indicators to make informed trading decisions.

**Module 9: Wyckoff Theory**
- Gain an in-depth understanding of Wyckoff theory and its application in market analysis.
- Learn to identify and interpret Wyckoff accumulation and distribution patterns.

**Module 10: Bull and Bear Markets**
- Differentiate between bull and bear markets and understand the factors influencing each.
- Develop strategies for navigating and capitalizing on market trends.

**Module 11: Trading**
- Develop practical trading skills, including order execution and risk management.
- Explore various trading strategies and their applications in different market conditions.

**Module 12: NFTs (Non-Fungible Tokens)**
- Understand the concept of non-fungible tokens and their role in the digital asset space.
- Explore the market for NFTs and their implications for creators and collectors.

**Module 13: Fibonacci Tools**
- Learn to apply Fibonacci retracement and extension tools for technical analysis.
- Understand how Fibonacci levels can be used to identify potential support and resistance levels.

**Module 14: Other Terminologies and Tools**
- Familiarize yourself with additional terminologies and tools commonly used in the cryptocurrency and financial markets.
- Explore advanced tools that enhance trading and investment strategies.

**Prerequisite(s): None**
**Co-Requisite(s): None**
**Concurrent Enrollment: None**
**Recommended Preparation:** None.

**Course Notes**
The Course Material will be available on blackboard.

**Technological Proficiency and Hardware/Software Required**
TradingView will be used online.

**Required Readings and Supplementary Materials**
None.

**Optional Readings and Supplementary Materials**

**Textbook**
- D. Boneh and V. Shoup, "A Graduate Course in Applied Cryptography", available online at https://crypto.stanford.edu/~dabo/cryptobook/BonehShoup_0_4.pdf.

- The Holy Grail of Investing: The World's Greatest Investors Reveal Their Ultimate Strategies for Financial Freedom (Tony Robbins Financial Freedom Series) February 13, 2024 by Tony Robbins and Christopher Zook

**Description of Assignments and How They Will Be Assessed:**

**Virtual Trading Competition:**
Each student will start with 1000$ in virtual money at the beginning of the semester. They will then apply what they are learning throughout the semester in order to make successful trades and increase their portfolio. Students with the highest amount of money at the end of the semester will get the highest grades on this assignment.

**Daily Journal:**
There will be no homework given in this class! But each student will be required to have a journal where they will be writing the daily information they got from the market. It could things they learnt from the class or research they made or anything they noticed that affected the prices. Remember: we are at an election year.

**Midterm and Final (might remove final)**: Mutliple Choice Questions that tackle what we learnt in class. There will be no problems to solve.

**Project Timeline:**
- Week 4:  Identifying team members and project topics
- Week 11: Project presentation

The project will involve picking a cryptocurrency and giving a review to the class using what we learnt in class. Groups of 1 or 2 (depending how big the class).

**Participation**

When students enroll in this course, they are expected to actively participate in class discussions and make a commitment to attend regularly. Simply attending class is not enough; students are encouraged to contribute to the learning environment by asking relevant questions and engaging in discussions. While attendance policies do not provide rewards for attending class, they may impose penalties for non-attendance. Being late or missing class due to working on assignments is not an acceptable excuse. Students must arrive on time and fully prepared to participate in each class meeting.

While there may be legitimate reasons for a student to miss class, excessive absences can hinder their ability to fulfill the requirements of the course. In such cases, the instructor may recommend that the student withdraw from the course, not as a punishment for missing class, but as an acknowledgment that the student may not be able to complete the course assignments due to their frequent absences.

Note: The instructor might ask the students to watch a video or read an article as a preparation for a certain class. While such an assignment will not be graded, not proceeding with it will lead to your inability to participate in the class discussion associated with it.

**Two Networking assignments:**

Networking is a very important part of being a professional. The best place to network and meet other professionals is the classroom itself. Unfortunately, many students take classes where they barely – or even do not – meet anyone. These assignments will help you combat such an inconvenience. Throughout the semester, each student will be required to participate in two networking meetings with their classmates (groups of 5 to 10). Each group will agree unanimously on a time and place where they will be meeting and just socializing. The duration should be at least one hour. A group picture must be taken. Each student will therefore send the group picture as evidence, and they will mention who was in the meeting and what did they do. More details on the deadlines and specificities will be mentioned in class. Groups have to be different for each of the two assignments.

**Grading Breakdown**

The following percentage breakdown will be used in determining the grade for the course.

| | |
|---|---|
| Journal | 15% |
| Virtual Trading Competition | 15% |
| Networking Assignments | 5% |
| Participation | 10% |
| Midterm exam | 20% |
| Project | 15% |
| Final Exam  (might remove it) | 20% |
| **Total** | **100%** |

**Grading Scale**

The following shows the tentative grading scale to be used to determine the letter grade.

| | |
|---|---|
| 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+ |
| 64% - 66% | D |
| 63% and below | F |

The instructor reserves the right to change grading percentages and scale the way they deem fit/necessary.

