

# CENTER FOR LEADERSHIP EDUCATION

<http://engineering.jhu.edu/cle> (<http://engineering.jhu.edu/cle/>)

The Center for Leadership Education (CLE) is home to a variety of minors and programs that offer students an opportunity to gain real-world experience in innovation, entrepreneurship, and leadership. CLE academic programs include minors in Accounting and Financial Management, Entrepreneurship and Management, Leadership Studies, and Marketing and Communications, as well as graduate programs including the Professional Development Program, the Master of Science in Engineering Management, and the Master of Science in Global Innovation and Leadership.

## CLE Experiential Programs Include Competitions and Other Educational Opportunities

- **HopStart: Hopkins New Venture Challenge:** Students compete for cash prizes for best business plans and pitches in several categories. The competition is open to students at all levels from all divisions of the university. Please visit the website (<https://engineering.jhu.edu/cle/hopstart/>).
- **Case & Pitch Competitions:** Case and pitch competitions hosted by a variety of CLE sponsored, student-run organizations including the Marshal L. Salant Investment Team, the American Marketing Association, the Undergraduate Consulting Club, provide students with the opportunity to learn, collaborate, and share ideas with their peers in order to solve real-world business cases, pitch new investments, or create new campaigns. Competitions are designed not only to develop students' professional skills, but also to connect students with Hopkins alumni in a variety of industries.
- **CLE Connect:** Held in the early fall of each year, our annual career event invites professionals from a variety of industries to network with undergraduate and graduate CLE students.
- **Internships:** Students can apply for sponsorship for academic credit of unpaid internships during the spring, summer, or fall semester.
- **Intersession Courses:** Students can gain hands-on learning experiences during intersession trips to New York in the course P.R. and Media in the Big Apple and through study abroad opportunities in Denmark and Israel.
- **HopStone Capital:** HopStone is a student-run venture capital organization that makes investments\* in Johns-Hopkins-affiliated startups. Team members will source potential investments, assist startup founders with venture funding pitches, make investment decisions, and assist their portfolio of companies as they execute their business plans. *\*Investments are structured in the form of grants to companies/founders and will not result in any ownership interest or securities issuances to HopStone.*

## Student-Run Organizations

- **American Marketing Association Student Chapter:** The JHU chapter of the national American Marketing Association (<https://www.amajhu.com/>).
- **Elemental Consulting:** Elemental Consulting Group aims to provide professional development opportunities for students and the community. We give members the ability to interact with companies in industries we are passionate about, allowing us to develop

professional relationships and provide undergraduates with the information necessary for them to pursue a career in consulting.

- **JHU Enactus:** The JHU chapter of Enactus (<https://www.instagram.com/enactusjhu/>), a global organization dedicated to addressing social issues through social entrepreneurship.
- **Futurism at JHU:** A student-run podcast that discusses billion-dollar ideas in science and technology. Topics include cryptocurrency, sustainability, body enhancements, neural networks, and bioethics. Guest speakers have included tech CEOs, senior journalists, and multi-millionaire entrepreneurs. Please visit the website (<https://linktr.ee/futurismatjhu/>).
- **JH Product Management Club:** The Johns Hopkins Product Management Club (<https://www.jhpmc.org/>) (JHPMC) aims to learn the skills of a software product manager while working on real-world projects with real-time clients.
- **JHU Undergraduate Consulting Club:** The Johns Hopkins Undergraduate Consulting Club (<https://jhu.campusgroups.com/jhucc/home/>) aims to help the undergraduate student body at Johns Hopkins learn more about consulting as a career track, by providing events and resources that will give students insight into the field of consulting and connect them with recruiters from firms.
- **Marshal Salant Student Investment Team:** The team was founded with a generous \$100K donation by alumnus Marshal L. Salant. The team portfolio is currently valued at over \$250K. Profits from the portfolio are used to fund student scholarships. Please visit the website (<https://jhusalant.com/>).
- **Students Consulting for Non-Profit Organizations:** A national organization of undergraduate students committed to developing communities through pro bono consulting engagements with non-profit organizations. Please visit the website (<https://jhuscno.wixsite.com/jhuscno/>).
- **Women in Business:** Women in Business (<https://jhuwib.weebly.com/>) (WIB) provides the women of Hopkins the opportunities necessary to advance their professional and personal development.

## Programs

- Accounting and Financial Management, Minor (<https://e-catalogue.jhu.edu/engineering/full-time-residential-programs/degree-programs/leadership-education/accounting-financial-management-minor/>)
- Engineering Management, Master of Science (<https://e-catalogue.jhu.edu/engineering/full-time-residential-programs/degree-programs/leadership-education/engineering-management-master-science/>)
- Global Innovation and Leadership Through Engineering, Master of Science (<https://e-catalogue.jhu.edu/engineering/full-time-residential-programs/degree-programs/leadership-education/global-innovation-leadership-engineering-master-science/>)
- Leadership Studies, Minor (<https://e-catalogue.jhu.edu/engineering/full-time-residential-programs/degree-programs/leadership-education/leadership-studies/>)
- Marketing and Communications, Minor (<https://e-catalogue.jhu.edu/engineering/full-time-residential-programs/degree-programs/leadership-education/marketing-communications/>)
- Professional Communication Program (<https://e-catalogue.jhu.edu/engineering/full-time-residential-programs/degree-programs/leadership-education/professional-communication/>)

- Professional Development Program (<https://e-catalogue.jhu.edu/engineering/full-time-residential-programs/degree-programs/leadership-education/professional-development/>)
- W.P. Carey Entrepreneurship and Management, Minor (<https://e-catalogue.jhu.edu/engineering/full-time-residential-programs/degree-programs/leadership-education/entrepreneurship-management-minor/>)

For current course information and registration go to <https://sis.jhu.edu/classes/>

## Courses

### **EN.660.105. Foundations of American Enterprise. 3 Credits.**

What technical and other innovations led to the advances that drive our society, particularly in the US? How do organizations structure, manage, and fund themselves to sustain and encourage ongoing innovation? And how are the products and services that result from that innovation produced and translated into resources that ensure future development? This course will walk students through the historical and current underpinnings of the system that enables American enterprises to succeed in a global environment. Whether they become engineers or consultants, doctors or scientists, public health directors or lawyers – no matter what career they pursue, students will be prepared to make leadership decisions.

Distribution Area: Social and Behavioral Sciences

### **EN.660.106. Clark Scholars Leadership Challenge. 1 Credit.**

The Clark Scholars Leadership Challenge is a one credit pass/fail seminar and is designed specifically for the Clark Scholars at JHU who are interested in developing their leadership skills and applying those skills to Hopkins life. The seminar includes both a classroom component and an experiential component. The classroom content includes leadership topics, discussions with university leaders and serves as an introduction to the history, services and involvement opportunities at Hopkins. The experiential component includes programs such as JHU history, faculty student interaction, visits to other JHU campuses and more! Clark Scholars only. S/U only.

Distribution Area: Social and Behavioral Sciences

### **EN.660.116. Design for Innovation: Anthro-Design Crash Course. 2 Credits.**

The Anthro-Design Crash Course is a month-long introductory course that will empower students with tools and skills from design and applied anthropology to embrace innovation. The course uses dynamic classroom techniques developed throughout years of teaching experience, and research in engineering-design education. Students will work in teams towards a final project that will be the test run for the tools learned in class. Centered in a scaffolded self-regulated design learning process, the course will look to promote autonomy, respectful engineering-design, and context assessment. Attendance is mandatory to achieve the learning outcomes.

### **EN.660.203. Financial Accounting. 3 Credits.**

The course in Financial Accounting is designed for anyone who could be called upon to analyze and/or communicate financial results and/or make effective financial decisions. As accounting is described as a language, this course focuses on the vocabulary and processes by which all financial transactions are captured and communicated with an emphasis on using quantitative data to interpret financial performance.

