

Columbia Engineering

Dual MBA/Executive MS in Engineering and Applied Science

An MBAXMS in Engineering and Applied Science:

- Growing need for business leaders with technical skills
- 2 degrees from 2 top-ranked schools in less than 2 years
- Amazing faculty + unique curriculum design
- Dynamic and diverse community of students
- Incredible resources for academic and career support
- Unmatched location in New York City







Why Columbia Business School?

Community: CBS students are bright. Collaborative. Driven to excel. Join an Ivy League community that never stops improving.

Training: Immerse yourself in the world of business. Put theory into practice in board rooms, trading floors, retail stores, and more.

Faculty: Learn from the best. Our professors are industry experts and brilliant educators, eager to help you achieve your every goal.

Network: Connect with 52,500+ alumni who are leaders and decision-makers across industries around the world, and have a chance to meet high-profile guest speakers and lecturers.



Why Columbia Engineering?

Community: Columbia Engineers are creative problem solvers and eager collaborators, determined to address the world's most pressing needs. Join us in shaping tomorrow.

Training: Learn to think creatively, analytically, and globally about some of the greatest challenges facing humanity, and gain a foundational degree that will prepare you for the most in-demand careers of today and for fields not yet imagined.

Faculty: Learn from leading researchers, investigators, and instructors in your chosen field.

Network: Enhance your network and propel your career forward with access to more than 51,000 alumni around the world.

World-Glass Knowledge

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Columbia Business School



Shih-Fu Chang Dean

Fu Foundation School of Engineering and Applied Science

Morris A. and Alma Schapiro Professor

Professor of Electrical Engineering and Computer Science

We recognize how important it is to provide students with broad exposures to emerging technology breakthroughs."



Costis Maglaras Dean

Columbia Business School

David and Lyn Silfen Professor of Business

⁴⁴ This program allows students to move seamlessly from the classroom, to product development, to largescale innovation."



Program Directors





Harry West Program Director

Professor of Professional Practice in Industrial Engineering and Operations Research

Fu Foundation School of Engineering and Applied Science

Daniel Guetta Program Director

Associate Professor of Professional Practice

Columbia Business School



Yevgeniy Yesilevskiy Lecturer of Mechanical Engineering

Teaches "Fundamental Design Tools"

Hugh Thomas Associate Director for Innovation, Design, and Entrepreneurship

Teaches "Design of UI/UX for Connected Systems"

Harry West Professor of Professional Practice in Industrial **Engineering and Operations Research**

Teaches "Frontiers of Tough Tech"

Dan Wang Associate Prof. of Business

Teaches "Technology Strategy"

Sheena S. Iyengar S.T. Lee Prof. of Business

Teaches "Think Bigger"



Jorge A. Guzman Associate Prof. of **Business**

Teaches "Entrepreneurial Strategy"

Program **Faculty**

Columbia **Business** School

Columbia Engineering

75+ 14 **Faculty Members**

Areas of Study

Fall Semester

- Human-Centered Design & Innovation •
- Design of UI/UX for Connected Systems
- Frontiers of Tough Tech •
- Fundamental Design Tools •#(Subject to change)
- Foundations of Entrepreneurship *
- Statistics + Business Analytics *

Spring Semester

- Lead: People, Teams, Organizations *
- Strategy Formulation *
- Managerial Economics *
- Global Economic Environment *
- Marketing *
- Financial Accounting *
- Foundations of Valuation *
- Corporate Finance *
- Operations Management •
- Analytics in Python •



Summer Term

Entrepreneurship Concentration

Work on your startup with funding provided by the program

Enterprise Concentration

Take a paid internship with a startup or an established technology company





Second Year Curriculum

- Choose from an extensive array of electives at both Columbia Business School and Columbia Engineering based on concentration
- Fulfill an engineering concentration in one of seven areas
- Fulfill a business concentration in entrepreneurship or enterprise
- Complete an engineering capstone project that will prepare you to take on a leadership role



Complete an Engineering Concentration



Advanced Materials & Nanotechnology



Climate, Energy, and Sustainability



AI & Machine Learning



Medical Device Design



Robotics & Smart Machines



Software Systems



Supply Chain, Retail & Service Systems



Columbia Business

School

Fulfill a Business Concentration

Entrepreneurship Concentration Classes include:

- Entrepreneurial Strategy
- Entrepreneurial Finance
- Launch Your Startup
- Entrepreneurial Law for Startups
- Entrepreneurship Through Acquisition and more

Enterprise Concentration Classes include:

- Product Management
- Technology Strategy
- Operations Strategy

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- Economics of Organizational Strategy
- Financial Planning and Analysis
- Managerial Decision-Making and more

Columbia Business School

Unmatched Opportunities

Digital Future Initiative Columbia Business Silfen Leadership Ser

Columbia Business School

Columbia Engineering

Opportunities in New York City

Build your network, refine your skills, and launch your successful career in one of the most vibrant, innovative business and entrepreneurial ecosystems in the world.





