Bachelor of Science in Business Engineering and Management Science

Program Description

The Business Engineering and Management Science program lies at the intersection of business, data science, and quantitative modeling offering students a modern toolkit for business decision making in complex and uncertain environments. Business Engineering and Management Science majors develop strong foundations in business principles, data management and statistical modeling and optimization tools. Students enhance their skills with technical electives in Business Analytics, Technology Management, Financial Economics and Artificial Intelligence and Machine Learning. All majors participate in a team-based, industry-sponsored capstone project. Most students also participate in internships.

An engineering approach to business focuses on training students to ask appropriate questions to solve business problems and then develop a data-driven solution to the problem. Students in this program bridge the gap between the technical and business sides of organizations. With a degree in Business Engineering and Management Sciences, students will be prepared for a variety of roles within the rapidly changing, technology-focused business world. Graduates pursue careers in business and financial analysis, data science, management consulting, project management, operations and supply chain management, and risk management, among others. Students will be well-prepared to pursue post-graduate training in business, finance, law, economics, computer science, and applied mathematics and statistics.

Student Learning Outcomes

In addition to contributing toward achieving the educational objectives described in the Mines Graduate Profile, the Department of Economics and Business has established the following program educational objectives for the BS in Business Engineering and Management Science:

Upon completion of the Business Engineering and Management Science degree, students will be able to:

1. Demonstrate mastery of basic business principles.

2. Identify, access, validate, and visualize relevant data to inform business decisions.

3. Demonstrate proficiency with deterministic and stochastic analytical tools.

4. Build models and apply quantitative tools to inform decisions about business strategy and operations.

5. Communicate effectively in a professional context in a variety of formats.

6. Identify and propose solutions to ethical issues in business decision-making.

7. Demonstrate expertise in their focus area(s) of choice.

Primary Contact

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https://econbus.mines.edu/

Bachelor of Science in BUSINESS ENGINEERING AND MANAGEMENT SCIENCE

In addition to contributing toward achieving the educational objectives described in the CSM Graduate Profile, the Department of Economics and Business has established the following program educational objectives for the BS in Business Engineering and Management Science:

Upon completion of the Business Engineering and Management Science degree, students will be able to:

1. Identify, access, validate, and visualize relevant data to inform business decisions.
2. Demonstrate proficiency with deterministic and stochastic analytical tools.
3. Demonstrate mastery of basic business principles.
4. Build models and apply quantitative tools to inform decisions about business strategy and operations.
5. Communicate effectively in a professional context in a variety of formats.
6. Identify and propose solutions to ethical issues in business decision-making.
7. Demonstrate expertise in their track areas of choice.

Curriculum

The BS in Business Engineering and Management Science develops graduates with applied quantitative skills that Mines is known for including data science, data analytics, and operations research. This degree lies at the intersection of technical skills and business training and enables students to develop leadership skills and passion that are needed in today's rapidly changing, technology-focused business world.

The Business Engineering and Management Science degree provides comprehensive training in two core areas: Data Analytics and Business Principles. The Data Analytics core includes courses in data science, data visualization, predictive modeling and optimization modeling. The Business Principles core includes accounting, finance, marketing, communications, and management. In addition to these core courses, students may choose to specialize in one of seven BEMS tracks to deepen their knowledge of specific application areas. Students may concentrate on an area of expertise within business -- Corporate Management, Financial Economics -- or complement their business skills with interdisciplinary expertise in areas where Mines leads the way -- Engineering, Computing, Energy and Natural Resources Management, Operations Research, Actuarial Science.

Degree Requirements in Business Engineering and Management Science

First Year

		lec	lab	sem.hrs
CSCI128	COMPUTER SCIENCE FOR STEM			3.0
MATH111	CALCULUS FOR SCIENTISTS AND ENGINEERS I			4.0
CHGN121	PRINCIPLES OF CHEMISTRY I			4.0

HASS100	NATURE AND HUMAN VALUES			3.0
CSM101	FRESHMAN SUCCESS SEMINAR			1.0
PHGN100	PHYSICS I - MECHANICS			4.0
MATH112	CALCULUS FOR SCIENTISTS AND ENGINEERS II			4.0
EDNS151	CORNERSTONE - DESIGN I			3.0
EBGN201	PRINCIPLES OF ECONOMICS			3.0
CSM202	INTRODUCTION TO STUDENT WELL-BEING AT MINES			1.0
				30.0