### **EN.660.250. Identifying and Capturing Markets. 3 Credits.**

In this course, students will learn how to identify individual and organizational market needs through entrepreneurial thinking. Exposure to a broad range of organizations—from startups to more established businesses, and a variety of industry sectors, including biomedical engineering, information technology, healthcare, transportation and energy—will provide students with insight into an organization's ability to identify, capture and grow these markets. No prerequisites.

### **EN.660.270. Clark Scholar Engineering Design I. 1 Credit.**

In this course, Clark Scholar students will learn and practice the first stages of design thinking. Students will engage with both industry and academic professionals to identify new innovation targets for future design projects. Additional topics will include multifaceted problem assessment and project selection for Engineering Design II.

Distribution Area: Engineering

### **EN.660.299. Life Design Summer Experience Practicum. 1 Credit.**

The Life Design Summer Experience Practicum provides students with a structured opportunity to apply Life Design to a summer immersive experience. Over the course of 8-weeks, students will use the principles and processes of design thinking to reflect upon their values, identities, habits, and experiences and their relationship to the world of work; to deepen their understanding of potential professional pathways through conversations with colleagues, supervisors, and alumni; and, to test out these pathways through storytelling and the designing of new habits. By the end of the course, students will be able to articulate the ways in which their summer experience informs and supports their academic, professional, and personal ambitions.

### **EN.660.300. Managerial Finance. 3 Credits.**

This course exposes students to the basic concepts and techniques of financial management including how to leverage spreadsheet applications like Microsoft Excel. Analytical techniques are applied to problem solving situations that deal with project/investment evaluations, time value of money and data mining.

**Prerequisite(s):** EN.660.203

### **EN.660.303. Managerial Accounting. 3 Credits.**

This course in Managerial Accounting is designed to expose enterprise leaders to various internal tools and techniques that enable them to better utilize the resources of their business. Cost behavior patterns are incorporated in breakeven analysis, product costing, operational budgeting, and variance analysis with an emphasis on communicating actual versus planned results to responsible parties for quick attention and resolution of issues.

**Prerequisite(s):** EN.660.203

### **EN.660.308. Business Law I. 3 Credits.**

This course is designed to provide students with an introduction to legal reasoning and analysis. Well-suited for a budding entrepreneur, course topics include enterprise formation, capitalization, torts, contracts, intellectual property, employment issues and the sale of an organization.

**Prerequisite(s):** EN.660.105

Distribution Area: Social and Behavioral Sciences

**EN.660.310. Cases in Workplace Ethics. 3 Credits.**

This course introduces the student to the theories and concepts relevant to resolving ethical issues at work. Students will learn the reasoning and analytical skills needed to apply ethical frameworks to their decision-making, to identify ethical challenges in management and leadership, and to understand the context within which ethical issues arise. Students will learn to raise ethical questions with their leaders, whether at work or the communities within which they live and work. Students will have influence over their learning outcomes by selecting to focus on, and learn to assess and respond to, challenges specific to their industry, field and/or country of interest.

Distribution Area: Humanities

**EN.660.329. Social Entrepreneurship Theory and Practice. Community Based Learning. 3 Credits.**

Learn the principles, values and skills necessary to lead and succeed in organizations that make a positive difference in today's world. The course is designed to help students identify and provide opportunities to enhance their leadership skills. A "Blueprint for Success" will provide the framework for students to cultivate their own ideas for new socially conscious entrepreneurial ventures. Students will hear from successful current leaders in the field of social entrepreneurship and be provided the opportunity to network with JHU alumni, faculty and staff who are working or volunteering in for-profit or non-profit entities through occupations that make a difference.

Distribution Area: Social and Behavioral Sciences

Writing Intensive

**EN.660.331. Leading Teams. 3 Credits.**

This course will allow students to develop the analytical skills needed to effectively lead and work in teams. Students will learn tools and techniques for problem solving, decision-making, conflict resolution, task management, communications, and goal alignment in team settings. They will also learn how to measure team dynamics and performance, and assess methods for building and sustaining high-performance teams. Students will also explore their own leadership, personality and cognitive styles and learn how these may affect their performance in a team. The course will focus on team-based experiential projects and exercises as well as provide opportunities to individually reflect and write about the concepts explored and skills gained throughout the course. No Audits. Recommended Course Background: EN.660.332 or EN.660.333.

**EN.660.332. Leadership Theory. 3 Credits.**

Students will be introduced to the history of Leadership Theory from the "Great Man" theory of born leaders to Transformational Leadership theory of non-positional learned leadership. Transformational Leadership theory postulates that leadership can be learned and enhanced. The course will explore the knowledge base and skills necessary to be an effective leader in a variety of settings. Students will assess their personal leadership qualities and develop a plan to enhance their leadership potential. No audits.

Distribution Area: Humanities, Social and Behavioral Sciences

Writing Intensive

**EN.660.333. Leading Change. 3 Credits.**

In this course, we will use a combination of presentation, discussion, experiential learning, research, and self-reflection to investigate issues surrounding leadership and change in communities and the economy. While considering both for-profit and non-profit entities, we will pursue topics including understanding and using theories of change, finding competitive advantage and creating strategic plans; making decisions, even in uncertain times; valuing differences; employing leadership styles; giving and receiving feedback; understanding employee relations; creating performance measures; and developing organizational cultures; and using the dynamics of influence. No audits.

Writing Intensive

**EN.660.340. Management Theory and Practice. 3 Credits.**

No matter how brilliant an idea, it will never be realized without the support of resource holders – whether those resources are technical skills, time, attention, commitment, or money. How does the innovator enlist the active involvement of direct reports, organizational leaders, peers, and partners to implement their initiatives? In this course, students will learn to align their ideas with strategic goals, use communication tools to influence others to support their plans, manage themselves for productivity, and create the team and organizational culture most likely to result in the implementation of their ideas.

Distribution Area: Social and Behavioral Sciences

**EN.660.341. Process Innovation and Quality Management. 3 Credits.**

This course focuses on both quantitative and qualitative analytical skills and models essential to operations process design, management, and improvement in both service and manufacturing-oriented companies. The objective of the course is to prepare the student to play a significant role in the management of a world-class company which serves satisfied customers through empowered employees, leading to increased revenues and decreased costs. The material combines managerial issues with both technical and quantitative aspects. Practical applications to organizations are emphasized. Recommended Course Background: EN.660.105 Foundations of American Enterprise.

Writing Intensive

**EN.660.344. Multidisciplinary Engineering Design 1: ME Senior Design Capstone. 4 Credits.**

Students will work on teams with colleagues from different engineering disciplines to tackle a challenge for a clinical, community, or industry project partner. Through practicing a creative, human-centered design process, teams will understand the essential need behind the problem, prototype solutions, and test and refine their prototypes. In addition to project work, students will learn healthy team dynamics and how to collaborate among different working styles. Only mechanical engineering seniors who are taking this course to fulfill their design capstone requirement may register for this course.

Distribution Area: Engineering

Writing Intensive

**EN.660.345. Multidisciplinary Engineering Design 1. 4 Credits.**

Students will work on teams with colleagues from different engineering disciplines to tackle a challenge for a clinical, community, or industry project partner. Through practicing a creative, human-centered design process, teams will understand the essential need behind the problem, prototype solutions, and test and refine their prototypes. In addition to project work, students will learn healthy team dynamics and how to collaborate among different working styles.

Distribution Area: Engineering, Social and Behavioral Sciences

AS Foundational Abilities: Science and Data (FA2)

Writing Intensive

**EN.660.346. Multidisciplinary Engineering Design 2. 3 Credits.**

In this course, student teams continue their design projects from EN.660.345 with their project partners from industry, medicine, and the Baltimore community. Moving beyond the early design stages of their solution, teams will be introduced to product development tools such as risk analysis, specification creation, verification testing, and timeline management. They will continue to refine and test their prototypes in preparation for hand-off to their project partner at the end of the semester. As projects progress in technical depth, students have more opportunities to contribute expertise from their discipline while learning new skills from their peers and experts.

