

# Executive Masters Programs

## Executive Master in Cybersecurity

The Brown University Executive Master in Cybersecurity (EMCS) is a 16-month program for professionals designed to cultivate high-demand, cross-industry executives with the unique and critical ability to devise and execute integrated, comprehensive cybersecurity strategies for nations and industries across the globe.

Leveraging Brown's culture of interdisciplinary and cybersecurity excellence, the program fosters industry leaders prepared to address cybersecurity's global, technical, human, and policy challenges. The program convenes world-class thought leaders from Brown's top-ranked Department of Computer Science and Watson Institute for International and Public Affairs, as well as accomplished practitioners driving advances in cybersecurity.

EMCS forges visionary leaders ready to deploy successful strategies for cybersecurity that address:

- Technologies such as big data, cloud, mobile, Internet of Things
- Social trends including social networks, globalized workforce
- Human factors
- Economic tradeoffs and risk management
- Policy and privacy
- Effective leadership

For further information including admission criteria and tuition and fees please visit: <http://www.brown.edu/academics/professional/cybersecurity/>

## Executive Master of Healthcare Leadership

The Brown University Executive Master of Healthcare Leadership prepares visionary leaders to transform healthcare. This 16-month intensive degree program is designed for clinicians, executives, and senior administrators who have significant responsibility in the healthcare industry; including those from health care delivery, public health, drug and product manufacturing, health care consulting, health management systems, insurance, patient advocacy, and from legal, policy and regulatory settings. It is a blend of on-campus and online learning that allows participants to work full time while pursuing an advanced degree.

The faculty and participants in the program have a depth of experience in the healthcare industry and are fully engaged in addressing the gaps and constraints of the current system. The course of study is tailored to this industry and leadership development is purposefully considered in the healthcare context.

### Course of Study

- Quality Improvement and the Healthcare Learning Organization
- Data-Driven Decision Making: The Structure, Conduct, Review, and Evaluation of Research
- Financial Decisions in the Changing Healthcare Landscape
- Healthcare Policy: Yesterday, Today, and Tomorrow
- Information-Powered Patient Care: Electronic Health Records, Health Information Technology, and Medical Information Systems
- Management and Marketing Skills for Healthcare Transformation
- Navigating the Regulatory Maze
- Strategic Planning and Value Creation in Integrated Healthcare
- The Critical Challenge

For further information including admission criteria and tuition and fees please visit: <http://www.brown.edu/academics/professional/healthcare-leadership/>

## Executive Master in Science and Technology Leadership

The Brown Executive Master in Science and Technology Leadership transforms engineering, science, and technology professionals into leaders prepared to drive innovation in today's complex, rapidly evolving, global markets. This 16-month program of online and residential learning is for experienced professionals who are ready to go beyond their technical expertise, broaden their impact, and achieve greater success.

Through coursework and teamwork, students develop their capacity for:

- **Strategic Thinking and Decision Making** to anticipate and adapt to changing market needs, technological advances, and increased global competition
- **Global Value Creation** to identify and use sources of innovation in varied corporate and national settings to create products with global value
- **Innovation** to develop technologies that shape the future and change the world
- **Leadership and Communication** to lead and inspire diverse, cross-functional teams, and influence stakeholders in and across organizations

For further information including admission criteria and tuition and fees please visit: <http://www.brown.edu/academics/professional/emst/>

### Courses

#### Cybersecurity

##### EMCS 2000. Introduction to Computer Security.

This course teaches principles of computer security from an applied viewpoint and provides hands-on experience with security threats and countermeasures. The course additionally covers principles and skills useful for making informed security decisions and for understanding how security interacts with the world around it. Topics include general security principles, cryptography, authentication authorization, identity, access management, operating systems security, network security, web security, and applications security. The course aims to balance theory and practice.

##### EMCS 2010. Applied Cryptography and Data Privacy.

This course begins by introducing the fundamentals of cryptography. In particular, we cover the concepts of provable security and other cryptographic methods and study basic cryptographic tools such as encryption, digital signature schemes and zero-knowledge proofs. We then explore a broad range of cryptographic applications, such as data privacy, secure communications, cryptographic access control, cryptographic currencies and privacy preserving technologies. The teaching style emphasizes the use of the right cryptographic tools to solve security and privacy challenges, and pitfalls that may arise in deploying cryptographic methods in real-life systems. Projects address applications of cryptography to application domains familiar to the students.

