Introduction to Blockchain

INF 385T (28395) – Spring 2021
Friday 12pm-3pm

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Office hours: by appointment

Course Overview

This class will provide an overview of the concept, technology, and impacts of blockchain. Distributed ledger technologies (DLT), including blockchains, have become an enormous field of interest since the introduction of Bitcoin, the world's first operational blockchain, in 2009. Since then, blockchains have been described as everything from a game changer for society to overblown hype to a financial bubble. As with most technological innovations, the truth probably lies somewhere in between. To understand what blockchains may mean for us, we must explore them from different perspectives and levels of analysis, not just the focus on engineering that often dominates today's blockchain discussions.

The course will be multi-level, multidisciplinary, and critical, with a focus towards giving students a basic understanding of how blockchains work, where they are used, their limitations, and how they affect organizations and society now and in the future. There is a lot of hype and ambiguity about blockchain. Our objective is to cut through some of this confusion and help students understand what blockchains are really about so that they can make informed analyses and decisions regarding its use.

Audience and Objectives

This course is intended to be multidisciplinary and accessible to students from different backgrounds. A primary objective of the course is to enable and encourage students from any discipline to understand and imagine ways they may engage with blockchain technologies in the context of their existing skills and knowledge. To that end:

- This course will not focus on teaching blockchain engineering and programming, although these will be discussed in detail
- This course does **not** require a technical background but will include technical labs and exercises, so less technically proficient students should be open to exploring new skills
- The same holds true for those students who are highly technical - be ready to dive into issues of business, compliance, sociology, and philosophy
- This course will think critically about blockchain as a topic, which means we will not simply accept claims and promises, positive or negative, without evidence and analysis.

Course Design

The course is divided into two phases (along with course introductions and conclusions). The first half of the semester will cover the fundamentals of blockchain concepts and technologies:

1. **Blockchain Basics and Origins**
2. **Cryptocurrencies, Finance, and Economics**
3. **Platforms, dapps, Web3**
4. **Blockchain Applications and Use Cases**
5. **Law, Governance, and Society**

The second half of the semester will leverage these fundamentals into five project tracks, with each student (individually or as part of a group) pursuing their own research projects within a track of their choice. This "track" structure allows students to pursue their own specialized interests around blockchain, at whatever technical depth they are comfortable with.

Assignments and Class Participation

Assignments will include the following:

- Assigned readings
- Class participation during meetings, touchpoints, and presentations
- Reading question responses
- Labs and practical exercises
- Track research updates, final projects, and presentations

Specific assignments will be discussed the first day of class and throughout the semester.

Attendance and active class participation are mandatory. Given that the class only meets once a week, it is critical that you attend each scheduled class session. If you must miss a class you must let me know well ahead of time and arrange with one of your colleagues to take notes for you or cover any assignments due. Unexcused absences will incur a penalty of 5% of your final grade (cumulative, per absence).

COVID Requirements for In-Person Class Sessions

This course is considered a hybrid course, which means that we may meet both virtually and in-person over the course of the semester. That being said, safety and the health of both you and me are my primary consideration. Given the continuing uncertainty surrounding the pandemic, I reserve the right to be flexible about which, if any, of our class sessions meet in person. ***In any event, no student will be required to attend any in-person session if they do not feel comfortable doing so.***

We will work together as a classroom community to develop the best cadence for remote versus in-person class sessions. If and when we do meet together physically, the University has mandated a number of requirements and guidelines that we will adhere to and which follow.

Safety and Class Participation/Masks: We will all need to make some adjustments in order to benefit from in-person classroom interactions in a safe and healthy manner. Our best protections against spreading COVID-19 on campus are masks (defined as cloth face coverings) and staying home if you are showing symptoms. Therefore, for the benefit of everyone, this is means that all students are required to follow these important rules.

