Fall 2015  
CS 493/693/793-9I: Cryptocurrency  
Time: 5.00-7.30pm, Thursdays  
Office Hours: 3.00-5.00pm, Thursdays  
Instructor: Dr. Yuliang Zheng (yzheng@uab.edu)  
Teaching Assistant: None

**Course Description**

Bitcoin, Ripple and other cryptocurrencies have attracted an enormous amount of attention from individuals, banks, hi-tech entrepreneurs, venture capitalists and governments as well as both cyber and physical criminals. Many technology visionaries consider these new types of digital currency as a disruptive technology whose impact on society in the coming decades would be comparable to what has been brought upon society by the Internet. The cryptocurrencies have also sparked interest from academic researchers, financial firms and technology vendors in applying blockchain and other underlying technologies for decentralized consensus to provide new solutions to an expanding array of problems, ranging from instantaneous, near-zero cost money transfer, smart autonomous contracts and distributed certification, to decentralized governance.

This new course will expose students to Bitcoin, Ripple and other notable cryptocurrencies. Topics to be covered include how a cryptocurrency works, blockchain and other decentralized consensus protocols, digital coin mining, security and privacy of cryptocurrencies, cryptographic techniques for digital currency, and applications of blockchain to smart contracts, financial exchanges and distributed autonomous organization.

**Curriculum**

Use of bitcoin  
History of money  
Cryptographic foundation  
Untraceable digital cash  
Blockchain and public ledge  
Mining and distributed consensus  
Security and privacy issues  
Ripple and other alternative cryptocurrencies  
Applications of blockchain

**Prerequisites**

Basic programming skills in Java or C++ are required.

**Textbook**

Andreas M. Antonopoulos, “Mastering Bitcoin: Unlocking Digital Cryptocurrencies”, O'Reilly Media, Dec. 2014. Free online versions are available at:


2. [https://github.com/aantonop/bitcoinbook](https://github.com/aantonop/bitcoinbook)

This is a sample syllabus only. The instructor may make changes to the syllabus in future courses.
Recommended Readings

Technical


Non-technical


Web sites (technical)


Web sites (news)

2. https://bitcoinmagazine.com/
3. http://bitcoinist.net/

Bitcoin App Development

Students are recommended to purchase the following e-book ($9.99):


Important Dates

Last day to drop: 8/31/2015
Mid-term exam: 10/1/2015
Last day to withdraw with “W”: 10/23/2015
Fall/Thanksgiving break: 11/23-27/2015
Final exam (tentative): 7.00-9.30pm, 12/10/2015
[Official exam schedule: https://www.uab.edu/students/academics/academic-calendar/final-exams]

Grading

Assignments: 40%
Midterm: 20%
Final: 30%
Classroom participation: 10%
Grading Policy
In general, the marking scheme for this class will be as follows:
A = 90-100; B = 80-89; C = 70-79; D = 55-69; F = below 55.
These standards may be adjusted for certain exams or homework. These adjustments will be announced in class as the exam/homework is handed back.

UAB Academic Honor Code
https://www.uab.edu/students/academics/honor-code

The University of Alabama at Birmingham expects all members of its academic community to function according to the highest ethical and professional standards. Students, faculty, and the administration of the institution must be involved to ensure this quality of academic conduct.

Academic misconduct undermines the purpose of education. Such behavior is a serious violation of the trust that must exist among faculty and students for a university to nurture intellectual growth and development. Academic misconduct can generally be defined as all acts of dishonesty in an academic or related matter.

Academic dishonesty includes, but is not limited to, the following categories of behavior:

• **ABETTING** is helping another student commit an act of academic dishonesty. Allowing someone to copy your quiz answers or use your work as their own are examples of abetting.

• **CHEATING** is the unauthorized use or attempted use of unauthorized materials, information, study aids, the work of others, or computer-related information.

• **PLAGIARISM** means claiming as your own the ideas, words, data, computer programs, creative compositions, artwork, etc., done by someone else. Examples include improper citation of referenced works, the use of commercially available scholarly papers, failure to cite sources, or copying another person’s ideas.

• **FABRICATION** means presenting falsified data, citations, or quotations as genuine.

• **MISREPRESENTATION** is falsification, alteration, or the misstatement of the contents of documents, academic work, or other materials related to academic matters, including work substantially done for one class as work done for another without receiving prior approval from the instructor.

Violations of the UAB Academic Honor Code are punishable by a range of penalties, from receiving a failing grade on an assignment to an F in the course to dismissal. Any course grade of F for academic misconduct supersedes any other grade or notation for that class. Withdrawal from a course while a possible violation of the Academic Honor Code is under review will not preclude the assignment of a course grade that appropriately reflects the student’s performance prior to withdrawal if the violation is substantiated.