York University
Faculty of Liberal Arts & Professional Studies
Department of Economics
The Economics of Cryptocurrencies AP/ECON 3880 A
Fall 2025

Course Instructor:
Dr. Andrea Podhorsky
Teaching Assistant: TBA
Email: andrea@yorku.ca
Course Webpage: http://eclass.yorku.ca
Virtual Office Hours: Fridays 12:00 pm – 1:15 pm
Please sign up on eClass to schedule a 15-minute appointment on Zoom

Lecture Time and Location:
Mondays, 11:30 am; R S203

TA Hours: TBA

Prerequisite/Co-requisite:
AP/ECON 1000 3.00 and AP/ECON 1010 3.00 or equivalents.
This course will automatically count towards the BUEC/FBEC special course lists for students in those programs.

Course Description:
This course introduces cryptocurrencies from an economics perspective. Topics include price determination under the Proof of Work protocol, the use of a tax to restrain network electricity costs, the 51% network attack, the welfare costs and benefits of cryptocurrencies, the surrounding governance issues, central bank digital currencies and the effects of digital currencies on the monetary policies of central banks.

Required Course Materials:
Understanding Bitcoin: Cryptography, Engineering and Economics, by Pedro Franco
Cost: Physical: $78 + HST; Digital Etext: $63 (Tax Exempted)

Recommended Course Materials:
Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction, by Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller and Steven Goldfeder
Mastering Bitcoin: Programming the Open Blockchain, by Andreas M. Antonopoulos

Evaluation:

Test 1 (Topics 1, 2, 3)	40%	Oct 20
Test 2 (+Topics 4, 5, 6)	40%	Nov 17
Class Presentation and Participation	20%	

This course will utilize the required course textbook in addition to numerous academic articles that are accessible to an undergraduate economics audience. We will engage in a "Flipped" Classroom Model where, during the semester, groups of students will be responsible for presenting papers and for

responding to other students' presentations. Class sessions will entail collaborative and active learning strategies including problem-solving and structured classroom discussions. Papers will be randomly assigned to the students by the professor and the assignments will be posted on eClass. The initial group presentation must be approximately 25-30 minutes long and must identify and directly address the main issues posed in the assigned article. Presentation responses from the class should be about 5 minutes long and students who contribute a response will receive credit toward their participation grade. Presentation guidelines are posted on eClass.

Topics:

Topic 1:	Bitcoin Foundations and Technology: Money and Trust; Bitcoin Basics (Cryptography); Blockchain; Consensus; 51% Attack
Sept 8, 15	Franco Chapter 1, 2, 5, 6, 7; Narayanan et al. Chapter 3
Topic 2:	Bitcoin Mining and Difficulty
Sept 22	Franco Chapter 9; Narayanan et al. Chapter 5
Topic 3:	Ethereum and Smart Contracts
Sept 29	Franco Chapter 12; Ethereum Foundation https://ethereum.org/en/developers/docs/intro-to-ethereum/
Topic 4:	Stable Coins and Other Cryptotokens/NFTs
Oct 6	Franco Chapter 11; Narayanan et al. Chapter 10 https://www.bis.org/publ/arpdf/ar2025e3.htm https://www.bis.org/publ/work1270.pdf
Oct 13	Reading Week
Oct 20	Review; Test 1 (up to Topic 3)
Topic 5:	Central Bank Digital Currencies (CBDCs)
Oct 27	https://www.bis.org/publ/qtrpdf/r_qt1709f.htm The People's Republic of China's Digital Yuan: Its Environment, Design, and Implications https://www.adb.org/publications/the-peoples-republic-of-chinas-digital-yuan-its-environment-design-and-implications Contingency Planning for a Central Bank Digital Currency – Bank of Canada https://www.bankofcanada.ca/2020/02/contingency-planning-central-bank-digital-currency/ What we heard 2020–23 and what comes next – Bank of Canada https://www.bankofcanada.ca/digitaldollar/a-digital-canadian-dollar-what-we-heard-2020-23-and-what-comes-next/#what-comes-next Money and Payments: The U.S. Dollar in the Age of Digital Transformation – United States Federal Reserve Board https://www.federalreserve.gov/publications/files/money-and-payments-20220120.pdf
Topic 6:	Governance and stability
Nov 3	Narayanan et al. Chapter 10 Notes on Blockchain Governance https://vitalik.eth.limo/general/2017/12/17/voting.html The Invisible Politics of Bitcoin: Governance Crisis of a Decentralized Infrastructure

