

MIT
MANAGEMENT
EXECUTIVE EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
SLOAN SCHOOL OF MANAGEMENT

**BLOCKCHAIN
TECHNOLOGIES:
BUSINESS INNOVATION
AND APPLICATION**
ONLINE SHORT COURSE

Examine blockchain technology through an economic lens.

**Certificate Track: Technology, Operations,
and Value Chain Management**

ABOUT THIS COURSE

This six-week program will equip you with the knowledge to understand the business applications of blockchain technology, and the confidence to discover opportunities for problem solving and innovation.

The program draws on the work of leading MIT faculty and cryptoeconomics expert, Professor Christian Catalini, to examine blockchain technology from an economic perspective. You'll be offered a foundational overview of how blockchain technology works, in order to demystify the technology and to understand its possibilities and limitations.

Over the course of six weeks, you'll be guided to understand blockchain technology beyond the fundamentals, and to appreciate its application and promise in the context of your own organization.

WHAT THE PROGRAM COVERS

The program draws parallels between blockchain technology and other general purpose technologies, highlighting its capacity to enable widespread, transformational change.

You'll examine how blockchain technology can cheaply verify, under certain conditions, the attributes of a transaction. You'll gain a deeper understanding of the cost of networking, and learn how blockchain technology can bootstrap and facilitate a marketplace without traditional intermediaries. Using an engaging mix of resources, you'll be guided to explore the effects of blockchain technology on market power in digital platforms, privacy, and trust.

The program looks toward the future of blockchain technology, exploring its longer-term implications for business and its relationship with other emerging

technologies, including AI and IoT. You'll be offered the opportunity to apply your learnings to your own context, walking away with a proposal for a blockchain-based solution to a problem within your current or future organization.



US\$ 3,500



6 weeks,
excluding orientation



5–8 hours/week of self-paced
learning, entirely online*

**The recommended weekly time commitment for core content is 4-5 hours, taking into account the busy lifestyles of working professionals, with an additional 2-3 hours recommended for non-compulsory weekly extension activities, should you have the time.*

“At MIT Sloan Executive Education, we are focused on bridging the energy, engagement and idea flow of physical in-person teaching and learning into online experiences. We aim to positively modify individual and collective behaviors that participants will take back to their teams and propagate throughout their organizations.”

PAUL MCDONAGH-SMITH, DIGITAL CAPABILITY LEADER, MIT SLOAN EXECUTIVE EDUCATION

THIS PROGRAM IS FOR YOU IF:



You're seeking
**a deeper understanding
of blockchain technology**
and its long-term
implications for business



You want to learn to **unlock
opportunities using
blockchain technology**, and
discover its relationship
to other emerging technologies,
including AI and IoT



You're looking to validate
your newfound understanding
of blockchain technology and its
economic applications with
a certificate of completion
from MIT Sloan**

**Certificates of completion are issued in your legal name upon successfully completing a program according to the program completion criteria outlined during the course. No certificate will be issued to you if you do not meet the stipulated requirements for the award of a certificate.

WHO SHOULD TAKE THIS COURSE?

This program is designed for professionals seeking a deeper knowledge of the impact and applications of blockchain technologies in an economic environment.

Whether you're an entrepreneur looking to integrate blockchain into your business plan, or you're in an industry such as retail or finance and wanting to understand the current and future developments of this new technology, this program will be relevant to you.

If you're working directly within the strategic, operational, or managerial function, this program will equip you with the knowledge necessary to discover opportunities for efficiency and innovation using blockchain technology.



“The practical applications for blockchain technology go way beyond financial assets. Essentially, any type of digital asset can be tracked and traded through a blockchain.”

– **CHRISTIAN CATALINI**, THEODORE T. MILLER CAREER DEVELOPMENT PROFESSOR AT MIT
ASSOCIATE PROFESSOR OF TECHNOLOGICAL INNOVATION, ENTREPRENEURSHIP,
AND STRATEGIC MANAGEMENT. FOUNDER, MIT CRYPTOECONOMICS LAB.

WHAT YOU'LL LEARN

This online program integrates rich, interactive media such as videos, infographics, and e-learning activities as well as traditional didactic components such as written study guides (case books). There are also opportunities for collaborative learning through discussion forums. The following modules contribute to the holistic approach your learning path takes:

ORIENTATION

WELCOME TO YOUR ONLINE CAMPUS

ONE WEEK

You'll be welcomed with a personal call and get introduced to your online teaching and technical support network. Begin connecting with fellow participants while exploring the navigation and tools of your Online Campus. Be alerted to key milestones in the learning path, and review the completion requirements for this program.

You'll be required to complete your participant profile and confirm your certificate delivery address.

MODULE 1

AN INTRODUCTION TO BLOCKCHAIN TECHNOLOGY

Learn how to think about problems that may require a blockchain by dispelling some common misconceptions about the technology and comparing it to other general purpose technologies.