Distribution Area: Engineering, Social and Behavioral Sciences  
AS Foundational Abilities: Science and Data (FA2)

**EN.660.347. Action Lab. 3 Credits.**

Discover how playful experimentation, rapid prototyping and embracing risk and failure can grow your skills as a future engineer. Together, we will explore the technical skills used in rapid prototyping and apply those skills to two central skill-building projects and one final project of your choosing. This course is designed as a hands-on, participatory workshop, where we'll be making and tinkering together each week in order to develop our own unique approach to solving critical problems.

Distribution Area: Engineering  
AS Foundational Abilities: Science and Data (FA2)

**EN.660.348. Multidisciplinary Engineering Design 2: ME Senior Design Capstone. 4 Credits.**

Students will continue to work on teams with colleagues from different engineering disciplines to tackle a challenge for a clinical, community, or industry project partner. Through practicing a creative, human-centered design process, teams will understand the essential need behind the problem, prototype solutions, and test and refine their prototypes. In addition to project work, students will learn healthy team dynamics and how to collaborate among different working styles. Only mechanical engineering seniors who are taking this course to fulfill their design capstone requirement may register for this course.

**Prerequisite(s):** EN.660.344

Distribution Area: Engineering, Social and Behavioral Sciences

**EN.660.352. New Product Development. 3 Credits.**

New product development is the ultimate interdisciplinary entrepreneurial art, combining marketing, technical, and managerial skills. Students will experience the full breadth of this art. Working in teams, they will conceive of a product and take it through the development process, culminating in a "Shark Tank"-style pitch by the end of the semester. Topics will span the product development cycle: identifying user needs, brainstorming, industrial design, prototyping techniques, survey design for quantitative research, project management, intellectual property law, sustainable design, and product liability. The learning format will include case studies, exercises, projects, and frequent impromptu presentations. No audits.

**Prerequisite(s):** EN.660.250 OR EN.500.101 OR EN.510.106 OR EN.520.137 OR EN.530.111 OR EN.560.141 OR EN.570.108 OR EN.580.111 OR EN.530.414

Distribution Area: Engineering, Social and Behavioral Sciences

**EN.660.380. Clark Scholar Engineering Design II. 1 Credit.**

In this course Clark Scholar students will continue their training in design thinking. Students will focus on both the identification of needs and the assessment of these needs for project selection. This course will consist of in class workshops and field immersion exercises.

Distribution Area: Engineering

**EN.660.381. Clark Scholar Engineering Design III. 1 Credit.**

In this course, Clark Scholar students will continue their training in engineering design. Students will focus on developing their prototypes and conducting both benchtop and user testing to move their solutions forward. For Clark Scholar Juniors only.

Distribution Area: Engineering

**EN.660.382. Clark Scholar Engineering Design IV. 1 Credit.**

In this course Clark Scholar students will continue their training in design thinking. Students will focus on both the identification of needs and the assessment of these needs for project selection. This course will consist of in class workshops and field immersion exercises.

Distribution Area: Engineering, Natural Sciences

**EN.660.383. Clark Scholar Engineering Design V. 1 Credit.**

In this course Clark Scholar students will continue their training in design thinking. Students will focus on both the identification of needs and the assessment of these needs for project selection. This course will consist of in class workshops and field immersion exercises.

Distribution Area: Engineering, Natural Sciences

**EN.660.385. Clark Scholar Engineering Design VI. 1 Credit.**

In this course Clark Scholar students will continue their training in design thinking. Students will focus on both the identification of needs and the assessment of these needs for project selection. This course will consist of in class workshops and field immersion exercises.

**EN.660.392. Social Impact Design. 3 Credits.**

In this course, multidisciplinary teams of students will collaborate with a Baltimore community partner to tackle a design challenge that addresses an issue of injustice. Students will first learn about the history and current context surrounding the design challenge before diving into responsible co-design with the community partner to create sustainable and adoptable solutions. Students from both WSE and KSAS may register.

Distribution Area: Engineering, Social and Behavioral Sciences

**EN.660.393. Advanced Multidisciplinary Design Projects. 3 Credits.**

This course is offered to students who have taken a Multidisciplinary Design course and would like to continue developing their design project towards implementation. Students must receive approval from Multidisciplinary Design faculty before registering.

Distribution Area: Engineering

AS Foundational Abilities: Science and Data (FA2)

**EN.660.407. Negotiation and Conflict Resolution. 3 Credits.**

The focus of this class is the nature and practice of conflict resolution and negotiation within and between individuals and organizations. The primary format for learning in this class is structured experimental exercises designed to expose students to different aspects of negotiation and to build tangible skills through interpersonal exchange. While some class time is devoted to presentations on theories and approaches, the class method primarily relies on feedback from fellow classmates on their observations of negotiation situations and on personal reflections by students after each structured experience. Topics include conflict style, negotiation, and group conflict. No audits. Recommended Course Background: EN.660.105, an additional course in the Entrepreneurship and Management Program or in the social sciences.

**Prerequisite(s):** EN.660.105

**EN.660.408. Innovation and Entrepreneurship for Energy. 3 Credits.**

This course is designed to give students the requisite skills to generate and screen ideas for new venture creation and then prepare a business plan for an innovative technology of their own design. These skills include the ability to incorporate into a formal business case all necessary requirements, including needs identification and validation; business and financial models; and, market strategies and plans.

**EN.660.410. Computer Science Innovation and Entrepreneurship. 3 Credits.**

This course is designed to introduce students in Computer Science to a structured process for thinking innovatively, for finding “problems worth solving.” Students will work through a set of tools, techniques, and templates in order to build a portfolio of problems to solve which can then be screened for impact and feasibility. Student teams form around the best ideas and design a solution. In the spring semester, students actually build the solution. Restricted to Juniors and Seniors majoring in Computer Science or by permission of instructor.

Distribution Area: Engineering

AS Foundational Abilities: Science and Data (FA2)

**EN.660.414. Financial Statement Analysis. 3 Credits.**

This course encourages students to think in a more creative way when analyzing a firm’s historical performance or when forecasting future financial results. Students assess an enterprise’s profitability and risk, value assets and use spreadsheet applications like Microsoft Excel for valuation and decision-making purposes.

**Prerequisite(s):** EN.660.203

Distribution Area: Quantitative and Mathematical Sciences

**EN.660.419. Strategy Consulting. 3 Credits.**

The purpose of this course is to provide students with a background in, and opportunity to experience, strategy consulting in an organizational setting. Strategy consulting is fundamentally about identifying and solving the problems that prevent an organization from moving forward, from realizing its goals. Students will form teams, work with an outside sponsor, and treat the experience as a living case. They will explore the problem presented by the sponsor (client), conduct in-depth interviews to validate the problem, design appropriate solutions, and complete the project by developing an implementation plan. Student teams will formally present all of this to the sponsor at the end of the term. This serves as a capstone for the Entrepreneurship & Management minor. No audits.

**Prerequisite(s):** EN.660.105 AND EN.660.203 AND (EN.661.110 OR EN.661.250) OR Instructor Permission.

**EN.660.420. Strategic Case Analysis. 3 Credits.**

This data-driven, writing-intensive course provides students with the skills to manipulate and leverage data to complement qualitative analyses when assessing growth potential for startups through multinational firms. Using a structured approach to case and data analysis, students will learn how to leverage data to complement qualitative factors to make the kinds of strategic decisions that will have a positive, long-term impact on a range of organizations. Across 25 MBA-level cases, students will gain exposure to and manipulate global market data (GDP per capita, population, ease of doing business rankings) using weighted average calculations across their chosen criteria; through customer lifetime value computations for strategic alternatives; through financial ratio/statement analysis and projections; for cost/benefit analyses of outsourcing; through the analysis of a large data set from an experiment with test and control groups to determine ROI; and by conducting cost/benefit analyses of global expansion alternatives (U.S. expansion, global expansion through direct investment). Cases will span a range of industries—from nanotechnology to consumer products—to domestic and foreign firms. In addition to analyzing cases individually, each student will be part of a multidisciplinary team that analyzes a case during the latter half of the semester, developing growth strategy recommendations, including financial projections, and presenting them to the class. No audits.

