Digital Currency, Blockchains, 
and the Future of the Financial Services Industry

Profs. Geoffrey Miller, Max Raskin, and David Yermack
NYU Law School LAW-LW.12371
NYU Stern School FINC-GB.3324

KMC 1-70, 44 West 4th Street
Mondays & Wednesdays, 10:30 – 11:50
Spring 2020

Course overview
Recently Bloomberg summarized a new research report issued by McKinsey & Co:

Firing people won’t be enough to save the world’s biggest banks from technological and regulatory changes that have reshaped the industry - whole businesses must go, according to McKinsey & Co. Almost every bank will have to quash aspirations to be all things to all customers . . . Only three to five global full-service banks will survive, McKinsey said.

This course covers digital currencies, blockchains, and related topics in the FinTech area, perhaps the most significant innovation in the financial world since the advent of double-entry bookkeeping centuries ago. The technology appears to represent an existential challenge for major parts of the finance industry. It is now commonly suggested by experts such as McKinsey that commercial banks and stock exchanges may no longer exist, or may become much smaller, within the next 10 to 20 years, with increasing volumes of payments and exchange taking place on a peer to peer basis.

We will begin with a study of the nature of money and legacy payment and banking systems. We will then study the emergence of stateless, cloud-based digital currency systems since 2009. Further lectures will explore threats that blockchain technology poses to incumbent firms and their resulting attempts to co-opt the technology into existing business models. We survey related issues including hacking, “smart contracts,” governance, and emerging regulation.

Learning Outcomes: The goal of this course is to equip the students to better understand the law and business of blockchain technology, both in its initial application in the digital currency Bitcoin, as well as in the applications currently being explored for a wide variety of uses and functions. The course is also intended to create a bridge between law students and business students that will enhance the quality of their communications after they enter into their careers.
**Course organization**
The course meets twice a week for lectures, Mondays and Wednesdays from 10:30–11:50. The course will feature a number of guest speakers from industry and government.

We will meet on class days that overlap the academic calendars of both schools, which are offset by two weeks during the Spring 2020 semester. Therefore, the first class meeting will be Monday, February 3, and the final class meeting will be Wednesday, May 6. **We will also hold class on Thursday, February 20, which is a “legislative Monday” at the Law School, and that class will take place in room KMC 2-70.**

All class meetings will be recorded for later viewing. Links to recordings will be posted on the NYU Classes website. Law School students will need to activate their Stern login credentials to access these videos. The activation can be done at [http://start.stern.nyu.edu](http://start.stern.nyu.edu).

**Readings**
Many readings for the course will be posted in .pdf or .ppt format on NYU Classes, or will be available through Internet links included in the syllabus below. The syllabus may be updated several times during the semester to reflect the availability of new readings or guest speakers.

We will also use three textbooks:


- Narayanan et al., *Bitcoin and Cryptocurrency Technologies* (2016). This book, a companion to Princeton University’s Coursera open on-line course in digital currency, is available for purchase, but a full pre-publication draft can be downloaded at no cost.

Note that due to the fast-changing nature of the subject matter, material in all of these books may already appear to be out of date.

Students are encouraged to stay current on the topic by following recent developments. For daily breaking FinTech news, the authoritative source is the website [Coindesk](https://coindesk.com).

A succinct, non-technical and highly readable introduction to the field is Malekan, *The Story of the Blockchain* (2018).
Evaluation
Evaluation will be based on student papers or projects that will be due during the May exam period.

Lecture topics
An approximate list of the course’s lecture topics appears below. We may deviate from this schedule based upon factors including the pace of individual lectures and the availability of guest speakers. Additional readings may be supplied by guest speakers and posted on NYU Classes when they become available.

Monday, February 3 GM/MR/DY Introductory class
  • The Economist, 2015, “The Great Chain of Being Sure About Things.”

Wednesday, February 5 GM Payment systems
  • Narayanan et al, Preface pp 3-22.
  • Carnell, Macey & Miller (50-56; 65-78)

Monday, February 10 GM The nature of money
  • Carnell, Macey & Miller (19-21; 31-40; 199-204)

Wednesday, February 12 GM Bank created money
  • Carnell, Macey & Miller (238-249; 260-267)

Wednesday, February 19 GM Stablecoins
  • Carnell, Macey & Miller (204-238)
  • Libra Association, An Introduction to Libra
  • Visa Exits Facebook’s Libra Cryptocurrency Group
  • Testimony of Mark Zuckerberg
  • Financial Stability Board: Memo to G20 Finance Ministers and Central Bank Governors
  • Maxine Waters Statement on Facebook’s Cryptocurrency Announcement
Thursday, February 20   DY   The road to Bitcoin

- Burniske & Tatar, Ch. 1-3.