MODULE 2

BITCOIN AND THE CURSE OF THE DOUBLE-SPENDING PROBLEM

Evaluate Bitcoin as a specific application of blockchain technology that solves a meaningful problem. Analyze this cryptocurrency as a store of value, medium of exchange, and unit of account.

WHAT IS MIT SLOAN?

Learn more about
**THE MIT SLOAN
SCHOOL OF
MANAGEMENT**



As communication and transaction costs have drastically declined because of the internet, new platforms have emerged, delivering goods and services at a speed and efficiency previously unimaginable.

—CHRISTIAN CATALINI,

THEODORE T. MILLER
CAREER DEVELOPMENT

PROFESSOR AT MIT

ASSOCIATE PROFESSOR
OF TECHNOLOGICAL INNOVATION,
ENTREPRENEURSHIP,
AND STRATEGIC MANAGEMENT.

FOUNDER, MIT

CRYPTOECONOMICS LAB

MODULE 3

COSTLESS VERIFICATION: BLOCKCHAIN TECHNOLOGY AND THE LAST MILE PROBLEM

Discover how blockchain technology lowers the cost of verification. Consider how blockchain and suitable, complementary technology can be used to solve the last mile problem.

MODULE 4

BOOTSTRAPPING NETWORK EFFECTS THROUGH BLOCKCHAIN TECHNOLOGY AND CRYPTOECONOMICS

Learn about how blockchain technology reduces the cost of networking. Recognize the implications this has for market structure and how it changes the nature of intermediation.

MODULE 5

USING TOKENS TO DESIGN NEW TYPES OF DIGITAL PLATFORMS

Discover how businesses have been using tokens and cryptoassets to raise funding and launch new types of digital platforms.

MODULE 6

THE FUTURE OF BLOCKCHAIN TECHNOLOGY, AI, AND DIGITAL PRIVACY

Consider how blockchain technology may interact with broader changes in digital platforms, AI, and IoT. Explore the implications of blockchain technology for digital privacy.

WHY MIT SLOAN EXECUTIVE EDUCATION?

Learn more about
**THE MIT SLOAN
ADVANTAGE**



WHO YOU'LL LEARN FROM

The design of this MIT online course is guided by faculty and industry experts who will share their experience and in-depth subject knowledge with you throughout the program.

FACULTY DIRECTOR

CHRISTIAN CATALINI



*Theodore T. Miller Career Development
Professor at MIT
Associate Professor of Technological
Innovation, Entrepreneurship, and Strategic
Management
Founder, MIT Cryptoeconomics Lab*

Christian Catalini is the *Theodore T. Miller Career Development Professor* at MIT, and Associate Professor of Technological Innovation, Entrepreneurship, and Strategic Management, MIT Sloan School of Management. He is also the founder of the MIT Cryptoeconomics Lab. Christian's main areas of interest are the economics of digitization, entrepreneurship, and science. His research focuses on blockchain technology and cryptocurrencies, and the economics of equity crowdfunding and startup growth. Christian is one of the principal investigators of the MIT Digital Currencies Research Study, which gave

access to all MIT undergraduate students to Bitcoin in the Fall of 2014. He is also part of the MIT Initiative on the Digital Economy and the Digital Currency Initiative. He holds a PhD from the University of Toronto (Rotman School of Management), and MSc (summa cum laude) in Economics and Management of New Technologies from Bocconi University, Milan. In 2009-10 he was a visiting student at Harvard University. His work has been featured in *Nature, Science, The New York Times, The Wall Street Journal, The Economist, WIRED, NPR, Forbes, Bloomberg, TechCrunch, The Boston Globe, and The Washington Post* among others. He has presented his research at a variety of institutions including Harvard University, Stanford University, MIT, the Wharton School, Yale University, London Business School, New York University, UC Berkeley, the Federal Reserve Bank, the SEC, the US Treasury, the US Department of Defense, the World Bank, and the White House OSTP.

FACULTY MEMBERS



CATHERINE TUCKER
*Sloan Distinguished Professor
of Management
Professor, Marketing*

Catherine Tucker is the *Sloan Distinguished Professor of Management* and Professor of Marketing at MIT Sloan. She is also Chair of the MIT Sloan PhD Program. Her research interests lie in how technology allows firms to use digital data to improve their operations and marketing, and in the challenges this poses for regulations designed to promote innovation. She has particular expertise in online advertising, digital health, social media, and electronic privacy. Generally, most of her research lies in the interface

between marketing, economics, and law. She has received an NSF CAREER Award for her work on digital privacy, the Erin Anderson Award for Emerging Marketing Scholar and Mentor, the Paul E. Green Award for contributions to the practice of Marketing Research and a Garfield Award for her work on electronic medical records. Tucker is associate editor at *Management Science* and a research associate at the National Bureau of Economic Research. She teaches MIT Sloan's course on Pricing and the EMBA course "Marketing Management for the Senior Executive." She has received the Jamieson Prize for Excellence in Teaching as well as being voted "Teacher of the Year" at MIT Sloan. She holds a PhD in economics from Stanford University, and a BA from the University of Oxford.