Distinguished Speakers and Conference at CBS and Columbia Engineering



Jensen Huang CEO and President, NVIDIA **Reid Hoffman** Co-Founder and CEO, LinkedIn Nina Tandon '09SEAS Co-founder and CEO, EpiBone

Columbia Business School

World-Class Resources

Graduate Career Placement Team:

- One-on-One Career Coaching
- Global Alumni Connections
- Innovative Professional Development Opportunities
- Student-Employer Engagements and Events
- Professional Development and Leadership Fellows Program

Career Management Center:

- CMC Coaches / CMC Fellows
- Executives in Residence
- Columbia Build Lab
- Columbia Startup Lab
- Alumni Edge Program
- Columbia Alumni Virtual Accelerator

Columbia Business School



Successful Entrepreneurs



Recruitment by Top Employers

As a graduate of the program, you'll have career support to explore opportunities at top companies.



Columbia Business School

Worldwide Alumni Network

52,500+ Columbia Business School Alumni 51,000+ Columbia Engineering Alumni **103,500+** Alumni Worldwide

Columbia Business School

Columbia Engineering

Notable Alumni



Alicia Abella PhD, Computer Science '95 Managing Director, Google Cloud



Bob Bakish BS '85, MBA '89 Former President and CEO of Paramount Global



Ursula Burns MS '81 Former CEO of Xerox



Gail McGovern MBA '87 President and CEO, American Red Cross



Robert Reffkin MBA '03 Founder & CEO of Compass



Jon Stein MBA '09 Founder and CEO of Betterment







Academic History

- Undergraduate STEM degree ٠
- Work experience (min. 2 yrs.) ٠
- GMAT / GRE scores ٠

Alignment with Your Professional Goals

- Interested in creating or joining ٠ a startup company
- Seeking an enhanced role at ٠ an established technology firm
- Expanding opportunities as a • technical product manager

- Essay ٠
- Interview



Application Deadlines

	Application Due	Decision
Round 1	September 10, 2024*	Final decisions released by December 20, 2024
Round 2	January 7, 2025*	Final decisions released by March 26, 2025
Round 3	April 1, 2025* *Applications are due by	Final decisions released by May 15, 2025
	deadline.	

For more information about application round, please visit: https://academics.gsb.columbia.edu/mbaxms#Admissions



Begin August 2025 and complete the program in May 2027.

Application Requirements

- Online Application
- Resume
- 1Essay
- Post MBAxMS Goal
- Summer Track Goal
- 2 Letters of Recommendation
- Transcripts
- GRE or GMAT Scores
- Interviews by Invitation
- Application Fee





Funding Your Education

Institutional Funds

- Merit-Based
 - All applicants considered without additional applications
 - Range from \$25,000 to full tuition per year
 - Is included in the total institutional funding offered
 - Priority is given to Round 1 and Round 2 applicants
- Need-Based
 - Multi-step application process
 - Made available at the invitation to interview for August
 - Is included in the total institutional funding offered

Loans and External Resources

- Loans available up to the full financial aid budget less other aid
- No-cosigner international loan options

Recognizing that attending this program is a significant investment of your time and money, we strive to provide the information and resources you need to finance your education.

Explore Financial Aid Office Support and Resources: <u>business.columbia.edu/financial-aid</u>



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Columbia Business School

Columbia Engineering

Contact Us

apply@gsb.columbia.edu 212-854-1961

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Columbia Engineering









APPENDIX

Engineering Concentration Courses

The master of science program is strongly oriented to collaborative research and a well-balanced program of study.

Your work will result in a broad grounding in your selected concentration, along with indepth knowledge in your specific area of specialization.

Medical Device Design

9 Credits

- Biomedical Innovation I
- **Biomedical Design II**
- Lab to Market
- Bioinstrumentation
- Drug and Gene Delivery
- Biomems •

Advanced Materials and Nanotechnology 9 Credits

- Nanotechnology
- Infrastructure Materials
- Microelectromechanical Systems
- Principles of Device Microfabrication
- Synthesis & Processing of Materials
- Ceramic Nanomaterials
- **Electronic and Magnetic Properties** of Solids
- Materials Science Laboratory
- Mechanical Properties of Structural Materials
- Ceramics & Composites
- Electrochemical Materials and Devices
- Thin Films and Layers
- Mechanics of Fracture and Fatigue
- Micromechanics of Composite Materials

- Fundamentals of photonics

AI and Machine Learning 9 Credits

- Machine Learning
- Natural Language Programming
- Machine Learning for Functional Genomics
- Artificial Intelligence
- Unsupervised Machine Learning
- Machine Learning Theory

Climate, Energy, and Sustainability

9 Credits

- Energy: Sources and Conversation
- Alternative Energy Resources
- Introduction to Atmospheric Science
- Electrochemical Energy Storage Systems
- Solar Fuels
- Solar Thermal Engineering

Robotics and Smart Machines

9 Credits

- Robotics
- Computational Aspects of Robotics
- Robot Learning
- Robotics Studio
- Machine Learning
- Computer Vision
- Advanced Kinematics, Dynamics, and **Control in Robotics**

Software Systems

- 9 Credits
- Introduction to Databases
- Computer Networks
- Fundamentals of Large-scale **Distributed Systems**
- Computer Security 1
- Computer Security 2
- Database System Implementation

Supply Chain, Retail and Service Systems

9 Credits

- Supply Chain Analytics
- Transportation Analytics and Logistics
- Dynamic Pricing and Revenue Management
- Service Engineering
- Healthcare Operations Management
- OR in Public Policy

- Columbia Business School
 - Columbia Engineering

APPENDIX

Business Concentration Courses

Students who choose the entrepreneurship concentration will be given a summer stipend to assist them while they pursue their venture idea.

