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, cryptographic tokens, 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. New financing channels such as initial coin offerings have the potential to upend segments of entrepreneurial finance.

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, decentralized, cloud-based digital currency systems since 2009, and follow-on investment products, derivatives, and innovations such as initial coin offerings. Many lectures will explore threats that blockchain technology poses to incumbent firms and even to central banks and their resulting attempts to co-opt the technology into existing business models. We survey related issues including hacking, “smart contracts,” governance, investment risk and return, and emerging regulatory approaches to these assets.

Learning outcomes
The goal of this course is to equip the students to 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 in the financial services industry and beyond. 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, academia, and government.

We will follow the academic calendar of the Stern School, with the first class meeting January 29 and the final class on May 7. We will not hold class on February 19, which is a holiday, or during the spring break week of March 12-14.

Readings
Many readings for the course will be posted in .pdf format on NYU Classes or will be available through Internet links included in the syllabus below.

We will also use two textbooks:

- Burniske and Tatar, *Cryptoassets: The Innovative Investor’s Guide to Bitcoin and Beyond* (2018). This is a newly published book available for purchase at the NYU campus bookstore and from other retail sources.

- 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 and be downloaded at no cost at the following link:

  https://d28rh4a8wq0iu5.cloudfront.net/bitcointech/readings/princeton_bitcoin_book.pdf

Note that due to the fast-changing nature of the subject matter, material in both 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

http://www.coindesk.com/

Evaluation
Evaluation will be based on student papers or projects that will be due during the May exam period. Requirements for the final assignment will be discussed in class early in the semester.

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, the availability of guest speakers, and developing issues in the FinTech ecosystem.
Jan 29  Course introduction – Yermack & Hinkes


Jan 31  Emergence of blockchains and distributed ledgers – Yermack

*Guest speaker:* W. Scott Stornetta, pioneer of the distributed ledger
https://www.edmodo.com/profile/4795235
http://nakamotoinstitute.org/authors/w-scott-stornetta/


Feb 5  Payment systems and the road to Bitcoin – Hinkes

- Burniske & Tatar, Ch. 1-3.

Feb 7  How do blockchains Work? (I) – Yermack

- Burniske & Tatar, Ch. 13.

Feb 12  Blockchains as open source projects – Hinkes

*Guest speaker:* Prof. Angela Walch, legal authority on public blockchains
https://law.stmarytx.edu/academics/faculty/angela-walch/
https://twitter.com/angela_walch

Feb 14  How do blockchains work? (II) - Yermack

- Narayanan, et al. Ch. 5.
- Burniske & Tatar, Ch. 14.

Feb 21  Cryptocurrency custody, security, and dispute resolution – Yermack

- Narayanan et al, Ch. 4.

Feb 26  Cryptocurrencies - a better form of payment? – Hinkes
Feb 28  Regulatory approaches to bitcoin/blockchain – Hinkes

Alternatives to proof of work – Yermack

Mar 5  AML/KYC, blockchain tracing, and suspicious activities – Hinkes

Guest speaker: Jonathan Levin, co-founder of Chainalysis
https://twitter.com/jony_levin

- Goldman, Sachs pp 71-77.

Mar 7  Blockchains in the capital markets – Yermack

Guest speaker: Caitlin Long, former Chairman and President of Symbiont
https://caitlin-long.com/
https://twitter.com/caitlinlong_

- Yermack, 2017, “Corporate Governance and Blockchains,” Review of Finan...

Mar 19  Digital currency, central banking, and macroeconomics – Yermack

Guest speaker: Hanna Halaburda, Senior Analyst, Bank of Canada
www.bankofcanada.ca/profile/hanna-halaburda/


Mar 21  Snow day – class cancelled

Mar 26  Introduction to smart contracts and ICOs – Yermack

- Burniske & Tatar, Ch. 4 & 16
- Narayanan et al, Ch. 9.
- Szabo, 1996, “Formalizing and Securing Relationships on Public Networks,


**Mar 28**  Ethereum and The DAO – Hinkes

*Guest speaker:* Vlad Zamfir, Ethereum Foundation  
http://hackingdistributed.com/vzamfir/  
https://twitter.com/vladzamfir

- Hinkes, The DAO (unpublished)
- *In re:* The DAO

**Apr 2**  Token sales/ICOs: Regulation – Hinkes

*Guest speaker:* Dario de Martino, Co-Chair of Blockchain and Smart Contracts practice, Morrison & Foerster  
https://www.mofo.com/people/f-dario-de-martino.html

- *In re:* Munchee

**Apr 4**  Digital currencies as investments I – Yermack

*Guest speaker:* Barry Silbert, Founder, Digital Currency Group  
http://dcg.co/who-we-are/  
https://twitter.com/barrysilbert

- Burniske & Tatar, Ch. 14-15.

**Apr 9**  Digital currencies as investments II – Hinkes

*Guest speaker:* Chris Burniske, author and co-founder of Placeholder Ventures  
https://medium.com/@cburniske
https://twitter.com/cburniske

- Burniske & Tatar, Ch. 7-13 (suggested)

Apr 11 Second level protocols – Hinkes

*Guest speaker:* Muneeb Ali, Co-Founder of Blockstack
https://muneebalicom
https://blockstack.org

Apr 16 Digital currency litigation – Hinkes

*Guest speakers:*

Stephen Palley, trial attorney, Of Counsel at Anderson, Kill
https://www.andersonkill.com/People-Details/PeopleID/134
https://twitter.com/palleylaw

Brian Klein, criminal defense attorney, Baker Marquart
http://www.bakermarquart.com/attorneys/brian_klein
https://twitter.com/brianeklein

Apr 18 Blockchains and provenance in the art world – Yermack

*Guest speaker:* Prof. Amy Whitaker, authority on economics of fine arts and advisor to Bitmark
https://steinhardt.nyu.edu/faculty/Amy_Whitaker
https://twitter.com/theamywhit

- Jason Bailey, "The Blockchain Art Market Is Here," Artnome, December 27, 2017:

- Scott Reyburn, "Will Cryptocurrencies be the art market's next big thing?" New York Times, January 13, 2018:

- Additional optional reading posted on NYU Classes

Apr 23 Taxation of digital assets – Hinkes

- Burniske & Tatar, Ch. 17, pp 274-277.
Apr 25  Blockchain applications: voting, lotteries, certificate issuance and security auditing - Yermack

*Guest speaker:* Prof. Joseph Bonneau, Courant Institute
http://jbonneau.com/
https://twitter.com/josephbonneau/

Apr 30  Enterprise blockchains – Hinkes

*Guest speaker:* Amber Baldet, blockchain program lead, JPMorgan
http://amberbaldet.com/
https://twitter.com/amberbaldet
http://fortune.com/40-under-40/amber-baldet-31/

May 2  Cryptocurrency trading and hedging strategies – Yermack

*Guest speaker:* Prof. Ian D’Souza, advisor to BlockTower Capital
http://people.stern.nyu.edu/sternfin/idsouza/index.htm

May 7  Altcoins – Yermack

- Burniske & Tatar, Ch. 4.
- Narayanan et al, Ch. 10.