SILVIO MICALI

Ford Professor of Engineering

Born in Palermo, Italy, Silvio Micali received his PhD in Computer Science from the University of California at Berkeley in 1983. He joined MIT in 1983, where he is *Ford Professor of Engineering*. His scientific interests include complexity-based pseudorandom generation and cryptography, interactive and computationally sound proofs, zero knowledge, secure protocols, and mechanism design. He is the recipient of the Goedel prize (in theoretical computer science) and the RSA prize (in cryptography), and is a member of the National Academy of Sciences, the National Academy of Engineering, and the American Academy of Arts and Sciences.



ERIK BRYNJOLFSSON

Professor, MIT Sloan School of Management

Director, The MIT Initiative on the Digital Economy

Erik Brynjolfsson is Director of the MIT Initiative on the Digital Economy, Professor at MIT Sloan, and Research Associate at the National Bureau of Economic Research (NBER). His research examines the effects of information technologies on business strategy, productivity and performance, digital commerce, and intangible assets.

At MIT, he teaches courses on the Economics of Information and the Analytics Lab. Author or co-author of several books including *New York Times* bestseller *The Second Machine Age: Work, Progress and Prosperity in a Time of Brilliant Technologies* (2014), and *Machine, Platform, Crowd: Harnessing Our Digital Future* (2017), Brynjolfsson is one of the most widely-cited scholars in information systems and economics and has served on the editorial boards of numerous academic journals.



ROBERTO RIGOBON

Society of Sloan Fellows Professor of Management

Professor, Applied Economics

Roberto Rigobon is the *Society of Sloan Fellows Professor of Management* and a Professor of Applied Economics at the MIT Sloan School of Management. He is also a research associate of the National Bureau of Economic Research, a member of the Census Bureau's Scientific Advisory Committee, and a visiting professor at IESA. Roberto is a Venezuelan economist whose areas of research are international economics, monetary economics, and development economics. Roberto focuses on the causes of balance-of-payments crises, financial crises, and the propagation of them across countries—the phenomenon that has been identified in the literature as contagion. Currently he studies properties of international pricing practices, trying to produce alternative measures of inflation. He is one of the two founding members of the Billion Prices Project, and a co-founder of PriceStats. Roberto joined the business school in 1997 and has won both the "Teacher of the Year" award and the "Excellence in Teaching" award at MIT three times. He received his PhD in economics from MIT in 1997, an MBA from IESA (Venezuela) in 1991, and his BS in Electrical Engineer from Universidad Simon Bolivar (Venezuela) in 1984. He is married with three kids.



NEHA NARULA

Director of the Digital Currency Initiative at the MIT Media Lab

Neha Narula is the Director of the Digital Currency Initiative at the MIT Media Lab. She received her PhD in computer science from MIT in 2015, where she worked on concurrency control for scalable distributed systems and databases. Her current research interests are in cryptocurrencies and distributed systems. Neha is a member of the World Economic Forum's Global Futures Council on Blockchain and has given a TED talk on the future of money. In a previous life, she helped relaunch the news aggregator Digg and was a senior software engineer at Google.

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A POWERFUL COLLABORATION

MIT Sloan Executive Education is collaborating with online education provider, GetSmarter, to create a new class of learning experience — one that is higher-touch, intimate, and personalized for the working professional.

WHAT IS MIT SLOAN?

The MIT Sloan School of Management is one of the world's leading business schools, emphasizing innovation in practice and research, with a mission to develop principled, innovative leaders who improve the world, and to generate ideas that advance management practice. The School's focus on action learning means that students are able to apply concepts learned in the classroom to real-world business settings and, through its collaborative spirit, MIT Sloan welcomes and celebrates diverse viewpoints, creating an environment where new ideas grow and thrive.

WHAT IS MIT SLOAN EXECUTIVE EDUCATION?

MIT Sloan Executive Education offers non-degree executive programs led by MIT Sloan faculty to provide business professionals from around the world with a targeted and flexible means to advance their career development goals and position their organizations for future growth.

By collaborating with GetSmarter, a leader in online education, MIT Sloan Executive Education is able to broaden access to its on-campus offerings in a collaborative and engaging format that stays true to the quality of MIT Sloan and MIT as a whole.

WHAT IS GETSMARTER?

GetSmarter, a wholly-owned subsidiary of 2U, Inc., is a digital education company that partners with the world's leading universities to select, design and deliver premium online short courses with a data-driven focus on learning gain.