**Prerequisite(s):** EN.660.250

Distribution Area: Quantitative and Mathematical Sciences

Writing Intensive

**EN.660.450. Advertising & Integrated Marketing Communication. 3 Credits.**

Working with a government (DHS, FBI, The Navy) or for-profit client, students in this class will hone leadership and oral and written communications skills, manage multidisciplinary teams, produce deliverables, oversee a timeline, allocate a budget and analyze key performance indicators/results. The project culminates with an oral presentation to the client. Required prerequisite: EN.660.250.

**Prerequisite(s):** EN.660.250

**EN.660.453. Digital Media and Analytics. 3 Credits.**

This course explores strategies for bootstrapped startups through larger organizations who seek to attract and engage consumers in the digital space. Through readings and guest speakers, along with a digital simulation featuring an actual venture, students will learn how to think strategically, select tactics, analyze data and optimize a budget.

**Prerequisite(s):** EN.660.250

**EN.660.455. Reimagining The City to Resist Climate Change. 3 Credits.**

Increasing draught and arid lands, recurring intense storms, rising sea levels, failing infrastructure and architecture – communities are experiencing the effects of new and frequent perils that we must confront, mitigate, manage, predict and prevent. How can we reimagine cities – a fundamental structure to human life - to resist these realities? What solutions are we finding? How are cities restructuring, innovating with technology, and developing policy to minimize damage and risk? What makes for resilient communities and systems? What new innovations might we consider? This course, taught in seminar style, addresses these and other questions about resiliency through investigation, reading and discussion.

Distribution Area: Social and Behavioral Sciences

**EN.660.459. Entrepreneurial Spirits. 3 Credits.**

Have you noticed the growth of consumer-focused, alcohol related enterprises? New wineries, breweries, distilleries and cideries abound in response to continuing growth in customer demand. Have you contemplated starting this type of enterprise? If so, this may be a course for you!!! We explore the background, opportunities and challenges in each of these spirit arenas as we investigate questions one must answer to make an informed decision about starting or joining such an enterprise. Among the topics we will study are the styles of products, vessels, production processes, costs/returns, sources of raw materials, laws and regulations, marketing options, food pairings, customers and the like. Expect to make several local field trips. Also expect to perform several individual and group assignments, the results of which you will be required to share with classmates.

**EN.660.460. Entrepreneurship. 3 Credits.**

Imagine you have an idea for a new invention or that you see a way to translate a discovery into reality - then what? How do you develop a plan to move forward? How do you find and qualify people and organizations that might use the product, good or service? How do you organize a team to move forward and how do you interest and communicate with would-be funders? The course will cover the principal components of building a successful venture including management, market analysis, intellectual property protection, legal and regulatory issues, operations, entrepreneurial financing, and the role of the capital markets. Course work will include case studies and creation of investor marketing materials. Open to Juniors and Seniors. No Audits.

**Prerequisite(s):** EN.660.105 OR EN.660.250

**EN.660.461. Fundamentals of Product Management. 3 Credits.**

This course will introduce you to the fundamentals of managing a product throughout its life cycle, from inception through strategic market entry and product innovation, all the way to phase-out. We will work with experts in the field, learning how the role differs from industry to industry. This is a hands-on, project - based course: we will work on real challenges from our client partners, enabling you to practice using the tools and thinking of successful product managers.

**EN.660.463. Engineering Management & Leadership. 3 Credits.**

When engineers become working professionals, especially if they become managers, they must juggle knowledge of and tasks associated with operations, finance, ethics, strategy, team citizenship, leadership and projects. While engineers' success may depend on their direct input – the sweat of their own brow – managers' success depends on their ability to enlist the active involvement of others: direct reports, other managers, other team members, other department employees, and those above them on the organizational chart. In this course, you will learn about teamwork and people management, and gain an introduction to strategy, finance, and project management. You will practice writing concise persuasive analyses and action plans and verbally defending your ideas. Cross listed with Mechanical Engineering, Material Science and Engineering, and Civil and Systems Engineering.

Distribution Area: Engineering, Social and Behavioral Sciences  
AS Foundational Abilities: Science and Data (FA2)

**EN.660.470. Leadership Studies Capstone. 3 Credits.**

The Leadership Studies Capstone provides Leadership Studies minors with the opportunity to design a project for which they will perform a leadership role. Advisors will provide students with guidance throughout the semester. Projects must be defined and presented to the Leadership Studies minor director prior to the start of the student's senior year and approved by the conclusion of the first week of classes. Possible projects include experiential social entrepreneurship, developing an environmental venture, leading educational initiatives, leadership in a JHU-approved student organization, and partnership with a JHU Center, among others. Projects must meet the criteria established in the rubric.

**EN.660.500. Professional Internship. 1 Credit.**

Students may qualify for an internship with one of the many local employers with whom CLE works or they may arrange a non-local internship on their own. For paid or unpaid internships, students may apply for sponsorship for academic credit through CLE. Applications must include a resume, transcript and letter and will be evaluated on the basis of work experience, GPA, and course work. Students are expected to complete two reports assigned by the internship coordinator. S/U only.

**Prerequisite(s):** You must request Independent Academic Work using the Independent Academic Work form found in Student Self-Service: Registration, Online Forms.

**EN.660.607. Negotiation and Conflict Resolution. 3 Credits.**

The focus of this class is the nature and practice of conflict resolution and negotiation within and between individuals and organizations. The primary format for learning in this class is structured experimental exercises designed to expose students to different aspects of negotiation and to build tangible skills through interpersonal exchange. While some class time is devoted to presentations on theories and approaches, the class method primarily relies on feedback from fellow classmates on their observations of negotiation situations and on personal reflections by students after each structured experience. Topics include conflict style, negotiation, and group conflict. No audits. Recommended Course Background: EN.660.105, an additional course in the Entrepreneurship and Management Program or in the social sciences.

**EN.660.614. Financial Statement Analysis. 3 Credits.**

This course encourages students to think in a more creative way when analyzing a firm's historical performance or when forecasting future financial results. Students assess an enterprise's profitability and risk, value assets and use spreadsheet applications like Microsoft Excel for valuation and decision-making purposes.

**EN.660.655. Reimagining The City to Resist Climate Change. 3 Credits.**

Increasing draught and arid lands, recurring intense storms, rising sea levels, failing infrastructure and architecture – communities are experiencing the effects of new and frequent perils that we must confront, mitigate, manage, predict and prevent. How can we reimagine cities – a fundamental structure to human life - to resist these realities? What solutions are we finding? How are cities restructuring, innovating with technology, and developing policy to minimize damage and risk? What makes for resilient communities and systems? What new innovations might we consider? This course, taught in seminar style, addresses these and other questions about resiliency through investigation, reading and discussion.

**EN.660.660. Entrepreneurship. 3 Credits.**

Imagine you have an idea for a new invention or that you see a way to translate a discovery into reality - then what? How do you develop a plan to move forward? How do you find and qualify people and organizations that might use the product, good or service? How do you organize a team to move forward and how do you interest and communicate with would-be funders? The course will cover the principal components of building a successful venture including management, market analysis, intellectual property protection, legal and regulatory issues, operations, entrepreneurial financing, and the role of the capital markets. Course work will include case studies and creation of investor marketing materials. No Audits.

**EN.660.661. Fundamentals of Product Management. 3 Credits.**

This course will introduce you to the fundamentals of managing a product throughout its life cycle, from inception through strategic market entry and product innovation, all the way to phase-out. We will work with experts in the field, learning how the role differs from industry to industry. This is a hands-on, project - based course: we will work on real challenges from our client partners, enabling you to practice using the tools and thinking of successful product managers.

