Northeastern University
College of Engineering

Multidisciplinary Graduate Engineering
Course Syllabus

Course Information
Course Title: Digital Smart Contracts Product Innovations
Course Number: INFO7535
Term and Year: Fall, 2022
Credit Hour: 2.0
Location: 7:30 pm - 9:00 pm Wednesday, TBD

Instructor Information
Full Name: Yizhen Zhao
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Technical/Course Materials Requirements

- Smart Contract Basics: https://ethereum.org/en/developers/docs/smart-contracts/
- Smart Contract Use Cases: https://www.ibm.com/blockchain/use-cases/

Course Prerequisite/Description
Students will achieve **two goals** after taking the twin classes - INFO7525 and INFO7535:

- In INFO7525, students with software engineering background will obtain the in-depth knowledge about finance laws, corporate laws, and tax planning, which pave the foundation to develop a career in the fin-tech industry or to start their own business.
- In INFO7535, students will first learn the technical aspects of smart contracts and then dive into developing their own smart contract apps.

Prerequisite: The twin classes are designed to capture the prevailing industry trend that revitalizes the supply chain management and financial services via blockchain technologies. INFO7525 Regulatory Aspects of Smart Contract Automation is a pre-requisite of INFO7535 Digital Smart Contracts Product Innovations. INFO7525 will focus on the field knowledge of financial laws, corporate laws and taxation. INFO7535 will focus on technical aspects of smart contracts - students will learn to develop a mini block-chain product by choosing a field they have developed interests into. INFO7525 takes a conventional form that uses lectures, practice questions and paper-based exams to pave a solid foundation for students in financial regulations and blockchain technologies. INFO7535 adopts a more innovative approach by business plan competition and guest speaker events.

Description: Block-chain is becoming a legitimate disruptor in a myriad of industries. The technology has become so promising that none other than tech giant IBM is investing more than $200 million in research. Further, more than 90% of European and US banks are researching block-chain technology solutions. The technology can revolutionize government, finance, insurance, and personal identity security, among hundreds of other fields. The class will first cover the technical aspects of smart contracts and then lead students to dive into developing their own smart contract apps. The technical aspects include but are not confined to smart contract languages, smart contract anatomy, smart contracts libraries, testing smart contracts, compiling smart contracts, deploying smart contracts, smart contract security, composability, development networks, development frameworks and ethereum client APIs, etc. The business aspects of block-chain technologies involve four parts: first, how block-chain technology creates new ways of doing business; second, how blockchain technology uses cryptocurrency to create value in a virtual setting; third, how the blockchain links real currency and the financial system, with data as well as business processes. Students will explore innovative and disruptive applications of the blockchain technologies by developing their own mini block-chain products. By completing this course, students will obtain the capability to combine the field knowledge from INFO7525 and the business experience in INFO7535 to launch their own fin-tech start-ups.

Student Learning/Course Outcomes (SLOs)

Specialized Knowledge	Broad and Integrative Knowledge	Applied and Collaborative Learning	Civic and Global Learning	Experiential Learning
The class will round up 36 case studies of US-based companies using blockchain technology.	*The class will combine business case study with legal and software engineering fields knowledge*	*This class takes innovative format by debate competition, business case study and guest speaker events.*	*The methods can be extensively applied in community legal service, education and other civic learning areas.*	*By completing this course, students will obtain the capability to combine the field knowledge from INFO7525 and business experience in INFO7535 to design a mini fin-tech product by choosing a field they have developed interests.*

Attendance Policy

Students are expected to complete course readings, participate in class discussions or other learning activities during the unit, and complete written assignments for each unit during the time of that unit.

It is understood that there might be one week when active participation in ongoing class conversations and learning activities might be delayed.
Beyond one week time, if there is an absence or lateness in participation (1) faculty must be notified in advance; (2) grades will be adjusted accordingly.