Sophomore

Fall		**lec**	**lab**	**sem.hrs**
MATH213	CALCULUS FOR SCIENTISTS AND ENGINEERS III			4.0
MATH201	INTRODUCTION TO STATISTICS			3.0
HASS215	FUTURES			3.0
EBGN305	SURVEY OF ACCOUNTING			3.0
EBGN307	BUSINESS COMMUNICATIONS			3.0
				16.0
Spring		**lec**	**lab**	**sem.hrs**
ELECTIVE	CAS Mid-Level Restricted Elective			3.0
EBGN280	INTRODUCTION TO BUSINESS ANALYTICS			3.0
DSCI403	INTRODUCTION TO DATA SCIENCE or CSCI 303			3.0
EBGN345	PRINCIPLES OF CORPORATE FINANCE			3.0
FREE	Free Elective			3.0
S&W	SUCCESS AND WELLNESS			1.0
				16.0

Junior

Fall		**lec**	**lab**	**sem.hrs**
EBGN308	PRINCIPLES OF MARKETING			3.0
EBGN309	FUNDAMENTALS OF MANAGEMENT			3.0
EBGN321	ENGINEERING ECONOMICS			3.0
EBGN381	PREDICTIVE BUSINESS ANALYTICS			3.0
FREE	Free Elective			3.0
				15.0
Spring		**lec**	**lab**	**sem.hrs**
EBGN303	ECONOMETRICS			3.0
EBGN382	PRESCRIPTIVE BUSINESS ANALYTICS			3.0
EBGN453	PROJECT MANAGEMENT			3.0
TECHNICAL ELECTIVE #1				3.0
TECHNICAL ELECTIVE #2				3.0
				15.0

Senior

Fall		**lec**	**lab**	**sem.hrs**
EBGN485	BUSINESS STRATEGY			3.0
EBGN490	BUSINESS ANALYTICS CAPSTONE			3.0
TECHNICAL ELECTIVE #3				3.0
TECHNICAL ELECTIVE #4				3.0
ELECTIVE	CAS Mid-Level Restricted Elective			3.0
				15.0
Spring		**lec**	**lab**	**sem.hrs**
TECHNICAL ELECTIVE #5				3.0
TECHNICAL ELECTIVE #6				3.0
ELECTIVE	CAS 400-Level Restricted Elective			3.0
FREE	Free Elective			3.0
FREE	Free Elective			3.0
				15.0

Total Semester Hrs: 122.0

Eligible technical electives in the Business Engineering and Management Science degree program are determined by the following:

- Business Engineering and Management Science (general)
  - 18 credit hours of technical electives may be selected from any EBGN 300 or 400 level courses. Other courses may be considered with advisor approval.
- Business Engineering and Management Science + Tracks
  - 18 credit hours of technical electives may be selected from the list of classes associated with the selected track. Other courses may be considered with advisor approval.
  - Students may choose from one of following tracks:
    - Corporate Management
    - Financial Economics
    - Energy and Natural Resources Management
    - Computing
    - Operations Research
    - Actuarial Science
    - Engineering

Corporate Management

Take 18 credit hours from the following list:

EBGN315	THE ECONOMICS OF STRATEGY	3.0
EBGN320	ECONOMICS AND TECHNOLOGY	3.0
EBGN346	INTRODUCTION TO INVESTMENTS	3.0
EBGN351	INTRODUCTION TO DECISION SCIENCE	3.0
EBGN360	INTRODUCTION TO ENTREPRENEURSHIP	3.0
EBGN447	FINANCIAL RISK MANAGEMENT	3.0
EBGN458	DECISION ANALYTICS	3.0
EBGN459	SUPPLY CHAIN ANALYTICS	3.0
EBGN461	STOCHASTIC MODELS IN MANAGEMENT SCIENCE	3.0
EBGN477	ORGANIZATIONAL LEADERSHIP	3.0
EDNS430	CORPORATE SOCIAL RESPONSIBILITY	3.0