**Policies**

## Assignment Submission Policy

All material is expected to be turned in on time and in the proper format. Assignments will be penalized for grammatical mistakes, spelling errors, format mistakes, and typos. Please proof your assignment prior to submission.

## Course-Specific Policies

Students might need to use their computer for some of the classes.

## Attendance

Students who miss class are expected to get in touch with their peers to keep up with the material they missed.

## Academic Integrity

Unless otherwise noted, this course will follow the expectations for academic integrity as stated in the USC Student Handbook. The general USC guidelines on Academic Integrity and Course Content Distribution are provided in the subsequent "Statement on Academic Conduct and Support Systems" section.

- Group work: Unless specifically designated as a 'group project,' all assignments are expected to be completed individually.
- Computer programs: Plagiarism includes the submission of code written by, or otherwise obtained from someone else.

If found responsible for an academic violation (like plagiarism), students may be assigned university outcomes, such as suspension or expulsion from the university, and grade penalties, such as an "F" grade on the assignment, exam, and/or in the course.]

Please ask the instructor [and/or TA(s)] if you are unsure about what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

You may not record this class without the express permission of the instructor and all other students in the class. Distribution of any notes, recordings, exams, or other materials from a university class or lectures — other than for individual or class group study — is prohibited without the express permission of the instructor.

*Use of Generative AI in this Course*

[Description of if/how Generative AI and similar tools may be used in this course.]

**The use of Generative AI is encouraged to help contribute to your decisions in the virtual trading competition.**

|  | Topics/Daily Activities | Deliverables |
|---|---|---|
| Week 1 | **Introduction** | |
| | **Supply and Demand, inflation and stocks** | |
| | **Cryptography** | |
| | **Why blockchain?** | |
| Week 2 | **Mining, proof of work and decentralization** | |
| | **Ethereum and smart contracts** | |
| | **Altcoins, Memecoins and Sh\*tcoins** | |
| Week 3 | **Market Psychology** | |
| | **Wyckoff Theory** | |
| Week 4 | **Technical Analysis** | Project Teams and Decisions on topics |
| | **Technical Analysis** | |
| Week 5 | **Bear Market** | |
| | **Bull Market** | |
| Week 6 | **Review - Midterm** | |
| Week 7 | **Trading** | |
| Week 8 | **NFTs** | |
| Week 9 | **Fibonacci Tools** | |
| Week 10 | **Other Terminologies and Tools** | |
| Week 11 | **Project Presentations** | Project Slides |
| Week 12 | **Review and Results of Virtual Trading Competition** | |

**Final EXAM – as according to the final exam schedule, might do it last week instead if everyone agrees**

## Statement on Academic Conduct and Support Systems

**Academic Integrity:**
The University of Southern California is a learning community committed to developing successful scholars and researchers dedicated to the pursuit of knowledge and the dissemination of ideas. Academic misconduct, which includes any act of dishonesty in the production or submission of academic work, comprises the integrity of the person who commits the act and can impugn the perceived integrity of the entire university community. It stands in opposition to the university's mission to research, educate, and contribute productively to our community and the world.

All students are expected to submit assignments that represent their own original work, and that have been prepared specifically for the course or section for which they have been submitted. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s).

Other violations of academic integrity include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), collusion, knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university. All incidences of academic misconduct will be reported to the Office of Academic Integrity and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see the student handbook or the Office of Academic Integrity's website, and university policies on Research and Scholarship Misconduct.

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

### Course Content Distribution and Synchronous Session Recordings Policies
USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment.

Recording a university class without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Student Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion in the future, and thus infringe on the academic freedom of other students as well as the instructor. (Living our Unifying Values: The USC Student Handbook, page 13).

Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study. This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which had been distributed to students or in any way had been displayed for use in relationship to the class, whether obtained in class, via email, on the internet, or via any other media. (Living our Unifying Values: The USC Student Handbook, page 13).

### 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*
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

*988 Suicide and Crisis Lifeline* - *988 for both calls and text messages – 24/7 on call*
The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

*Relationship and Sexual Violence Prevention Services (RSVP)* - *(213) 740-9355(WELL) – 24/7 on call*
Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

*Office for Equity, Equal Opportunity, and Title IX (EEO-TIX)* - *(213) 740-5086*
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*
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 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) 740-0411*
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*
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*
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) 442-1200 – 24/7 on call*
Non-emergency assistance or information.

*Office of the Ombuds* - *(213) 821-9556 (UPC) / (323-442-0382 (HSC)*
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) 442-2850 or* otfp@med.usc.edu
Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.