Late Work Policy
Students must submit assignments by the deadline in the time zone noted in the syllabus.
Students must communicate with the faculty prior to the deadline if they anticipate work will be submitted late.
Work submitted late without prior communication with faculty will not be graded.

Grading/Evaluation Standards
Grade Scale

95-100%	**A**	**87-89.9%**	**B+**	**77-79.9%**	**C+**	69.9% or below F
		84-86.9%	**B**	**74-76.9%**	**C**	
90-94.9%	**A-**	**80-83.9%**	**B-**	**70-73.9%**	**C-**	

Grade Breakdown:

Category # 1 - 10%

Category # 2 - 80%

Category # 3 – 10%

Course Schedule

INFO7535	**Topic** **07:30pm-09:00pm Wed**	**Reading/Project**
Unit 1	Smart Contract Basics	Three lectures on the technical aspects of block chains, which include but are not confined to smart contract languages, smart contract anatomy, smart contracts libraries, testing smart contracts, compiling smart contracts, deploying smart contracts, smart contract security, composability, development networks, development frameworks and ethereum client APIs, etc.
Unit 2	Business Proposal & Case Study	Two lectures on guidelines used in business case study + 9 business case studies on blockchain technologies
Unit 3	Mini fin-tech project that combines corporate laws, taxation, investment strategies with blockchain technologies	1on1 business planning and training to turn your ideas into a mini fin-tech project that involves blockchain technologies

Unit 4	Guest Speaker Series (optinal)	Three guest speakers from the industry who present the frontier applications of blockchain technologies
	Final Exam	
	Project Presentation	

Academic Integrity

A commitment to the principles of academic integrity is essential to the mission of Northeastern University. The promotion of independent and original scholarship ensures that students derive the most from their educational experience and their pursuit of knowledge. Academic dishonesty violates the most fundamental values of an intellectual community and undermines the achievements of the entire University.

As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, examinations of whatever kind, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Students are responsible for learning the conventions of documentation and acknowledgment of sources in their fields. Northeastern University expects students to complete all examinations, tests, papers, creative projects, and assignments of any kind according to the highest ethical standards, as set forth either explicitly or implicitly in this Code or by the direction of instructors.

Go to http://www.northeastern.edu/osccr/academic-integrity-policy/ to access the full academic integrity policy.

Student Accommodations

Northeastern University and the Disability Resource Center (DRC) are committed to providing disability services that enable students who qualify under Section 504 of the Rehabilitation Act and the Americans with Disabilities Act Amendments Act (ADAAA) to participate fully in the activities of the university. To receive accommodations through the DRC, students must provide appropriate documentation that demonstrates a current substantially limiting disability.

For more information, visit http://www.northeastern.edu/drc/getting-started-with-the-drc/.

Library Services

The Northeastern University Library is at the hub of campus intellectual life. Resources include over 900,000 print volumes, 206,500 e-books, and 70,225 electronic journals.

For more information and for Education specific resources, visit http://subjectguides.lib.neu.edu/edresearch.

Diversity and Inclusion

Northeastern University is committed to equal opportunity, affirmative action, diversity and social justice while building a climate of inclusion on and beyond campus. In the classroom, member of the University community work to cultivate an inclusive environment that denounces discrimination through innovation, collaboration and an awareness of global perspectives on social justice.

Please visit http://www.northeastern.edu/oidi/ for complete information on Diversity and Inclusion

TITLE IX

Title IX of the Education Amendments of 1972 protects individuals from sex or gender-based discrimination, including discrimination based on gender-identity, in educational programs and activities that receive federal financial assistance.

Northeastern's Title IX Policy prohibits Prohibited Offenses, which are defined as sexual harassment, sexual assault, relationship or domestic violence, and stalking. The Title IX Policy applies to the entire community, including male, female, transgender students, faculty and staff.

In case of an emergency, please call 911.

Please visit www.northeastern.edu/titleix for a complete list of reporting options and resources both on- and off-campus.