- **Every student must wear a cloth face-covering properly in class and in all campus buildings at all times.** The mask must be properly fitted and worn at all times. The mask may not include a valve, holes, or other modifications that negate the protective qualities of the covering. If a student is not wearing a mask, they must leave the classroom and building. If a student refuses to wear a mask, class will be canceled for the remainder of the period and the student will be reported and subject to disciplinary action as set forth in the university's Institutional Rules/General Conduct 11-404(a)(3).

- **Students are encouraged to participate in documented daily symptom screening.** For the safety of our community, every student is strongly encouraged to do daily symptom screening, which is available using the Protect Texas Together app. Once the symptom screening is completed, it will inform students whether they are cleared to come to campus. Students should only come to campus if the symptom screening app clears them to do so. Otherwise, students should isolate and contact a medical professional for further guidance before coming to campus again.

- Information regarding safety protocols with and without symptoms can be found here.

If a student is not wearing a cloth face-covering properly in the classroom (or any UT building), that student must leave the classroom (and building). If the student refuses to wear a cloth face covering, class will be dismissed for the remainder of the period, and the student will be subject to disciplinary action as set forth in the university's Institutional Rules/General Conduct 11-404(a)(3). Students who have a condition that precludes the wearing of a cloth face covering must follow the procedures for obtaining an accommodation working with Services for Students with Disabilities.

COVID Caveats: To help keep everyone at UT and in our community safe, it is critical that students report COVID-19 symptoms and testing, regardless of test results, to University Health Services, and faculty and staff report to the HealthPoint Occupational Health Program (OHP) as soon as possible. Please see this link to understand what needs to be reported. In addition, to help understand what to do if a fellow student in the class (or the instructor or TA) tests positive for COVID, see this University Health Services link.

Grading

Grading will be based on the following (percentage indicates total weight):

- Participation and Readings - 25%
- Reading Question Responses - 25%
- Labs/exercises - 25%
- Track Project - 25%

Per University policy, the grading scale for this class is A, A-, B+, B, B-, C+, C, C-, D+, D, D-, and F.

Required Texts

While there are a number of excellent texts on blockchain technology, the field remains very broad and there are few generalist textbooks that are suitable for a class like this. Those that do exist are often expensive collections of basic content that is easily found online. For this reason, there is no required textbook for this course. Instead, class readings will be drawn from an extensive list of curated online resources, book chapters, and journal articles.

Policy on Scholastic Dishonesty

Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced. For further information please view the University catalog: http://catalog.utexas.edu/general-information/the-university/#universitycodeofconduct

Students with Disabilities

Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 471-6259.

Course Calendar:

Class	Topics & Activities	Assignments
1 - 1/22	**Course Introduction**	• Review *Syllabus* • Introductions • Discuss class goals & outcomes • Class structure & schedule • **Due: Learning Journal – Plan**
2- 1/29	**Blockchain Basics & Origins**	• *Canvas Readings*
3 - 2/5	**Cryptocurrencies, Finance, & Economics**	• *Canvas Readings* • **Due: Learning Journal Entry**
4 - 2/12	**Platforms, dapps, Web3**	• *Canvas Readings*

5 - 2/19	**Blockchain Applications & Use Cases**	• *Canvas Readings* • **Due: Learning Journal Entry**
6 - 2/26	**Law, Governance, & Society**	• *Canvas Readings*
7 - 3/5	**Tracks: Introduction**	• **Blockchain Learning Lab** (in-class workshop) • **Due: Learning Journal Entry**
8 - 3/12	**Tracks: Project Presentations**	• **Due: Learning Lab Writeup** • **Due: Project Topic Presentations**
9 - 3/19	***SPRING BREAK***	
10 - 3/26	**Track Work**	• Touchpoint Meeting • **Due: Project Journal Entry**
11 - 4/2	**Track Work**	
12 - 4/9	**Track Work**	• Touchpoint Meeting • **Due: Project Journal Entry**
13 - 4/16	**Track Work**	
14 - 4/23	**Track Work**	• Touchpoint Meeting • **Due: Project Journal Entry**
15 - 4/30	**Track Presentations**	• **Due: Final Track Report**
16 - 5/7	**Track Presentations**	• Student feedback • Fond goodbyes!