HASS482	EMPLOYMENT LAW - UNDERSTANDING HOW TO NAVIGATE WORKPLACE ENVIRONMENTS FROM ONBOARDING TO TERMINATION	3.0

Financial Economics

Take at least 9CH from the following list:

EBGN301	INTERMEDIATE MICROECONOMICS	3.0
EBGN302	INTERMEDIATE MACROECONOMICS	3.0
EBGN346	INTRODUCTION TO INVESTMENTS	3.0
EBGN447	FINANCIAL RISK MANAGEMENT	3.0
EBGN495	ECONOMIC FORECASTING	3.0

The remaining 9CH may come from a combination of the courses listed above or the following courses:

EBGN315	THE ECONOMICS OF STRATEGY	3.0
EBGN330	ENERGY ECONOMICS	3.0
EBGN430	ECONOMICS OF INTERNATIONAL ENERGY MARKETS	3.0
EBGN461	STOCHASTIC MODELS IN MANAGEMENT SCIENCE	3.0
MATH324	STATISTICAL MODELING	3.0
MATH332	LINEAR ALGEBRA	3.0

Energy and Natural Resources Management

Take at least 9CH from the following list:

EBGN310	ENVIRONMENTAL AND RESOURCE ECONOMICS	3.0
EBGN330	ENERGY ECONOMICS	3.0
EBGN340	ENERGY AND ENVIRONMENTAL POLICY	3.0
EBGN430	ECONOMICS OF INTERNATIONAL ENERGY MARKETS	3.0
EBGN434	PROPERTY RIGHTS AND NATURAL RESOURCES	3.0
EBGN435	ECONOMICS OF WATER RESOURCES	3.0
EBGN470	ENVIRONMENTAL ECONOMICS	3.0
MNGN210	INTRODUCTORY MINING	3.0
PEGN201	PETROLEUM ENGINEERING FUNDAMENTALS	3.0

The remaining 9CH may come from a combination of the courses listed above or the following courses:

EBGN301	INTERMEDIATE MICROECONOMICS	3.0
EBGN302	INTERMEDIATE MACROECONOMICS	3.0
EBGN315	THE ECONOMICS OF STRATEGY	3.0
EBGN351	INTRODUCTION TO DECISION SCIENCE	3.0
EBGN447	FINANCIAL RISK MANAGEMENT	3.0
EBGN477	ORGANIZATIONAL LEADERSHIP	3.0
EBGN495	ECONOMIC FORECASTING	3.0
EDNS430	CORPORATE SOCIAL RESPONSIBILITY	3.0

Computing

Required Course (3 CH):

CSCI200	FOUNDATIONAL PROGRAMMING CONCEPTS & DESIGN	3.0

The remaining 15 CH may from a combination of the following courses:

CSCI210	SYSTEMS PROGRAMMING	3.0
CSCI220	DATA STRUCTURES AND ALGORITHMS	3.0
CSCI306	SOFTWARE ENGINEERING	3.0
CSCI341	COMPUTER ORGANIZATION	3.0
CSCI358	DISCRETE MATHEMATICS	3.0
CSCI403	DATA BASE MANAGEMENT	3.0
CSCI404	ARTIFICIAL INTELLIGENCE	3.0
CSCI423	COMPUTER SIMULATION	3.0
CSCI470	INTRODUCTION TO MACHINE LEARNING	3.0
CSCI476	DEEP LEARNING	3.0
MATH332	LINEAR ALGEBRA	3.0
or MATH342	HONORS LINEAR ALGEBRA	
MATH334	INTRODUCTION TO PROBABILITY	3.0

Operations Research

Take 18 CH from the following list:

EBGN459	SUPPLY CHAIN ANALYTICS	3.0
EBGN461	STOCHASTIC MODELS IN MANAGEMENT SCIENCE	3.0
MATH332	LINEAR ALGEBRA	3.0
MATH334	INTRODUCTION TO PROBABILITY	3.0
MEGN479	OPTIMIZATION MODELS IN MANUFACTURING	3.0
MEGN485	MANUFACTURING OPTIMIZATION WITH NETWORK MODELS	3.0
MEGN486	LINEAR OPTIMIZATION	3.0
MEGN487	NONLINEAR OPTIMIZATION	3.0
MEGN488	INTEGER OPTIMIZATION	3.0

