Blockchain Uses and Applications

INF 385T (27260) – Fall 2019
Friday 12pm-3pm

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Office hours: by appointment

Course Overview

This class will explore the various uses and applications of distributed ledger technologies (DLT), also known as blockchains. DLTs have become an enormous field of interest since the introduction of Bitcoin, the world's first operational blockchain, in 2009. Since then, blockchains have and continue to be touted as everything from a fundamental disruptor of current society to overblown hype and a speculative financial bubble. After Bitcoin and other cryptocurrencies experienced spectacular growth at the end of 2017, only to crash just as spectacularly into what was sometimes called the "crypto winter," the price of a single bitcoin has once again risen in 2019. This has prompted many pundits to declare that it, and DLT as a whole, are entering the mainstream. We shall see.

This course will be multi-level, multidisciplinary, and critical, with a focus towards giving students an opportunity to explore a burgeoning technology innovation in the middle of its early adoption. The objective of the class is not to take a formal position on blockchain, but rather to open it up to a number of perspectives that can help us shed light on what it means, where it's been, and where it may go. While doing so, we will pursue a more detailed and nuanced understanding of how the underlying technologies work.

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:

● The course will not focus on teaching blockchain engineering and programming, although these will be discussed in detail;
● The course assumes a basic understanding of what blockchain technologies are and how they work - we will review these, but the main focus is on uses and applications;
● The course assumes that non-technical students are willing and able to dive into and explore a very technical topic, even if they may not understand everything;

- Similarly, the course assumes students who are highly technical are ready and willing to explore 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 and Content Design

DLT and blockchain technologies are varied and complex, with potential use cases across a variety of industries, disciplines, and applications. Add to this the fact that these technologies are being created and dynamically evolving in real time and you have a subject that defies an overly structured curriculum.

We will attack this challenge head on by staying agile and open in our approach. The course will have three primary tracks:

1. **Assigned readings and in-class discussions**
2. **Student-led discussions on specific topics**
3. **DLT/blockchain case studies**

These three tracks will be complemented, where possible, with guest lecturers and speakers based upon their availability.

Assigned Readings and In-Class Discussion
We will read and analyze several current texts dealing with DLT and blockchain technologies and their uses within, and impacts upon, society. These readings will include books, papers and research reports, and online materials.

Peer-Led Discussions
In order to allow you maximum flexibility in exploring blockchain topics you may be interested in, students will be given the opportunity to pick specialized areas of interest around DLT and blockchain. You will create your own discussion plans for these topics and bring them into class sessions you will lead and moderate with me and your peers.

DLT and Blockchain Use Case Studies
We will be undertaking several formal research case studies on individual blockchain projects over the course of the semester. We will discuss these projects in detail in class.

Attendance and Class Participation

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).

Grading

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

- Participation and Readings - 25%
- Student-led Discussions - 35%
- Use Case Studies - 40%

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

Blockchain technology is interesting. It is so new that there are few comprehensive textbooks, and yet the technology has received so much attention that there are dozens of books and far more online resources available about it. The following texts are required and will be complemented by additional readings posted to Canvas.

Casey, M., & Vigna, P. (2018). *The truth machine: The blockchain and the future of everything*. New York: St. Martin's Press.

de Filippi, P., & Wright, A. (2018). *Blockchain and the law: The rule of code*. Cambridge, MA: Harvard University Press.

Tapscott, D., & Tapscott, A. (2018). *Blockchain revolution: How the technology behind Bitcoin and other cryptocurrencies is changing the world* (Updated Edition). New York: Portfolio / Penguin.

Werbach, K. (2018). *The blockchain and the new architecture of trust*. Cambridge, MA: MIT Press.

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 Covered & Activities	Activities, Readings, & Assignments
1 - 8/30	**Course Introduction** **Readings & Assignments**	● Review *Course Syllabus* ● Introduce everyone ● Discuss class goals
2- 9/6		● DLT Overview
3 - 9/13		● Discuss *Tapscott & Tapscott* ● Peer-led Discussions
4 - 9/20		● Discuss *Tapscott & Tapscott* ● Peer-led Discussions
5 - 9/27		● **Case Study #1 Due**
6 - 10/4		● Discuss *Casey & Vigna* ● Peer-led Discussions
7 - 10/11		● Discuss *Casey & Vigna* ● Peer-led Discussions
8 - 10/18		● **Case Study #2 Due**
9 - 10/25		● Discuss *Werbach* ● Peer-led Discussions
10 - 11/1		● Discuss *Werbach* ● Peer-led Discussions
11 - 11/8		● **Case Study #3 Due**
12 - 11/15		● Discuss *De Filippi & Wright* ● Peer-led Discussions
13 - 11/22		● Discuss *De Filippi & Wright* ● Peer-led Discussions
14 - 11/29	**NO CLASS - Happy Thanksgiving!**	
15 - 12/6	**Last Class - Close things out!**	