BLOCKCHAIN, CRYPTOCURRENCIES AND DIGITAL TOKENS DEMYSTIFIED

Summer 2019

INSTRUCTOR INFORMATION

- Professor Jamiel Sheikh
- Email: js3427@columbia.edu
- Office Hours: by appointment
- Bio: http://jamiel.io

TEACHER’S ASSISTANTS

TBD

COURSE LOGISTICS

- Class Meeting Times: Monday & Wednesdays, starting May 29, 5:45PM to 9:00PM
- Class Location: WJW, Room 208

COURSE DESCRIPTION

This course teaches the concepts and ideas behind blockchain, cryptocurrencies and digital tokens, applications of these concepts in real-world use cases and strategies businesses need to think about in order to adopt or adapt accordingly. As such, it is divided into three modules, namely: Foundations, Applications and Strategy, each building on the prior starting off with the necessary basics of the technology and then culminating in studies in strategy, opportunities, risks and challenges.

Although this course is designed for beginners who are looking to rapidly become acclimated to the subject matter, seasoned blockchain or technology professionals will be able to leverage their experience and knowledge to gain additional insights and perspectives. This course is non-
technical, although some technical elements are covered in an easy to digest manner and the
goal of this course is to provide broad exposure to the dynamics that exist in the blockchain and
crypto ecosystem with deep dives into selected areas.

No prior technical, blockchain or cryptocurrency knowledge is required.

CONNECTION TO THE CORE

Blockchain is a system that has broad and pervasive impact. Regardless of industry, sector or
discipline, blockchain will and is playing a role in transformation and disruption. As such, this
course crosscuts across all major Columbia core subjects including finance, social impact,
accounting, economics, marketing and strategy.

CLASS FORMAT

Class learning is facilitated through lectures and supportive readings along with lectures, class
discussions, and group work. Learning is promoted through active listening, voicing your
perspective, and reflecting on what you hear and read, both individually and in small groups. As
in most Wagner classes, you will participate in a final group project to apply your knowledge and
demonstrate your skills. It is essential and required that students be prepared for each class.
Class learning will also be supplemented with online content, complementary journal
assignments, and in class knowledge assessments. In addition, it is recommended that students
identify a study partner(s) to prepare for class.

GUEST SPEAKERS

Throughout the semester, prominent figures from the blockchain and cryptocurrency space will
visit to speak on relevant topics. Material and content presented by the guest speaker will be
considered as being part of the course learning and is subject to appear in the mid-term and final
exams. Interaction with the guest speaker will contribute towards participation. It is requested that
students accord the speaker the appropriate level of respect and genuine, warm interactions
despite potentially holding different worldview.

ATTENDANCE POLICY

Students are required to attend each class. Students should reach out to the instructor or TA
regarding excused absences (for religious observances; personal, medical, and family
emergencies; military service; court appearances such as jury duty). Unexcused absences will
affect your course grade.

NOTE: The following is applicable for Core Courses:

• Students that miss more than 33% of their classes (unexcused absences) will at most receive a P for the course grade
• Students that miss more than 50% of their classes (unexcused absences) will receive a F for the course grade
NOTE: The following is applicable for Core Courses and for any electives with OSA-administered exams:

- Students that miss the exam for an **excused** reason but are unable to take the exam within the stated make-up period will receive a **zero for the final exam grade**
- Students that miss the exam without notifying OSA (unexcused), will receive an **F for the course grade**.

This course may use Poll Everywhere as a tool to increase in-class student engagement. Poll Everywhere may also be used to confirm student attendance and participation records.

If a student is absent from class and is allowed to attend a different cluster’s class meeting, it is at the discretion of the faculty member to count responses to any polls presented during this time as attendance or participation. Responding to a poll when not present in the classroom is a violation of the Honor Code.

**ELECTRONIC DEVICES**

Use of electronic devices during lectures and guest speakers is strictly prohibited. Devices may be used during breaks and breakout sessions or when specifically requested by the professor.