Actuarial Science

Required Courses (6 CH):

MATH334	INTRODUCTION TO PROBABILITY	3.0
MATH335	INTRODUCTION TO MATHEMATICAL STATISTICS	3.0

The remaining 12 CH may come from a combination of the following courses:

MATH324	STATISTICAL MODELING	3.0
MATH332	LINEAR ALGEBRA	3.0
or MATH342	HONORS LINEAR ALGEBRA	
MATH433	TIME SERIES AND ITS APPLICATIONS	3.0
MATH436	ADVANCED STATISTICAL MODELING	3.0
EBGN301	INTERMEDIATE MICROECONOMICS	3.0
EBGN302	INTERMEDIATE MACROECONOMICS	3.0
EBGN346	INTRODUCTION TO INVESTMENTS	3.0
EBGN447	FINANCIAL RISK MANAGEMENT	3.0
EBGN495	ECONOMIC FORECASTING	3.0

Engineering

BEMS students pursuing the Engineering track are required to take at least 15 credit hours of engineering courses from the following list:

MEGN261	THERMODYNAMICS I	3.0
or CHGN209	INTRODUCTION TO CHEMICAL THERMODYNAMICS	
or CBEN210	INTRO TO THERMODYNAMICS	
or GEGN330	GEOSCIENTISTS THERMODYNAMICS	

or MTGN251	METALLURGICAL AND MATERIALS THERMODYNAMICS	
CEEN241	STATICS	3.0
or MNGN318	STATICS AND DYNAMICS COMBINED FOR MN	
EENG281	ELECTRICAL CIRCUITS	3.0
or EENG282	ELECTRICAL CIRCUITS LABORATORY	
MTGN202	ENGINEERED MATERIALS	3.0
or CEEN311	MECHANICS OF MATERIALS	
or MEGN212	INTRODUCTION TO SOLID MECHANICS	
or MNGN310	EARTH MATERIALS	
CEEN310	FLUID MECHANICS FOR CIVIL AND ENVIRONMENTAL ENGINEERING	3.0
or MEGN351	FLUID MECHANICS	
or PEGN251	FLUID MECHANICS	
CBEN200	COMPUTATIONAL METHODS IN CHEMICAL ENGINEERING	3.0
CBEN201	MATERIAL AND ENERGY BALANCES	3.0
CBEN250	INTRODUCTION TO CHEMICAL ENGINEERING ANALYSIS AND DESIGN	3.0
CEEN210	INTRODUCTION TO CIVIL INFRASTRUCTURE	2.0
CEEN267	DESIGN II: CIVIL ENGINEERING	3.0
CEEN315	CIVIL AND ENVIRONMENTAL ENGINEERING TOOLS	3.0
CEEN317	EXPLORING ENGINEERING DYNAMICS	3.0
EDNS251	CORNERSTONE DESIGN II	3.0
EENG284	DIGITAL LOGIC	4.0
MEGN200	INTRODUCTION TO MECHANICAL ENGINEERING: PROGRAMMING AND HARDWARE INTERFACE	3.0
MEGN201	INTRODUCTION TO MECHANICAL ENGINEERING: DESIGN & FABRICATION	3.0
MEGN381	MANUFACTURING PROCESSES	3.0
MTGN211	STRUCTURE OF MATERIALS	3.0
MTGN281	INTRODUCTION TO PHASE EQUILIBRIA IN MATERIALS SYSTEMS	2.0
MNGN210	INTRODUCTORY MINING	3.0
PEGN201	PETROLEUM ENGINEERING FUNDAMENTALS	3.0
PEGN308	RESERVOIR ROCK PROPERTIES	3.0
The remaining 3 credit hours may come from the list above or from the list of approved business elective courses available to all BEMS students.		

COURSES

EBGN1XX. EBGN FREE ELECTIVE. 1-6 Semester Hr.

EBGN198. SPECIAL TOPICS IN ECONOMICS AND BUSINESS. 1-6 Semester Hr.
(I, II) Pilot course or special topics course. Topics chosen from special interests of instructor(s) and student(s). Usually the course is offered only once. Prerequisite: none. Variable credit; 1 to 6 credit hours. Repeatable for credit under different titles.