##### EMCS 2020. Advanced Topics in Computer Security.

This course covers selected advanced topics in computer security by providing a deeper coverage of subjects introduced in previous courses, such as authentication, encryption, operating system security, and network security, and introducing new subjects, such as cloud security, mobile security, blockchain technologies, and machine learning applications to security. The course incorporates real-life examples that motivate the deployment of advanced cyber defense measures. As part of the course assignments, students explore connections between cyber threats and defenses taught in the course and their own critical challenge projects.

##### EMCS 2200. Global Cyber Challenges: Law, Policy and Governance.

This course will examine the problems confronting the United States and the international community in addressing network and computer insecurity while upholding privacy, civil liberties and other fundamental values. We will examine cybersecurity as a problem that can be addressed from a policymaker's perspective. We will look at a variety of legal and policy frameworks as they relate to cybersecurity and cyber conflict, modeling ways they may be employed to address cybersecurity problems.

**EMCS 2210. Privacy and Personal Data Protection.**

Students will learn about and gain practical experience with: the development of modern privacy law around the world; the current US legal and regulatory framework, including protection of personal health, financial, educational, workplace, and other personal data; protection of personal data and privacy around the world, including the new European Union General Data Protection Regulation; the relevant institutions, such as the Federal Trade Commission and the Data Protection Authorities; personal data breaches; the privacy and autonomy of the individual in relation to the state, as well as corporations; standards; Privacy by Design; and emerging issues arising from technological developments.

**EMCS 2400. Effective Leadership.**

This course prepares students to assume greater responsibility roles in their organizations by developing and reinforcing critical skills for a cybersecurity leader. Course topics include professional development, team building, communication, ethics and power, change management, conflict resolution, and cyber game simulation.

**EMCS 2410. Human Factors in Computer Security and Privacy.**

Security is not solely, or sometimes even primarily, a technical problem; rather, human aspects are at least as important, especially the ways they interact with the technologies. The course communicates this point from many perspectives, ranging from behavioral issues to user interfaces to personnel management and more. Students will emerge with a richer understanding of the strengths and weaknesses of human agents, and thus how they are central to both the occurrence of and of solutions to cybersecurity problems. Projects include case studies on security as it relates to: business workflows, tradeoffs with usability, and the detection of insider threats.

**EMCS 2420. Management of IT Systems and Cybersecurity.**

This course analyzes the practical challenges facing executives of business organizations in managing information technology systems and cyber risks. It focuses on the costs and tradeoffs that are involved in all security and privacy decisions. The teaching style is based on role modeling and students are coached on how to develop operational skills and apply their security background to strategic planning and day-to-day decision making. Projects aim at increasing the students' confidence about the security decisions they make and at deepening their understanding of globally-accepted security best practices and heuristics.

**EMCS 2600. The Future of Cybersecurity: Technology and Policy.**

This course examines advanced and emerging cybersecurity technology and policy issues. We explore operational security, product development and acquisition, securing enterprise computing, and human factors. We also examine corporate issues that are likely to arise at the national and international levels. These include regulation, breach reporting requirements, and loss of critical services. We also examine Internet governance regimes and norms for states and global ICT companies. Finally, we discuss emerging issues such as moving targets defense, national encryption policies, secure computation, Internet sovereignty, and unusual types of threat. Students are encouraged to reflect on the interactions between policy and technology.

**EMCS 2800. Critical Challenge Project.**

Independent project under the direction of a faculty member.

**Health Care Leadership****EMHL 2000. Strategic Planning and Value Creation in Integrated Healthcare.**

In this course, participants explore the meaning of value creation in healthcare organizations—how it relates to high performance, how it varies and is measured in different healthcare segments, and how it is embodied in the structure and performance of their own organizations. A holistic High Performance Model of enterprise value creation is presented, including strategic planning, process improvement, and resource and organizational alignment. The model is discussed from the perspectives of a variety of healthcare organizations—with the goal of applying the model to create value for the participants' own organizations.

**EMHL 2010. Healthcare Policy: Yesterday, Today, and Tomorrow.**

In this course, students appraise past and current political, legal, technological, and economic U.S. healthcare policy developments. Students critically examine the implementation of alternative methods of health services delivery and financing within multiple global healthcare systems. Participants question assumptions, think creatively, and consider integrated patient care solutions to prepare for change and new paradigms within the global healthcare sector.

**EMHL 2020. Management and Marketing for Healthcare Transformation.**

In this course, students develop the management, marketing, and leadership skills needed to guide organizational change and refine their personal leadership style to lead in today's rapidly-changing health care landscape. Particular focus is placed on negotiation, conflict management, collaboration, and team building skills. Participants create a robust plan for their continuous development as a leader. Students also learn how to harness the power of social media to develop their brand and their organization's influence in the marketplace.