**Optional:** For a possible narrative of the mysterious circumstances surrounding the creation of Bitcoin, visit [http://vu.hn/bitcoin%20origins.html](http://vu.hn/bitcoin%20origins.html) and see the discussion at [https://blocksplain.com/2018/02/15/satoshi-nakamoto-scronty/](https://blocksplain.com/2018/02/15/satoshi-nakamoto-scronty/)

Monday, February 24   GM/DY   Central bank digital currency

- China’s central bank digital currency is “ready” after 5 years of development
- What is China’s digital currency plan?

Wednesday, February 26   DY   Blockchains and mining, begin

- Burniske & Tatar, Ch. 13.

Monday, March 2   [DY]   Blockchains (introduction)

*Guest speaker:* W. Scott Stornetta, blockchain pioneer

- Browse the website, [https://www.hs91.net/](https://www.hs91.net/)

Wednesday, March 4   DY   Blockchains and mining, finish

Monday, March 9   DY   Alternative consensus mechanisms

*Guest speaker:* Elena Giralt, Electric Coin Co. (Zcash)

- Narayanan et al, Ch. 4.

Wednesday, March 11   DY   Mining, forks, and code=law

- Narayanan, et al. Ch. 5.
- Burniske & Tatar, Ch. 14.
Monday, March 23  DY  Code=law; alternative consensus protocols; altcoins

Wednesday, March 25  MR  Criminal litigation  
**Guest speaker:**  Andrew Adams, Asst. U.S. Attorney, live via Zoom


Monday, March 30  MR  Smart contracts

- Burniske & Tatar, Ch. 4 & 16
- Narayanan et al., Ch. 9.

Wednesday, April 1  MR  Securities regulation and blockchains

- Raskin, 2019, “A Regulatory Classification of Digital Assets: Toward an Operational Howey Test for Cryptocurrencies, ICOs, and Other Digital Assets.”

Monday, April 6  MR  Jurisdictional issues in civil litigation


Wednesday, April 8  [DY]  Electronic cash, decentralized exchange, and the Constitution  
**Guest speaker:**  Peter van Valkenburgh, live via Zoom  
Director of Research, Coin Center  

(i) View recorded Spring 2019 lecture **prior to class:**
(ii) Meet on Zoom with the speaker at 10:30 for live Q-and-A and other discussion

Monday, April 13  
DY  
Cryptocurrency investing (start)

- Li, Shin & Wang, 2019, Cryptocurrency Pump and Dump Schemes

Wednesday, April 15  
[DY]  
Taxation of cryptocurrency

*Guest speaker:* Andrew Hinkes, Athena Blockchain, live via Zoom

- Burniske & Tatar, Ch. 17, pp 274-277
- U.S. Internal Revenue Service, Notice 2014-21
  https://casetext.com/case/united-states-v-coinbase-inc
- IRS Frequently Asked Questions on Virtual Currency Transactions
  https://www.irs.gov/individuals/international-taxpayers/frequently-asked-questions-on-virtual-currency-transactions
- IRS Revenue Ruling 2019-24

Monday, April 20  
DY  
Cryptocurrency investing (finish)

(i) View recorded Fall 2019 lecture by Tim McCourt, CME Group:
https://nyustern.mediasite.com/Mediasite/Play/c68746f6c0354e30a51d3c2dd493a3221d?catalog=2511afc9e10d464cbfed87727f253bddd21

(ii) View recorded Fall 2019 lecture by Barry Silbert, Digital Currency Group:
Wednesday, April 22  [MR]  Blockchain venture investing  
\textit{Guest speaker:} Alex Stein, Two Sigma, live via Zoom

Monday, April 27  [DY]  Blockchain forensics  
\textit{Guest speaker:} Jonathan Levin, Chainalysis, live via Zoom

(i) View recorded Fall 2019 lecture prior to class:  
https://nyustern.mediasite.com/Mediasite/Play/f509a69dcbd94a7c9b69c3ba18048411d?catalog=2511afc9e10d464cbfed87727f253bddd21

(ii) Meet on Zoom at 10:30 for further discussion, live with Jonathan Levin

- Segal, 2014, “\textit{Eagle Scout. Idealist. Drug Trafficker?”} 

Wednesday, April 29  [DY]  Blockchains and intellectual property  
\textit{Guest speaker:} Amy Whitaker, NYU Steinhardt, live via Zoom

- Whitaker, 2019, “Art and Blockchain,” \textit{Artivate.}

Monday, May 4  DY  Blockchains and the capital markets

- Yermack, 2017, “\textit{Corporate Governance and Blockchains},” \textit{Review of Finance.}


Wednesday, May 6  DY  Identity management and financial inclusion