Students who pursue the enterprise concentration will obtain an internship with support from both the Engineering and Business School's Career Offices.



Columbia Engineering

Entrepreneurship Concentration 9 Credits

- Managerial Negotiations
- The Leader's Voice
- Entrepreneurial Strategy
- Entrepreneurial Selling
- Entrepreneurial Law for Start-Ups
- Entrepreneurial Greenhouse
- Entrepreneurial Finance
- Foundations of VC
- Launch Your Startup
- Launch Your Startup II
- Product Management
- Digital Product Management Lab

Analytics Requirement

3 Credits

- Analytics in Action
- The Analytics Advantage
- Business Analytics II
- Marketing Analytics
- Demand Analytics
- People Analytics and Strategy
- Market Intelligence: Art & the Science
- Quantitative Pricing & Revenue Analytics
- Data Science for Marketing Managers
- Modern Econometrics for Business
- Sports Analytics

Enterprise Concentration 9 Credits

- Managerial Negotiations
- The Leader's Voice
- Technology Strategy
- Operations Strategy
- Economics of Strategic Behavior
- Economics of Organizational Strategy
- Financial Planning and Analysis
- Top Management Process
- Managerial Decision Making
- Power and Influence
- Product Management
- Digital Product Management Lab

Innovation Requirement

3 Credits

- Foundations of Innovation
- Think Bigger
- Napoleon's Glance
- Corporate Innovator: A Guide Through the Labyrinth
- Innovate Using Design Thinking
- Social Innovation using Data-Driven Design

Columbia Engineering Elective Courses

Columbia Business School Control in RoboticsAlternative Energy Resources

Advanced Kinematics, Dynamics, and

- Artificial Intelligence
- Bioinstrumentation
- Biomedical Design II
- Biomedical Innovation I
- Biomems
- Ceramic Nanomaterials
- Ceramics & Composites
- Computational Aspects of Robotics
- Computer Networks
- Computer Security 1
- Computer Security 2
- Computer Vision
- Database System Implementation
- Drug and Gene Delivery
- Dynamic Pricing and Revenue Management
- Electrochemical Energy Storage Systems
- Electrochemical Materials and Devices
- Electronic and Magnetic Properties of Solids
- Energy: Sources and Conversation
- Fundamentals of Large-scale Distributed Systems
- Fundamentals of photonics
- Healthcare Operations Management
- Infrastructure Materials
- Introduction to Atmospheric Science

- Introduction to Databases
- Lab to Market
- Machine Learning
- Machine Learning for Functional Genomics
- Machine Learning Theory
- Materials Science Laboratory
- Mechanical Properties of Structural Materials
- Mechanics of Fracture and Fatigue
- Microelectromechanical systems
- Micromechanics of Composite Materials
- Nanotechnology
- Natural Language Programming
- OR in Public Policy
- Principles of device microfabrication
- Robot Learning
- Robotics
- Robotics Studio
- Service Engineering
- Solar Fuels
- Solar Thermal Engineering
- Supply Chain Analytics
- Synthesis & Processing of Materials
- Thin Films and Layers
- Transportation Analytics and Logistics
- Unsupervised Machine Learning

Columbia Business School Elective Courses

- Analytics in Action
- Business Analytics II (Full Term)
- Business Analytics II (Half Term)
- Corporate Innovator: A Guide Through the Labyrinth
- Data Science for Marketing Managers
- Demand Analytics
- Digital Product Management Lab
- Economics of Organizational Strategy
- Economics of Strategic Behavior
- Entrepreneurial Finance
- Entrepreneurial Greenhouse
- Entrepreneurial Law for Start-Ups
- Entrepreneurial Selling
- Entrepreneurial Strategy
- Financial Planning and Analysis
- Foundations of Innovation
- Foundations of VC
- Innovate Using Design Thinking
- Launch Your Startup
- Launch Your Startup II

- Managerial Decision Making
- Managerial Negotiations
- Market Intelligence: The Art and the Science
- Marketing Analytics
- Modern Econometrics for Business
- Napoleon's Glance
- Operations Strategy
- People Analytics and Strategy
- Power and Influence
- Product Management
- Quantitative Pricing & Revenue Analytics
- Social Innovation using Data-Driven Design
- Sports Analytics
- Technology Strategy
- The Analytics Advantage
- The Leader's Voice
- Think Bigger
- Top Management Process