**EMHL 2030. Data-Driven Decision Making: The Structure, Conduct, Review, and Evaluation of Research.**

This course will provide an overview of the methods and applications of therapy economics, biostatistics and epidemiology in healthcare sector decision-making. Specific topics include: the application of therapy economics and economic evaluation to treatments, pharmacoeconomics and technology assessment; the assessment and interpretation of published epidemiological studies: institutional oversight of epidemiological research programs; the four key steps of statistical analysis (identification of scientific programs or problems of interest, collection of the required data, analysis and summary of data, and generation of a conclusion).

**EMHL 2040. Navigating the Regulatory Maze.**

This course explores the culture of decision making as well as the structure and role of key US and international regulatory bodies. Students explore how health care is regulated with an eye towards understanding how existing regulations improve quality, enhance access, and control cost. The topics of risk management, public health, and product/drug regulation are emphasized.

Fall EMHL2040 S01 10002 Arranged

(D. Dosa)

**EMHL 2050. Info-Powr Patient Care: Electr. Health Records, Healthcare Info Techn. + Medical Information Systems.**

This course will provide an overview of the major aspects of information technology (IT) as they relate to both the causes of and the solutions to current problems in healthcare. Issues of standardization, integration, communication and patient engagement will be stressed, and the types of strategic planning for and governance of information systems will be explored. During the course students will be presented with real problems in the field of HIT and explore possible solutions.

Fall EMHL2050 S01 10001 Arranged

(M. Schneider)

**EMHL 2060. Quality Improvement and the Healthcare Learning Organization.**

In this course, students explore the quality improvement drivers, principles, systems, and tools that help create a healthcare learning organization. Students discover how quality improvement creates value, how to demonstrate the value of quality improvement to their colleagues, and how to ultimately develop a culture of learning within their organization. Students compare the learning needs of healthcare organizations to those in other industries. Students design and implement a quality improvement project within their own organization, and develop a "learning organization roadmap" for their organization.

**EMHL 2070. Financial Decisions in the Changing Healthcare Landscape.**

This course focuses on the area of financial management as applied to international health organizations. The course emphasizes the application of principles and concepts of international health financial management to global health providers that represent innovative new structures and organizations, such as Accountable Care Organizations (ACOs) that offer integrated patient care. Students will gain competencies in the application of financial analysis tools and techniques internationally and in the interpretation of data for sound decision-making through case assignments and a class project to analyze the financial results of high performing healthcare organizations serving global markets.

**EMHL 2080. The Critical Challenge: Capstone Project.**

In this project, supervised by Executive Master of Healthcare Leadership (EMHL) faculty, students identify a critical challenge within healthcare and then work collaboratively to integrate knowledge from various perspectives and healthcare sectors and to apply relevant skills to develop possible solutions to their challenge. Students draw upon knowledge and skills from coursework with particular emphasis on collaborating across healthcare sectors, considering ethical implications, communicating effectively and developing creative and viable solutions. Upon completion of this project, students will be able to successfully integrate knowledge of healthcare policy, strategic planning, regulation, management, marketing, healthcare research, quality improvement, finance and information technology to address a critical challenge within healthcare. Project outcomes should prove applicable to professional practice. This course spans two semesters.

**Science and Technology Leadership****EMSL 2000. Effective Leadership: Theory and Practice.**

The goal of this course is to enable participants to forge their own model for effective leadership, applying principles revealed through the study of literature, history, philosophy, politics, and contemporary leadership theory. We will identify the knowledge and competencies required to develop a robust identity as a leader. The course will then explore how leadership and strategy intersect and examine how leaders engage followers to unite around shared purpose and vision. Finally, we will review the ethical implications of leadership actions within an international context and establish the practices necessary to avoid the pitfalls of toxic leadership.

**EMSL 2010. Persuasive Communication.**

This course will provide students with theory, practice opportunities and individualized coaching to help them enhance their oral and written communication skills. Students will focus on persuasive communication, including verbal and nonverbal communication, the relationship between a presenter's goal and the goals/perspectives of the audience, and the rhetorical elements of logos, ethos and pathos. Students will learn how to create compelling business presentations using data visualization to garner people's attention and stimulate action. This course includes the practice of writing as a method for thinking and learning, which develops students' capacity for reflection and awareness of one's self and others.

**EMSL 2200. Economic Perspectives on Strategic Decision Making.**

This course will develop students' strategic thinking skills by providing a theoretical framework for modeling rational decision-making, with extensions to interactive decision-making (game theory); decision-making under uncertainty; and behavioral approaches to decision-making. The course will also study applications of the theory to profit maximization by individual firms under different market structures such as perfect competition and oligopoly.