Technology meets academic rigor in our people-mediated model which enables lifelong learners across the globe to obtain industry-relevant skills that are certified by the world's most reputable academic institutions.

MIT SLOAN CERTIFICATE OF COMPLETION

This program offers you the opportunity to earn a certificate of completion from one of the world's leading business schools - the MIT Sloan School of Management. Your certificate will be issued in your legal name and couriered to you, at no additional cost, upon successful completion of the program, as per the stipulated requirements. This program also counts towards an MIT Sloan Executive Certificate.



HOW YOU'LL LEARN

Every course is broken down into manageable, weekly modules, designed to accelerate your learning process through diverse learning activities:

- Work through your downloadable and online instructional material
- Interact with your peers and learning facilitators through weekly class-wide forums and graded small group discussions
- Enjoy a wide range of interactive content, including video lectures, infographics, live polls, and more
- Investigate rich, real-world case studies
- Apply what you learn each week to assignments, culminating in a blockchain technology primer.

Each module is released weekly, allowing a flexible but structured approach to learning. You'll be supported as you engage in individual activities and group discussions, ensuring you feel confident to submit your best work at each weekly deadline.

TECHNICAL REQUIREMENTS

BASIC REQUIREMENTS

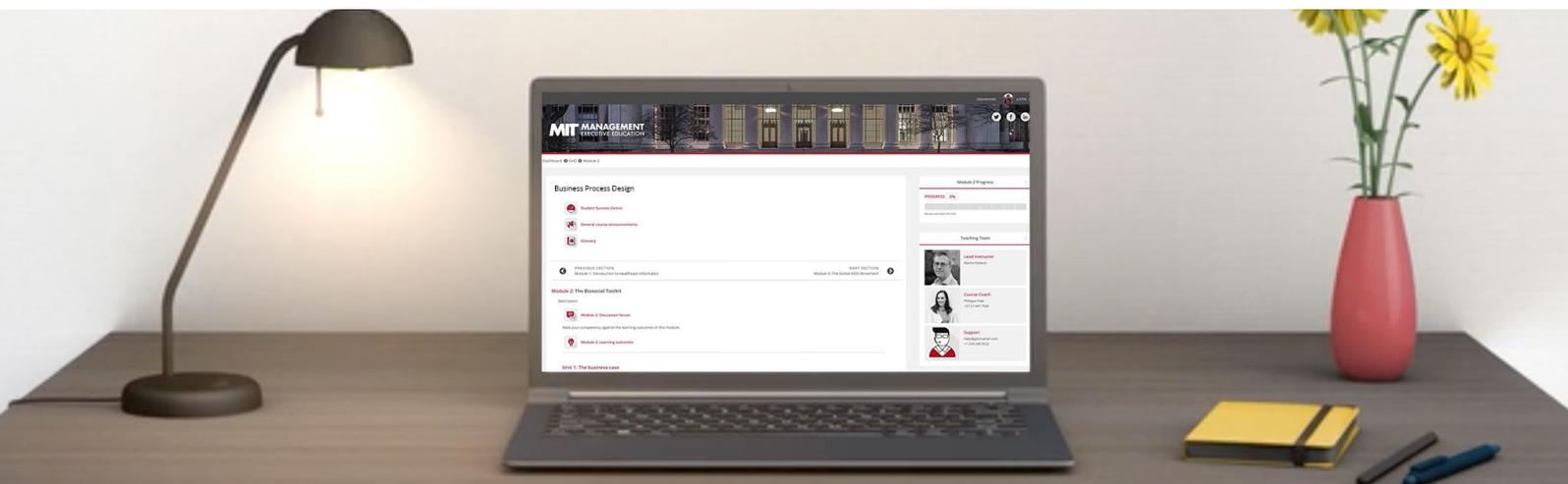
In order to complete a course, you'll need a current email account and access to a computer and the internet, as well as a [PDF Reader](#). You may need to view Microsoft PowerPoint presentations, and read and create documents in Microsoft Word or Excel. Installing [Adobe Flash Player](#) will give you full access to certain course content, such as interactive infographics. However, you'll still have access to this content in the form of a downloadable PDF transcript if you'd prefer not to use Flash.

BROWSER REQUIREMENTS

We recommend that you use Google Chrome as your internet browser when accessing the Online Campus. Although this is not a requirement, we have found that this browser performs best for ease of access to course material. This browser can be downloaded [here](#).

ADDITIONAL REQUIREMENTS

Certain courses may require additional software and resources. These additional software and resource requirements will be communicated to you upon registration and/or at the beginning of the course. Please note that Google, Vimeo, and YouTube may be used in our course delivery, and if these services are blocked in your jurisdiction, you may have difficulty in accessing course content. Please check with a Course Consultant before registering for this course if you have any concerns about this affecting your experience with the Online Campus.





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