**EN.661.110. Professional Writing and Communication. 3 Credits.**

This course teaches students to communicate effectively with a wide variety of specialized and non-specialized audiences. To do this, students will write proposals in response to JHU-, Baltimore-, or Maryland-based initiatives that focus on a specific area of interest. Potential topics shift each semester and may include initiatives to improve urban sustainability, political activism, mental health/well-being/resiliency, restoring public trust in science, combating misinformation in journalism, and other relevant areas. The class emphasizes writing clearly and persuasively, leveraging evidence effectively, working with key stakeholders, creating appropriate visuals and infographics, developing oral presentation skills, working in collaborative groups, giving and receiving feedback, and simulating the real-world environment in which most professional communication occurs. Projects include resumes, cover letters, memos, proposals, technical reports, summaries, and slides. All sections are open to students in any discipline or major. Distribution Area: Social and Behavioral Sciences Writing Intensive

**EN.661.128. Improvisational Techniques for Communication. 3 Credits.**

This course can help you learn how to increase your self-confidence, interpersonal skills, emotional intelligence, and personal effectiveness in a wide variety of social settings—both academic and professional. Using scenarios that encourage creative problem solving, collaboration, imaginative movement, radical acceptance, and deep play, this course can help you be more effective in whatever it is you want to do. This course is appropriate for students in any discipline or major.

**EN.661.250. Oral Presentations. 3 Credits.**

This course is designed to help students push through any anxieties about public speaking by immersing them in a practice-intensive environment. They learn how to speak with confidence in a variety of formats and venues - Including extemporaneous speaking, job interviewing, leading a discussion, presenting a technical speech, and other relevant scenarios. Students learn how to develop effective slides that capture the main point with ease and clarity, hone their message, improve their delivery skills, and write thought-provoking, well-organized speeches that hold an audience's attention. No audits. Not open to students that have taken EN.661.150. Writing Intensive

**EN.661.275. Improvisational Techniques for Collaboration. 3 Credits.**

In this improv class, students will dive deeper into the world of improvisation, growing their ability to present information and navigate complex group dynamics, exploring third party collaborations and negotiations. Students will use the principles behind improvisation to enhance their success virtually and in the "real world." Each class will include a variety of immersive activities such as mindfulness and movement; journal prompts; group games; peer lead discussions; role play exercises; and personal presentations. The small class size will allow every student to be participatory, create a close knit learning community, and receive ample feedback. At the end of the semester, students will be able to confidently collaborate with their peers and effectively engage their audience.

**EN.661.301. Writing for the Law. 3 Credits.**

This course teaches students to communicate effectively in various modes of legal discourse that are fundamental to the practice of law. Students will engage in writing nearly every session and will learn the basics of legal writing, editing (both the student's and others' work), and written/oral advocacy skills. Students can expect to work with litigation-related documents such as pleadings, preliminary and dispositive motions, and appellate briefs as well as non-litigation-related documents such as opinion articles, publications, essays, and various business-related contracts. Writing Intensive

**EN.661.306. Special Topics in Professional Writing: Freelance Travel Writing. 3 Credits.**

In this course, students will learn the fundamentals of magazine and travel writing as well as best practices for working as a freelance writer. While gaining familiarity with the genre by reading a selection of exemplary magazine articles, students will learn how to brainstorm ideas, plan research, interview skillfully, take useable photos with smartphones, polish pitches to editors, and write/revise/submit work for publication. Students will use Washington, DC, and Baltimore as the basis for most of their work but can also choose to travel farther afield. At the end of the course, students will create a blog to showcase their articles, profiles, reviews, travel memoirs, and pitches/queries to potential editors. Recommended: one prior writing course. Writing Intensive

**EN.661.315. Culture of the Engineering Profession. 3 Credits.**

This course builds understanding of the culture of engineering while preparing students to communicate effectively with the various audiences with whom engineers interact. Working from within the context of contemporary STEM writing—monographs, periodicals, non-fiction, cases, and popular literature—students engage in discussion, argument, debate, written analysis, and project-based work. By engaging and discussing this reading, students investigate the engineering culture and challenges to that culture in the form of the impacts of engineering solutions on society, the ethical guidelines for the profession, and the ways engineering information is conveyed to different stakeholders and audiences. Over the course of the semester, students master many of the techniques critical to successful communication within engineering by creating deliverables that might include any of the following: popular articles, long-form journalism, essays, technical reports, TED Talks, pitches, proposals, and presentations. Distribution Area: Humanities, Social and Behavioral Sciences Writing Intensive

**EN.661.317. Culture of the Medical Profession. 3 Credits.**

This course is designed to engage students in thinking critically and empathetically about key issues encountered by healthcare professionals. The course, taught in seminar style, explores topics ranging from health disparities and healthcare costs to provider-patient communication and socioeconomics of health care by examining cases and readings that highlight the problems that doctors, administrators, researchers, nurses, and other healthcare professionals face on a daily basis. Guest speakers with a range of clinical backgrounds from physicians to social workers also come to class in order to share their path into medicine and daily life as a medical professional. Course content is focused around three specific course goals: 1) teaching students to consider the culture of the medical profession in general as well as the culture of specific institutions and therapeutic areas; 2) equipping students with the framework to understand health care from diverse socioeconomic and cultural contexts; and 3) providing students opportunities to exercise the communication skills required in healthcare settings.

Distribution Area: Social and Behavioral Sciences  
Writing Intensive

**EN.661.355. Special Topics in Professional Writing: Blogging about Food and Culture. 3 Credits.**

Explore Baltimore's thriving food and restaurant scene while learning the art of criticism and best practices for blogging. In this journalism class taught by former New York Times Magazine editor Sarah Smith, students will study the work of some of the best writers in the field, from Laurie Colwin to Pete Wells, and using that work as a guide, write their own essays, reviews and features, which the class will discuss in a workshop setting. Instruction will include the basics of reporting and research; differences in writing for print and online media; ethics and legal concerns; and practical advice for pitching editors and setting up blogs. Recommended Course Background: At least one previous writing course.

Writing Intensive

**EN.661.370. Storytelling with Data. 3 Credits.**

Data exploration and visualization are crucial foundational skills for data analysis and decision analytics. Developing such skills enable us to leverage data to give insights to our audience. Using storytelling and visualization techniques helps us interpret data patterns to information that will assist managers in their decision-making process. Complex ideas can be effectively and clearly communicated when they are represented visually. Students who take this course will learn how to visualize data. It focuses on modern methods and standards for data visualization. This course covers how to better engage decision-makers via data visualization. It focuses on transforming data into digital visual narratives using modern visualization tools. This course covers the principles for meaningful data visualization, including ethical issues which need to be considered when presenting data visually. Students will apply practical and theoretical knowledge to transform data and critique visual representations to convey better the lessons learned from data exploration. The successful student will be able to demonstrate practical skills and theoretical disciplinary knowledge that will allow them to visually explain the important consequences of their data analytics in a corporate setting. Students will learn to use data analysis software (Excel and Tableau) for data cleaning and visualization. No prior programming experience is necessary, but a working knowledge of Excel will prove useful.

**EN.661.371. Communicating with Data: Analysis, Visualization, Narratives. 3 Credits.**

Data exploration and visualization are crucial foundational skills for data analysis and decision analytics. Developing such skills enable us to leverage data to give insights to our audience. Using storytelling and visualization techniques helps us interpret data patterns to information that will assist managers in their decision-making process. Complex ideas can be effectively and clearly communicated when they are represented visually. Students who take this course will learn how to visualize data. It focuses on modern methods and standards for data visualization. This course covers how to better engage decision-makers via data visualization. It focuses on transforming data into digital visual narratives using modern visualization tools. This course covers the principles for meaningful data visualization, including ethical issues which need to be considered when presenting data visually. Students will apply practical and theoretical knowledge to transform data and critique visual representations to convey better the lessons learned from data exploration. The successful student will be able to demonstrate practical skills and theoretical disciplinary knowledge that will allow them to visually explain the important consequences of their data analytics in a corporate setting. Students will learn to use data analysis software (Excel and Tableau) for data cleaning and visualization. No prior programming experience is necessary, but a working knowledge of Excel will prove useful.