**REQUIRED READINGS**

All readings assigned for each session must be completed prior to session start. The required readings for this class are:

- **Book** – Anderson, Alex, *STOs – Security Token Offerings for Beginners*
- **Course Packet** – The course packet contains the case studies listed in the syllabus. It is available through the Columbia Bookstore.

**GRADING**

Grades will be based on the following criteria:

- **Class Participation & Attendance (20%)** – Participation includes promptness, preparation, presence and engagement. Your participation will be evaluated based on both quality and quantity. With regard to quality, good contributions have some of the following characteristics: (1) sound and insightful perspectives (including so called “dumb” questions), (2) analysis and interpretation that builds on and advances class material, including feedback on others’ contributions, and (3) new ways of framing problems that shift our collective thinking and learning. Students are expected to attend all classes. Please email me before the class if you will be absent.

- **Mid-term Examination (20%)** – The mid-term examination will be distributed in class and consist of 25 multiple choice questions covering material contained in the lectures and readings.
• **Final Examination (25%)** – The final examination will be distributed in class and consist of 25 multiple choice questions covering material contained in the lectures, guest speakers and readings.

• **Team Project (35%)** – Teams of up to five students will ideate a product or service and specify and elucidate a use case for blockchain, cryptocurrencies or token. The specifics of the team project objectives will be distributed by the second week of class. A team charter specifying the idea, team members and each person’s responsibilities will be required by week six and will not be graded. The purpose of the charter is to assure the idea is in line with the course and that critical organizational and operational discussion between team members have occurred.

The Team Project will consist of five elements:
- 2 to 3 page abstract outlining your idea and strategy, team members and roles / responsibilities (5%)
- Video presentation to be played at the last session of class (5%)
- Response and handling of Q&A by class after video presentation (5%)
- 10-12 page whitepaper specifically focused on the idea, business case, market analysis, competitive analysis, viability, timing, token economics, technologies used, etc. (20%).

**SCHEDULE**

<table>
<thead>
<tr>
<th>Date</th>
<th>Class Topic</th>
<th>Readings / Deliverables</th>
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<tbody>
<tr>
<td></td>
<td><strong>Module 1: Foundations</strong></td>
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</table>
| 1 May 29 | Class Introduction, The Economics of Blockchain & Decentralized Systems | Malekan, Chapters 1 & 3  
The Bitcoin Whitepaper, Satoshi Nakamoto, Abstract, Section 1 and Section 2 only |
| 2 June 3 | Cryptography & The Economics of Distributed Systems | Malekan, Chapters 2 & 4 |
| 3 June 5 | Blockchain Under The Hood | Malekan, Chapter 5 & 7  
Ethereum Whitepaper, Vitalik Buterin, Pages 1-9 |

**Module 2: Applications**
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Reading Material</th>
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<tbody>
<tr>
<td>4</td>
<td>June 10</td>
<td>Tokens, Stablecoins &amp; Asset Tokenization</td>
<td>Malekan, Chapter 6</td>
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<tr>
<td></td>
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<td>Deloitte Tokens Paper</td>
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<td>R3 Stablecoin Paper</td>
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<td>5</td>
<td>June 12</td>
<td>Enterprise Tokens &amp; Payments</td>
<td>R3 Payments Paper</td>
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<td><strong>Team Abstract Due No Later Than Sunday June 16 11:00PM EST</strong></td>
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<td>6</td>
<td>June 17</td>
<td>Midterm</td>
<td><strong>Midterm</strong></td>
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<td>Exchange Mechanisms</td>
<td>Malekan, Chapter 15</td>
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<td>0x Paper</td>
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<td>7</td>
<td>June 19</td>
<td>Token Economics</td>
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<td><strong>Module 3: Strategy</strong></td>
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<tr>
<td>8</td>
<td>June 24</td>
<td>Global Trends</td>
<td>Malekan, Chapters 10,17</td>
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<tr>
<td>9</td>
<td>June 26</td>
<td>Social Impact &amp; Government</td>
<td>Blockchain for Social Good, Baroletti, Massimo</td>
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<tr>
<td>10</td>
<td>July 1</td>
<td>Crowdfunding, Security Token Offerings and Initial Exchange Offerings</td>
<td>Anderson, Chapters 1-5, 7</td>
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<td><strong>Team Video Presentation Due No Later Than July 2 by 11:00PM EST</strong></td>
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<td>11</td>
<td>July 3</td>
<td>Blockchain Careers Team Presentations</td>
<td>Team Presentations</td>
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<tr>
<td>12</td>
<td>July 8</td>
<td>Final Exam</td>
<td><strong>Final Exam</strong></td>
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<td>Team Presentations</td>
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<td><strong>Team Final Paper Due No Later Than July 15 by 11:00PM EST</strong></td>
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ASSIGNMENT TYPES