EBGN199. INDEPENDENT STUDY. 0.5-6 Semester Hr.
(I, II) Individual research or special problem projects supervised by a faculty member, also, when a student and instructor agree on a subject matter, content, and credit hours. Prerequisite: “Independent Study” form must be completed and submitted to the Registrar. Variable credit; 1 to 6 credit hours. Repeatable for credit.

EBGN201. PRINCIPLES OF ECONOMICS. 3.0 Semester Hrs.
(I,II,S) Introduction to microeconomics and macroeconomics. This course focuses on applying the economic way of thinking and basic tools of economic analysis. Economic effects of public policies. Analysis of markets for goods, services and resources. Tools of cost-benefit analysis. Measures of overall economic activity. Determinants of economic growth. Monetary and fiscal policy. Prerequisites: None. 3 hours lecture; 3 semester hours.

EBGN280. INTRODUCTION TO BUSINESS ANALYTICS. 3.0 Semester Hrs.
Business analytics implements a data-driven approach to the business world, leveraging statistics and data modeling to generate new business insights. In this introductory course, students will learn how to manage, visualize, and analyze data for business decision making. Students will use a variety of statistical methods, visualization tools, and data cleaning techniques to generate business insights from large data sets. Prerequisite: MATH201. Co-requisite: DSCI403 OR CSCI303.
Course Learning Outcomes

EBGN298. SPECIAL TOPICS IN ECONOMICS AND BUSINESS. 1-6 Semester Hr.
(I, II) Pilot course or special topics course. Topics chosen from special interests of instructor(s) and student(s). Usually the course is offered only once. Prerequisite: none. Variable credit; 1 to 6 credit hours. Repeatable for credit under different titles.

EBGN299. INDEPENDENT STUDY. 1-6 Semester Hr.
(I, II) Individual research or special problem projects supervised by a faculty member, also, when a student and instructor agree on a subject matter, content, and credit hours. Prerequisite: “Independent Study” form must be completed and submitted to the Registrar. Variable credit; 1 to 6 credit hours. Repeatable for credit.

EBGN301. INTERMEDIATE MICROECONOMICS. 3.0 Semester Hrs.
Equivalent with EBGN411,
This course introduces the theoretical and analytical foundations of microeconomics and applies these models to the decisions and interactions of consumers, producers and governments. Develops and applies models of consumer choice and production with a focus on general equilibrium results for competitive markets. Examines the effects of market power and market failures on prices, allocation of resources and social welfare. Prerequisite: EBGN201 and MATH213.

EBGN302. INTERMEDIATE MACROECONOMICS. 3.0 Semester Hrs.
Equivalent with EBGN412,
Intermediate macroeconomics provides a foundation for analyzing both short-run and long-run economic performance across countries and over time. The course discusses macroeconomic data analysis (including national income and balance of payments accounting), economic fluctuations and the potentially stabilizing roles of monetary, fiscal and exchange rates policies, the role of expectations and intertemporal considerations, and the determinants of long-run growth. The effects of external and internal shocks (such as oil price shocks, resource booms and busts) are analyzed. Prerequisite: EBGN201 and MATH213.

EBGN303. ECONOMETRICS. 3.0 Semester Hrs.
Equivalent with EBGN390,
Introduction to econometrics, including ordinary least-squares and single- equation models; two-stage least-squares and multiple-equation models; specification error, serial correlation, heteroskedasticity, and other problems; distributive-lag models and other extensions, hypothesis

testing and forecasting applications. Prerequisite: EBGN201 and MATH201.

EBGN304. PERSONAL FINANCE. 3.0 Semester Hrs.
The management of household and personal finances. Overview of financial concepts with special emphasis on their application to issues faced by individuals and households: budget management, taxes, savings, housing and other major acquisitions, borrowing, insurance, investments, meeting retirement goals, and estate planning. Survey of principles and techniques for the management of a household's assets and liabilities. Study of financial institutions and their relationship to households, along with a discussion of financial instruments commonly held by individuals and families.