Distribution Area: Quantitative and Mathematical Sciences

**EN.661.374. Reasoning with Data. 3 Credits.**

This course is an introduction to learning how to make statistical decisions and reason with data. The course explores the principles of data analysis using Excel as the primary tool. In the context of data analytics, participants will investigate critical thinking and logical reasoning while learning statistical procedures and data visualization strategies that are crucial for deciphering and extrapolating meaning from a variety of datasets. Through real-world case studies and practical hands-on exercises, this curriculum equips participants to manage complex data, reach well-informed decisions, and successfully convey findings. After attending, participants will have the expertise to succeed in scenarios involving data-driven decision-making in a variety of professional settings.

Distribution Area: Quantitative and Mathematical Sciences

**EN.661.380. Decision Analytics. 3 Credits.**

Decision analytics encompasses the systematic process of inspecting, cleaning, transforming, and modeling data to uncover valuable insights, draw conclusions, and facilitate effective decision-making. This course serves as an introduction to fundamental statistical and machine learning techniques, equipping students with managerial perspectives on leveraging both small and big data for problem identification, analysis, and decision-making. The curriculum covers a range of topics, including data analysis techniques, the utilization of computing tools for applying these methods, and effectively communicating findings to non-experts through numerical and graphical data presentations. Students are required to use Microsoft Excel (the course does not teach Excel, so prior experience with Excel will be helpful) and IBM SPSS (Statistical Package for the Social Science which will be taught in the class). The teaching approach will encompass case studies and the Socratic method to illustrate each concept effectively. By the end of this course, students will have gained essential skills in data analysis, machine learning, and decision-making, empowering them to make informed business decisions and communicate their findings in clear and concise reports.

Distribution Area: Quantitative and Mathematical Sciences  
AS Foundational Abilities: Science and Data (FA2)



**EN.661.713. Advanced Communication for International Students: Applied Mathematics and Statistics Masters. 3 Credits.**

This course is designed to help only those international students studying in a special cohort toward a Master's Degree in Applied Math and Statistics. It teaches advanced ESL students to communicate more effectively with a wide variety of specialized and non-specialized audiences in a professional setting with ESL-specific intensive help in grammar, pronunciation, idiomatic phrasing, and overall clarity for students whose native language is not English. Projects include brown bag lunch presentations, elevator pitches, job interviews, staying-on-the-job cultural notes, and business meetings. Class emphasizes writing clearly and persuasively, creating appropriate visuals, developing oral presentation skills, working in collaborative groups, giving and receiving feedback, and simulating real world environments in which most communication occurs. P/F grading only.

**EN.662.611. Strategies: Accounting & Finance. 3 Credits.**

The course is designed for anyone who could be called upon to analyze and/or communicate financial results and/or make effective financial decisions. As accounting is described as a language, this course focuses on the vocabulary and processes by which all financial transactions are captured and encourages students to think in a more creative way when analyzing a firm's historical performance or when forecasting future financial results. Leaders are exposed to various tools and techniques that enable them to better utilize their resources.

**EN.662.644. Fundamentals of Product Management. 3 Credits.**

Are you curious about what Product Managers actually do? Are you thinking about applying for internships and jobs in this fast-growing field? This course will introduce you to the fundamentals of managing a product throughout its life cycle, from inception through strategic market entry and product innovation, all the way to phase-out. We will work with experts in the field, learning how the role differs from industry to industry. This is a hands-on, project - based course: we will work on real challenges from our client partners, enabling you to practice using the tools and thinking of successful product managers.

**EN.662.645. Management and Global Team Leadership. 3 Credits.**

Managing in a globalized economy poses its own unique issues and opportunities. This course prepares students to successfully meet the challenges faced by companies doing business in a global context. It focuses on the skills, frameworks, and knowledge needed to successfully direct global enterprises, and to manage global operations and global teams. The course will be taught via lecture, case study, and primary and secondary research. Topics include the changing and dynamic global business environment, global competitive strategy, the role of local conditions and culture, the challenges of managing cross-cultural teams, and the importance of ethics in global business.

**EN.662.680. Foundations in Communication and Ethics. 3 Credits.**

Professional development seminar for innovation and global leadership students featuring outside speakers with innovation and leadership experience. For M.S. in Innovation and Global Leadership only; no audits.

**EN.662.692. Strategies for Innovation & Growth. 4 Credits.**

The course is organized into two interconnected parts: innovation and growth, which, together, form the foundation of successful enterprises. After successfully completing the course, students should know how to critically analyze businesses and apply an engineering-based thought process to more qualitative problems, as well as understand the elements that can make a company successful. MSEM students only. Students must also reserve Fridays from 1:30p to 2:30p as part of this course to receive credit.

**EN.662.801. MSEM Independent Study. 1 Credit.**

Independent study for Master of Science in Engineering Management students

**EN.662.802. MSEM Internship and Assessment. 3 Credits.**

The internship must be with a cooperating organization (minimum 8 weeks, 16 weeks maximum) approved by MSEM Internship Coordinator that includes scheduled meetings with the MSEM Coordinator, a class presentation and final report related to the internship experience.

**EN.662.811. M.S. in Engineering Management Seminar. 1 Credit.**

Professional development seminar for engineering management students featuring outside speakers with engineering management experience. For M.S. in Engineering Management only; P/F only; no audits.

**EN.662.812. MSEM Seminar. 1 Credit.**

Professional development seminar for engineering management students featuring outside speakers with engineering management experience. For M.S. in Engineering Management only; P/F only; no audits.

**EN.663.411. Intro to Zen Meditation. 1.5 Credits.**

Interested in meditation but don't know where to start? Curious about Zen philosophy? This course can help. In this class, students will be introduced to the secular practices of Zen meditation—zazen (sitting meditation), kinhin (walking meditation), koans (teaching tools), and dharma talks. Each class session will be a mixture of meditation, lecture, how-to demonstration, and discussion. No prior meditation experience is necessary. Students with experience in other styles of meditation are also welcome. Students can bring a cushion/pillow for floor sitting or use a classroom chair for comfort. Class will include readings from Yasutani Roshi's Introductory Lectures on Zazen and Suzuki Roshi's Zen Mind, Beginner's Mind. Class is S/U grading only. No audits. Repeats are allowed.

**EN.663.453. Innovation and Design I. 3 Credits.**

This two-semester course is designed to introduce students to a structured process for thinking innovatively, for finding "problems worth solving." Students will work through a set of tools, techniques, and templates in order to build a portfolio of problems to solve which can then be screened for impact and feasibility. Students will form multi-disciplinary teams around the best ideas and design a solution. In the spring semester, students build the solution.

Distribution Area: Engineering

AS Foundational Abilities: Science and Data (FA2)

**EN.663.457. Innovation and Design II. 3 Credits.**

In this course, the student teams that formed in EN.663.453 Innovation and Design I will design and build the solution (prototype) to the problem that they chose in the fall semester, as well as identifying the commercial opportunities. Students will need to validate their ideas through research and interviews with potential "customers" for their solution.

**Prerequisite(s):** EN.663.453

Distribution Area: Engineering

AS Foundational Abilities: Science and Data (FA2)

**EN.663.458. Brewing Science. 1.5 Credits.**

Micro-breweries, the fastest growing segment of the manufacturing sector in the US, is an enterprise opportunity for students who are fascinated by fermentation. The class addresses the fundamentals of the science and the manufacturing processes together with enterprise considerations of identifying customers, locations and finances.

Distribution Area: Engineering

**EN.663.477. Global Consulting. 1.5 Credits.**

Students partner with research teams at the International Iberian Nanotechnology Laboratory through remote meetings to help transition scientific and engineering concepts from lab to life. Consulting projects cover areas including market and competitor analysis, the identification of consumer locations and demographics, and the development of market entry strategies for innovative products and technologies. Students will learn how to navigate the unique nature of international consulting, paying particular attention to building rapport across cultures and technologies. Deliverables come in the form of proposals, memos, comprehensive reports detailing findings and recommendations, and a slide deck of key findings optimized for remote presentations. No prior consulting experience required, but interested juniors and seniors should feel that they can contribute to a professional team.