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2852691
The Crypto Ecosystem and Financial Stability Challenges – International Monetary Fund
https://www.imf.org/-/media/Files/Publications/GFSR/2021/October/English/ch2.ashx
Fact Sheet: President Donald J. Trump Signs GENIUS Act into Law
https://www.whitehouse.gov/fact-sheets/2025/07/fact-sheet-president-donald-j-trump-signs-genius-act-into-law/
Executive Order on Ensuring Responsible Development of Digital Assets – President Joseph R. Biden Jr Executive Order
https://bidenwhitehouse.archives.gov/briefing-room/presidential-actions/2022/03/09/executive-order-on-ensuring-responsible-development-of-digital-assets/
Canadian Securities Administrators Staff Notice 21-332
https://www.osc.ca/sites/default/files/2023-02/csa_20230222_21-332_crypto-trading-platforms-pre-reg-undertakings.pdf

Nov 10 Presentations

Nov 17 Test 2

Nov 24 Presentations

Dec 1 Presentations

Presentation Articles:

1. A Fistful of Bitcoins: Characterizing Payments Among Men with No Names (October 2013)
Sarah Meiklejohn, Marjori Pomarole, Grant Jordan Kirill, Levchenko Damon McCoy, Geoffrey M. Voelker, Stefan Savage
https://cseweb.ucsd.edu/~smeiklejohn/files/imc13.pdf

2. Bitcoin Omnibus Survey: Awareness and Usage (November 2019)
Christopher S. Henry, Kim P. Huynh, Gradon Nicholls and Mitchell W. Nicholson
https://www.bankofcanada.ca/2019/11/staff-discussion-paper-2019-10/

3. Bitcoin Adoption and Beliefs in Canada (November 2021)
Daniela Balutel, Christopher Henry, Jorge Vásquez, Marcel Voia
https://www.bankofcanada.ca/2021/11/staff-working-paper-2021-60/

4. The Economic Limits of Bitcoin and Anonymous, Decentralized Trust on the Blockchain (June 2022)
Eric Budish
https://ericbudish.org/wp-content/uploads/2018/06/Economic-Limits-Bitcoin-Blockchain-June-2022.pdf

5. Risks and Returns of Cryptocurrency (July 2018)
Yukun Liu and Aleh Tsyvinski
https://academic.oup.com/rfs/article/34/6/2689/5912024

6. The economic value of NFT: Evidence from a portfolio analysis using mean-variance framework (March 2022)

Hyungjin Ko, Bumho Son, Yunyoung Lee, Juisu Jang, Jaewook Lee
https://www.sciencedirect.com/science/article/abs/pii/S1544612322000976?via%3Dihub

7. Is non-fungible token pricing driven by cryptocurrencies? (January 2022)
Michael Dowling
https://www.sciencedirect.com/science/article/pii/S1544612321001781?via%3Dihub

8. Is Bitcoin Really Un-Tethered? (November 2019)
John M. Griffin and Amin Shams
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3195066

Cryptocurrency firms Tether and Bitfinex agree to pay $18.5 million fine to end New York probe (February 2021)
CNBC
https://www.cnbc.com/2021/02/23/tether-bitfinex-reach-settlement-with-new-york-attorney-general.html

9. Initial Coin Offerings and the Value of Crypto Tokens (January 2019)
Christian Catalini and Joshua S. Gans
https://www.nber.org/papers/w24418

10. Bitcoin's Growing Energy Problem (May 2018)
Alex de Vries
https://www.researchgate.net/publication/325188032_Bitcoin's_Growing_Energy_Problem