All of your assignment submissions are subject to the CBS Honor Code. Violations of the CBS Honor Code may lead to failing the assignment, failing the course, suspension, and/or dismissal. In order to avoid ambiguity that may lead to unintentional violations of the Honor Code, assignment description types have been standardized and specified below.

<table>
<thead>
<tr>
<th>Type</th>
<th>Designation</th>
<th>Grade</th>
<th>Preparation of submission</th>
<th>Discussion of Submission*</th>
<th>Discussion of Concepts**</th>
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<tbody>
<tr>
<td>A</td>
<td>Group Work</td>
<td>Same grade for all group members</td>
<td>By the group</td>
<td>Permitted to discuss (within group)</td>
<td>Permitted</td>
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<tr>
<td>B1</td>
<td>Individual w/ Discussions of Concepts and Submission</td>
<td>Individual grade</td>
<td>Individual preparation</td>
<td>Permitted to discuss; sharing solutions or submission files is not allowed</td>
<td>Permitted</td>
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<tr>
<td>B2</td>
<td>Individual w/ Discussions of Concepts Only</td>
<td>Individual grade</td>
<td>Individual preparation</td>
<td>Not permitted to share/discuss solutions or submission</td>
<td>Permitted</td>
</tr>
<tr>
<td>C</td>
<td>Individual</td>
<td>Individual grade</td>
<td>Individual preparation</td>
<td>Not permitted to share/discuss solutions or submission</td>
<td>Not permitted***</td>
</tr>
</tbody>
</table>

The designated group can be either an assigned study group or a self-selected one.

* Submission means any work and/or output pertaining to the specific assignment. If an assignment submission contains a calculation or decision related to a specific set of data and setting, discussing the details how to make this calculation or decision with regard the data/setting is to discuss the submission. Providing another student with a draft of the calculation or decision is sharing the submission.

INCLUSION, ACCOMMODATIONS, AND SUPPORT FOR STUDENTS

At Columbia Business School, we believe that diversity strengthens any community or business model and brings it greater success. Columbia Business School is committed to providing all students with the equal opportunity to thrive in the classroom by providing a learning, living, and working environment free from discrimination, harassment, and bias on the basis of gender, sexual orientation, race, ethnicity, socioeconomic status, or ability.

Columbia Business School will make reasonable accommodations for persons with documented disabilities. Students are encouraged to contact the Columbia University’s Office of Disability Services for information about registration. Students seeking accommodation in the classroom may obtain information on the services offered by Columbia University’s Office of Disability Services.
Services online at [www.health.columbia.edu/docs/services/ods/index.html](http://www.health.columbia.edu/docs/services/ods/index.html) or by contacting (212) 854-2388.

Columbia Business School is committed to maintaining a safe environment for students, staff and faculty. Because of this commitment and because of federal and state regulations, we must advise you that if you tell any of your instructors about sexual harassment or gender-based misconduct involving a member of the campus community, your instructor is required to report this information to a Title IX Coordinator. They will treat this information as private, but will need to follow up with you and possibly look into the matter. Counseling and Psychological Services, the Office of the University Chaplain, and the Ombuds Office for Gender-Based Misconduct are confidential resources available for students, staff and faculty. “Gender-based misconduct” includes sexual assault, stalking, sexual harassment, dating violence, domestic violence, sexual exploitation, and gender-based harassment. For more information, see [http://sexualrespect.columbia.edu/gender-based-misconduct-policy-students](http://sexualrespect.columbia.edu/gender-based-misconduct-policy-students).