Distribution Area: Engineering, Natural Sciences

**EN.663.611. Intro to Zen Meditation. 1.5 Credits.**

Interested in meditation but don't know where to start? Curious about Zen philosophy? This course can help. In this class, students will be introduced to the secular practices of Zen meditation—zazen (sitting meditation), kinhin (walking meditation), koans (teaching tools), and dharma talks. Each class session will be a mixture of meditation, lecture, how-to demonstration, and discussion. No prior meditation experience is necessary. Students with experience in other styles of meditation are also welcome. Students can bring a cushion/pillow for floor sitting or use a classroom chair for comfort. Class will include readings from Yasutani Roshi's Introductory Lectures on Zazen and Suzuki Roshi's Zen Mind, Beginner's Mind. Class is P/F grading only. No audits. Repeats are allowed.

**EN.663.612. Design Thinking for Your Career. 1.5 Credits.**

An engineering education at Hopkins offers unique opportunities to advance your career, intentionally grow your network, develop new professional skills, and land the job of your dreams. This course will use principles of design thinking to help you leverage your Hopkins experience to design a meaningful, fulfilling professional life after JHU. This course will teach you principles to effectively balance academic inquiry, professional development, and personal growth and wellness. Utilizing activities developed at the Johns Hopkins University Life Design Lab, you will have the opportunity to reflect upon your values, identities and aspirations; imagine and prototype possible pathways forward that leverage the resources available at Hopkins; and acquire behaviors, habits, and mindsets to effectively tell your story and build a powerful network. These activities and reflections will serve as the basis of a digital portfolio that you can use as you apply for internships and navigate the job market.

**EN.663.613. Technical Communication. 1.5 Credits.**

This course helps scientists and engineers learn to communicate clearly and effectively for a wide variety of audiences. The course works with STEM-based genres such as report writing, scientific posters, slides, and presentations. The class emphasizes writing for clarity, translating the story, using skillful data visualizations, and presenting effectively (among others).

**EN.663.618. Professional Presentations. 3 Credits.**

This course is designed to help scientists and engineers improve their oral presentation skills in a practice-intensive environment. Students will learn how to hone their message, to craft presentations that address both technical and non-technical audiences, and create clear, compelling PowerPoint presentations. All presentations will be recorded for self-evaluation, and students will receive extensive instructor and peer feedback. MSEM students only. Not open to undergraduates.

**EN.663.622. Professional Writing and Communication for Graduate Students. 3 Credits.**

This course is designed to help engineers and scientists improve their communication skills in an immersive, practice-intensive environment that includes simulation in a wide variety of scenarios, formats, and venues. Throughout the semester, students will work on polishing a journal article or writing a dissertation chapter, as well as communicating their research to the general public in writing. Simultaneously, students will learn how to translate that same material to use in a variety of public speaking modalities—job interviewing, department talks, networking sessions, spontaneous “elevator pitch” opportunities, and other relevant scenarios. The course emphasizes developing clarity, becoming more emotionally intelligent, honing a main message, developing effective slides, improving delivery skills and confidence, and translating technical expertise to a wide variety of audiences. No audits allowed. Applied Mathematics and Statistics Masters students only. P/F only Writing Intensive

**EN.663.623. Professional Writing and Communication for International Students: Applied Mathematics and Statistics Masters. 3 Credits.**

This course helps non-native speakers of English learn how to communicate confidently in both academic and professional settings. The class emphasizes writing clearly and persuasively, increasing personal confidence, improving pronunciation, refining grammar, clarifying idiomatic expressions, increasing vocabulary, and understanding the basic genres of professional communication (emails, memos, summaries, and job application materials). Applied Mathematics and Statistics Masters students only. P/F only. No Audits allowed.

**EN.663.624. Advanced Communication for International Students: Applied Mathematics and Statistics Masters. 3 Credits.**

This course is designed to help only those international students studying in a special cohort toward a Master's Degree in Financial Math. It teaches advanced ESL students to communicate more effectively with a wide variety of specialized and non-specialized audiences in a professional setting with ESL-specific intensive help in grammar, pronunciation, idiomatic phrasing, and overall clarity for students whose native language is not English. Projects include meet-and-greets, effective e-mails, memos, resumes, cover letters, reports, oral presentations, and building an overall comfort level with oral communication in English. Class emphasizes writing clearly and persuasively, creating appropriate visuals, developing oral presentation skills, working in collaborative groups, giving and receiving feedback, and simulating real world environments in which most communication occurs. P/F grading only. Applied Mathematics and Statistics Masters students only. No Audits allowed.

**EN.663.631. Intellectual Property Law. 1.5 Credits.**

Arranged in modules and taught largely through the case method, the course features the following topics: intellectual property; principal-agent relations; and product liability. Not only will participants learn the principles associated with each topic, but also they will master the questions and concerns to use when working with legal counsel on these issues in the future. GRADING: P/F for most students; letter grades for MSEM students.

**EN.663.634. Improvisation for Communication. 1.5 Credits.**

Have you ever botched a job interview? Do you suffer from socially-induced shyness at networking receptions? This class can help! Using techniques rooted in the principles of improvisation and acting, this course can help you learn how to increase your self-confidence, interpersonal skills, emotional intelligence, and personal effectiveness in a wide variety of social settings—both academic and professional. Using scenarios that encourage creative problem solving, collaboration, imaginative movement, radical acceptance, and deep play, this course can help you be more effective in whatever it is you want to do. This course is appropriate for students in any discipline or major.

**EN.663.640. Writing Grant and Contract Proposals. 1.5 Credits.**

Almost regardless of professional setting, proposals are used to secure work. They are the basis of funding in consulting, academic research, many social enterprises, business-to-business commerce, and government contracting. They require huge amounts of time and energy, yet success is far from guaranteed. In this module, you will master some of the organizational techniques required for proposal writing success. Among the topics addressed are funding sources, writing skills that work, required content for all proposals, creating one voice in shared documents and best use of graphics in presentations. Assignments are geared to help you understand how to find and organize content for your proposals.

**EN.663.644. Writing for Clarity. 1.5 Credits.**

This half-semester module helps students learn how to communicate more effectively about their own research to a wide variety of audiences. Using a journal article, dissertation chapter, or other technical summary as a basis, students learn how to revise their work to increase clarity, cogency, concision, flow, storytelling, and audience-sensitivity. This course is open to students in any discipline.

**EN.663.645. Improving Presentation Skills for Graduate Students. 1.5 Credits.**

This course is designed to help scientists and engineers improve their oral presentation skills in a practice-intensive environment. Students will learn how to hone their message, to craft presentations that address both technical and non-technical audiences, and create clear, compelling PowerPoint presentations. All presentations will be recorded for self-evaluation, and students will receive extensive instructor and peer feedback. This is a half-semester course and is not open to undergraduates.

**EN.663.648. Introduction to Dissertation Writing. 3 Credits.**

This course is designed to help students in any discipline and in any phase of the dissertation process move their work forward. Whether you are a beginning student who has no idea what your topic is or an advanced student facing the submission process in a few months, you will be able to use this workshop to help you focus your efforts more effectively and find out best practices for doing dissertation writing here at JHU. PhD students only.

Distribution Area: Engineering, Natural Sciences

**EN.663.653. Innovation and Design I. 3 Credits.**

This two-semester course is designed to introduce students to a structured process for thinking innovatively, for finding “problems worth solving.” Students will work through a set of tools, techniques, and templates in order to build a portfolio of problems to solve which can then be screened for impact and feasibility. Students will form multi-disciplinary teams around the best ideas and design a solution. In the spring semester, students build the solution.

**EN.663.657. Innovation and Design II. 3 Credits.**

In this course, the student teams that formed in EN.663.453 Innovation and Design I will design and build the solution (prototype) to the problem that they chose in the fall semester, as well as identifying the commercial opportunities. Students will need to validate their ideas through research and interviews with potential “customers” for their solution.