11. Bitcoin Boom: What Rising Prices Mean for the Network's Energy Consumption (March 2021)
Alex de Vries
https://www.researchgate.net/publication/349952553_Bitcoin_Boom_What_Rising_Prices_Mean_for_the_Network's_Energy_Consumption

12. When Cryptomining Comes to Town: High Electricity-Use Spillovers to the Local Economy (May 2021)
Matteo Benetton, Giovanni Compiani, Adair Morse
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3779720

13. Flight to Bitcoin (February 2022)
Gloria Yang Yu, Jinyuan Zhang
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3278469

14. What Keeps Stablecoins Stable? (May 2020)
Richard K. Lyons, Ganesh Viswanath-Natraj
https://www.nber.org/system/files/working_papers/w27136/w27136.pdf

15. Anatomy of a Stablecoin's failure: The Terra-Luna case
Antonio Briola, David Vidal-Tomás, Yuanrong Wang, Tomaso Aste
Finance Research Letters, Volume 51, January 2023, 103358

16. Oil as Currency: Venezuela's Petro, a New 'Oil Pattern'? (January 2018)
Ignacio Herrera Anchustegui and Tina Soliman Hunter

https://www.researchgate.net/publication/329794267_Oil_as_Currency_Venezuela's_Petro_a_New_'Oil_Pattern'

17. Are Cryptocurrencies Currencies? Bitcoin as Legal Tender in El Salvador (April 2022)
Fernando E. Alvarez, David Argente & Diana Van Patten
https://www.nber.org/papers/w29968

A Poor Country Made Bitcoin a National Currency. The Bet Isn't Paying Off. (July 2022)
The New York Times
https://www.nytimes.com/2022/07/05/world/americas/el-salvador-bitcoin-national-currency.html

Presentation Schedule:

Date	Article Number
Nov 10	1
	2
	3
	4
	5
	6
Nov 24	7
	8
	9
	10
	11
	12
Dec 1	13
	14
	15
	16
	17

Grading Policy:

- There is no final exam in this course. Test 2 will be cumulative.
- If a student misses a test, there will be no make-up test. The weight of a missed Test 1 will be transferred to Test 2 only for medical reasons. The student must provide the instructor with an attending physician's statement within one week of the missed exam.
- If a student misses Test 2 or both tests for medical reasons, the student must provide the instructor with an attending physician's statement within one week of the missed obligation(s) and will complete an original term paper on a topic covered by the course that is assigned by the instructor. The length and requirements of the term paper will be determined by the instructor according to how much of the course work has not been completed. Upon completion of the paper, the student will also be required to demonstrate an understanding of the assigned material during a scheduled meeting with the instructor.

Important Course Information:
Final course grades given by the instructor will use the standard York grading scale and may be adjusted to conform to Program or Faculty grades distribution profiles. In addition, all students are expected to familiarize themselves with the following information, available on the Senate Committee on Academic Standards, Curriculum & Pedagogy webpage:
https://secretariat.info.yorku.ca/files/CourseInformationForStudentsAugust2012-.pdf

- Senate Policy on Academic Honesty and the Academic Integrity Website
- Course requirement accommodation for students with disabilities, including physical, medical, systemic, learning and psychiatric disabilities
- Student Conduct Standards
- Religious Observance Accommodation

Academic integrity is a fundamental and important value of York University. To maintain a fair and honest learning environment, students in this course are responsible for understanding and upholding academic integrity in all of their academic activities. To better understand expectations, familiarize yourself with the Senate Policy on Academic Conduct. To learn more about how to demonstrate academic integrity in your courses and to access related resources and support, visit the Academic Integrity website.

Course ADD/Drop Deadlines:

Last date to add a course without permission of instructor (also see Financial Deadlines)	Sept 16
Last date to add a course with permission of instructor (also see Financial Deadlines)	Sept 23
Last date to drop a course without receiving a grade (also see Financial Deadlines)	Nov 4
Course Withdrawal Period (withdraw from a course and receive a grade of "W" on transcript – see note below)	Nov 5 – Dec 2

Policy and Guidelines on Withdrawn from Course:
https://www.yorku.ca/secretariat/policies/policies/academic-forgiveness-policy-senate/