**EMSL 2210. Finance and Business Strategy.**

The goal of this course is to learn the fundamentals of financial accounting, investment decision-making, and business strategy. The course will cover basic accounting concepts, including revenue recognition, inventory, long-lived assets, present value, long-term liabilities, and financial statements. We will study how accounting information is used in forecasting, operating, and measuring an enterprise. The course will explore how managerial accounting concepts are used to develop budgets and evaluate results and how to implement short- and long- term corporate strategy. Finally, the course will examine how strategic management is formulated in a multi-faceted environment of social, political, economic, and legal entities.

**EMSL 2220. Psychological Perspectives on Strategic Decision Making.**

This course will introduce students to elements of social and cognitive psychology as they relate to business and leadership. The course's premise is that there is a science of relevance, in contrast to the view that great leaders draw their success entirely from charisma, intuition, and good luck. The course will introduce two major perspectives on judgment and decision-making: the heuristics-and-biases paradigm and the ecological-rationality paradigm. The course will also explore the two great (and interrelated) challenges of interpersonal behavior: trust and power. Lastly, the course will cover the relevance of research on creativity and happiness to business and leadership.

**EMSL 2400. Entrepreneurial Leadership in Innovative Firms.**

Entrepreneurial managers are creators of fundamental and radical change. This change may be manifest as a new product, process, technology, business model or organization, or a new industry. Regardless of the form of the change, entrepreneurial activities are responsible for moving society towards a new state that was previously only an idea or concept. This is a position of power, but also responsibility. Entrepreneurial managers can play a crucial leadership role in society – by conceptualizing and materializing radical innovations that can bring about large-scale social and technological change. Such leadership can take various organizational forms and can occur in multiple sectors, underscoring the general management foundations of this course on entrepreneurship and innovation.

**EMSL 2410. Innovation and Technology Development.**

Technological trends and marketplace derive marketing strategy for technology development and management. Technology leaders use innovative models with effective product management to serve market needs. The course provides examples and case studies from biotechnology, environmental and energy technologies, information and communications technologies, and nanotechnology to learn about and gain practical experience applying new innovation models; engaging the constellation of innovation stakeholders; fostering a culture of continuous innovation; leveraging innovation, science, and technology policies; protecting intellectual property; overseeing effective product management; responding to technology trends and trajectories; and understanding regulations and external factors that affect technology development.

**EMSL 2600. Unlocking Value Globally.**

This course examines how firms can mobilize worldwide knowledge to create commercial value and promote technological leadership. We will consider how this has been achieved by firms historically in a variety of national settings. We will also consider whether and how contemporary technological change – i.e., advances in data analytics, sensing, automation, and cognitive computing – has changed the nature of cross-border learning and innovation. Throughout the course, we will examine how processes at the firm level interact with societal institutions, governmental policies, and other ostensibly non-market forces.

**EMSL 2610. South Korea: Rise of a Technology Leader.**

This course is designed to develop innovative technology leaders who can more effectively operate in global settings by acquiring a better understanding of local and regional innovation ecosystems and their success factors. It aims to help students develop those capacities by providing an opportunity to evaluate all aspects of the Korean innovation ecosystem including government policy, Korean multinationals, consumers and culture. Korea was chosen because of the country's recognized position as a technology leader and its rapid evolution from poverty. Students will apply critical, comparative, analytic skills and develop cultural awareness through academic lectures, interactions with leaders at local companies (e.g. Samsung Electronics, Hyundai/Kia Motors, Naver and others) and cultural field trips.

Fall EMSL2610 S01 10004 Arranged 'To Be Arranged'

**EMSL 2800. Critical Challenge Project.**

The Critical Challenge Project (CCP) is central to the Executive Master in Science & Technology Leadership program curriculum. The project identifies a critical organizational challenge, drawing from students' own professional experience or future aspirations. Under the direction of an advisor, students analyze the critical challenge from multiple perspectives and through the insights developed throughout the program and create a comprehensive plan for addressing it. The course provides opportunities to students to apply personal leadership skills to business landscape which is adaptable to changing market needs, technological advances, and increased global competition. Successful CCPs present evidence of incorporation of learning accomplished through program courses, substantial research and stakeholder understanding and effective proposals for outcomes and solutions to be implemented in order to receive a grade of S and credit for the CCP course.

## **Font Notice**

This document should contain certain fonts with restrictive licenses. For this draft, substitutions were made using less legally restrictive fonts. Specifically:

Helvetica was used instead of Arial.

The editor may contact Leepfrog for a draft with the correct fonts in place.