**Prerequisite(s):** EN.663.653

**EN.663.660. Managing People and Resolving Conflicts. 1.5 Credits.**

Have you ever had to deal with a difficult person at work or in the lab? Have you been a member of a team on which team dysfunction was so bad that it makes television sitcoms look normal? Why are some companies much more productive and pleasant to work with than others? Do you understand techniques of persuasion and how to participate effectively in negotiations? These topics are among the ideas we develop and practice in this class, using a combination of seminar style reading and discussion, lecture and in-class activity. Graduate students only.

**Prerequisite(s):** Students may take EN.663.660 OR EN.663.663, but not both.

**EN.663.665. Customer Discovery & Problem Analysis for Product Managers. 1.5 Credits.**

Great product managers have deep appreciation of important factors that drive customers’ behaviors, actions, and needs. They become experts at discovering and analyzing customer needs and problems so that they can then successfully find solutions to meet solve those problems. Successful product managers are experts on their customers’ problems. In this course, we will dig deep into customer intelligence and discovery techniques such as customer interviews, usage analytics, customer journey mapping, market canvassing, and more. We will also learn how to acutely understand and dissect problems through assumption mapping, quantitative and qualitative research, and solution ideating.

**EN.663.666. Managing Personal Finances. 1.5 Credits.**

The class in Managing Personal Finance is designed to familiarize the student with the basic concepts and quantitative techniques of personal financial planning and financial literacy. The course begins with a discussion of budgeting and the time value of money and moves on to the basic principles of financial planning in the areas of taxation, consumer credit, housing decisions, insurance, investing fundamentals and retirement planning. Graduate students only. No undergrads.

**EN.663.667. Decision Analytics Fundamentals. 1.5 Credits.**

This course engages students to make better decisions using data and analytical models. Content focuses on analytical reasoning, logic, preparing/managing data bases, designing quantitative models and visualizing data. Three types of quantitative models - clustering, linear regression, and logistic regression - are emphasized. Students are required to use Microsoft Excel (the course does not teach Excel, so prior experience with Excel will be helpful). Throughout the course each concept is taught using case studies.

**EN.663.668. Brewing Science. 1.5 Credits.**

Micro-breweries, the fastest growing segment of the manufacturing sector in the US, is an enterprise opportunity for students who are fascinated by fermentation. The class addresses the fundamentals of the science and the manufacturing processes together with enterprise considerations of identifying customers, locations and finances.

**EN.663.669. Foundations for Sustainable Enterprise. 1.5 Credits.**

All organizations need a story - one that informs every single business decision. Get the story right and you have a permanent resource for inspiration and also, grounding for when challenges arise. Lasting businesses do not dream up their narratives for PR purposes. Their stories are smart. They are their organizations' DNA. Taking into account emerging neuroscience around persuasion, real-life corporate case studies and current affairs, this class addresses the critical art of storytelling in building and growing a business.

**EN.663.670. Project Management. 1.5 Credits.**

Projects are temporary activities devised to achieve very specific goals in a designated timeframe for a specified amount of resources. Often they involve disparate activities, frequently separated by distance and sometimes involving different staff and materials. For the project to successfully meet its objectives, all these items must be planned, coordinated and orchestrated. This module explores the processes and tools available to those who must manage projects to optimize outcomes within the primary constraints of time, quality, scope and budget. Class time involves presentations, examples and discussion.

**EN.663.671. Leading Change. 1.5 Credits.**

Change happens, like it or not!! It is necessary for progress and the result of innovation, yet change makes individuals and organizations so uncomfortable that most people and groups within organizations vigorously resist change. So the questions become how to cause, how to embrace and how to lead constructive change in our selves, our organizations and our communities – in ways that colleagues and would-be colleagues support and contribute toward success. The primary format for learning in this course is seminar style with reading, researching and sharing of information as well as structured, experiential activities designed to build skills through practice and interpersonal exchange. Class time is devoted to discussion, observation, feedback, additional exercises and presentation. Additionally, participants engage in reflection and explanation of their considerations as the course progresses. GRADING: P/F for most students; letter grades for MSEM students. No undergraduates allowed except enrolled MSEM combined bachelor's/master's students.

**EN.663.673. Leading Teams in Virtual, International and Local Settings. 1.5 Credits.**

Team-based leadership takes place in many different groups. Basic principles related to all contexts will be discussed. The nuances of leading in teams in different environments including face to face, virtual teams such as Skype, Google Chat, etc., and culturally different/global teams will be explored and practiced. The class environment will be discussion, team and practically based. The primary format for learning in this course is seminar style with reading, researching and sharing of information as well as structured, experiential activities designed to build skills through practice and interpersonal exchange. Class time is devoted to discussion, observation, feedback, additional exercises and presentation. Additionally, participants engage in reflection and explanation of their consideration as the course progresses. Further, participants read several texts and articles as well as perform extensive research in preparation for assignments.

Distribution Area: Engineering, Natural Sciences

**EN.663.675. Communicating in a Crisis. 1.5 Credits.**

A crisis is a major occurrence with potentially negative consequences. In Chinese, the word "crisis" means "dangerous opportunity," signifying that an individual or an organization can emerge stronger from a crisis – not without damage but stronger – with the right management and communication deployed effectively to the right audiences in the right channel. In this course, we will explore what managing a crisis well actually means. Who do you need to communicate with? What channels are appropriate? What messaging works for different audiences? Using the case method, live simulations, and real-world examples we will distinguish the factors that create opportunities from crises from those that deepen the danger.

**EN.663.676. Demand Discovery: Finding and Creating Customer Value. 1.5 Credits.**

Do you love your smartphone? You're not alone. Steve Jobs knew how to design products that customers fell in love with. So did Henry Ford. So why is it so hard? This course focuses on real-world methods of discovering and profitably delivering valuable products to customers. At the heart of any successful technology translation is the identification and profitable satisfaction of unique customer needs. And the ongoing process of identifying, developing, and delivering new value propositions is the basis for continued growth. The course presents leading edge methods and techniques to identify sources of opportunity, design new value propositions, and develop profitable and scalable models—all while reducing venture risk. Developed from techniques used by entrepreneurs and innovative product managers, this course teaches key principles of offering development and innovation, through a combination of readings, case studies, and real-world exercises. The course will involve practical projects for students to identify and design offering concepts, as well as to test and price them. It is designed for students interested in intra- and entrepreneurship, technology management, venture capital, and management consulting.

**EN.663.677. Global Consulting. 1.5 Credits.**

Students partner with research teams at the International Iberian Nanotechnology Laboratory through remote meetings to help transition scientific and engineering concepts from lab to life. Consulting projects cover areas including market and competitor analysis, the identification of consumer locations and demographics, and the development of market entry strategies for innovative products and technologies. Students will learn how to navigate the unique nature of international consulting, paying particular attention to building rapport across cultures and technologies. Deliverables come in the form of proposals, memos, comprehensive reports detailing findings and recommendations, and a slide deck of key findings optimized for remote presentations. Open to juniors and seniors with instructor approval.

Distribution Area: Engineering, Natural Sciences

**EN.663.707. Innovative Data Strategies for Global Leaders. 3 Credits.**

Innovative Data Strategies for Global Leaders is an action-oriented course designed to equip students with practical skills to harness the power of data for making strategic decisions. This course focuses on real-world application of data exploratory techniques using Excel, foundational statistical methods such as univariate and bivariate analysis, and advanced analytics techniques including clustering and regression analysis using SPSS. Each concept is taught through hands-on projects and case studies that simulate real business challenges, allowing students to apply their learning directly to practical scenarios. Additionally, the course includes intensive data visualization workshops using Tableau, where students learn to craft compelling visual stories that effectively communicate complex insights to decision-makers. This dynamic setup ensures that students not only grasp theoretical concepts but are also proficient in applying these techniques in their future roles as data-savvy leaders.

For current faculty and contact information go to [http://eng.jhu.edu/wse/cle/page/our\\_people](http://eng.jhu.edu/wse/cle/page/our_people) ([http://eng.jhu.edu/wse/cle/page/our\\_people/](http://eng.jhu.edu/wse/cle/page/our_people/))