EBGN305. SURVEY OF ACCOUNTING. 3.0 Semester Hrs.
An introduction to financial and managerial accounting topics of importance to managers and users of financial information. Topics include the origin, connection and purpose of financial statements, financial ratio computation and analysis, cash flow analysis for planning and decision making, inventory methods and cost accounting, fixed asset accounting, and fair value accounting. The course will focus on the use of accounting information for managerial decision making as well as the implications of business decisions on financial outcomes.

EBGN307. BUSINESS COMMUNICATIONS. 3.0 Semester Hrs.
Communication is one of the most vital skills in today's professional world, and effectiveness in communicating ideas, feelings, instructions, and thoughts are vital to both personal and professional success. Business Communications is designed to introduce you to skills and practices that will enable you to be an effective communicator for yourself, your business, and your clients and stakeholders. The course focuses on approaches for planning, creating, and transmitting business information within a variety of business situations found in the global marketplace. The course will focus on written, oral, and digital communication.
Course Learning Outcomes

- Analyze communication situations and audiences to make choices about the most effective and efficient way to communicate and deliver messages
- Conduct research that includes the use of print and electronic library resources and the Internet; use the results of the research to complete written and oral reports
- Conduct research that includes the use of print and electronic library resources and the Internet; use the results of the research to complete written and oral reports
- Deliver effective business presentations in contexts that may require either extemporaneous or impromptu oral presentations
- Provide feedback, accept feedback, and use feedback to improve communication skills
- Write business documents that are grammatically correct and use appropriate business style
- Develop effective interpersonal communication skills
- Develop skills in international and cross-cultural business communication and awareness of challenges required for successful communication in global organizations
- Use communication technology appropriately and effectively

EBGN308. PRINCIPLES OF MARKETING. 3.0 Semester Hrs.
Principles of Marketing will introduce students to the concepts, analyses, and activities that comprise marketing management and to provide practice in assessing and solving marketing problems. Marketing involves identifying customer needs, satisfying those needs through the right products and services, assuring availability to customers through the best distribution channels, using promotional activities in ways that motivate purchases as effectively as possible, and choosing a suitable price to boost firm profitability while maintaining customer satisfaction. These decisions of product, distribution, promotion, and price, together with a rigorous analysis of the customers, competitors, and the overall business environment serve as the foundations for sound marketing management.
Course Learning Outcomes

- Define marketing and outline the steps in the marketing process
- Explain the importance of understanding consumers and the marketplace, and identify the core marketplace concepts
- Identify the key elements of a customer-driven marketing strategy and discuss the marketing management orientations that guide market strategy
- Analyze qualitative and quantitative consumer data for use in determining appropriate marketing techniques that align with an organization’s strategic focus, culture, and current business procedures
- Recommend product, price, promotional, and distribution strategies for a pre-defined target market through organizational marketing plans
- Maximize internal and external opportunities through the integration of marketing concepts, theories, and models
- Develop effective marketing strategies that address commercial, legal, and cultural aspects in global business environments
- Analyze marketing practices for compliance with legal systems, regulatory standards, and ethical practices

EBGN309. FUNDAMENTALS OF MANAGEMENT. 3.0 Semester Hrs.
This course provides a survey of fundamental principles of management and their application to the operations of a complex, modern organization. Topics covered include managerial functions (planning, organizing, leading, and controlling) as well as organizational behavior, human resources, and operations management.

EBGN310. ENVIRONMENTAL AND RESOURCE ECONOMICS. 3.0 Semester Hrs.
Application of microeconomic theory to topics in environmental and resource economics. Topics include analysis of pollution control, benefit/cost analysis in decision-making and the associated problems of measuring benefits and costs, non-renewable resource extraction, measures of resource scarcity, renewable resource management, environmental justice, sustainability, and the analysis of environmental regulations and resource policies. 3 hours lecture; 3 semester hours.

EBGN315. THE ECONOMICS OF STRATEGY. 3.0 Semester Hrs.
An introduction to game theory and industrial organization (IO) principles at a practical and applied level. Topics include economies of scale and scope, the economics of the make-versus-buy decision, market structure and entry, dynamic pricing rivalry, strategic positioning, and the economics of organizational design. Prerequisite: EBGN201.
Course Learning Outcomes

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EBGN320. ECONOMICS AND TECHNOLOGY. 3.0 Semester Hrs.
The theoretical, empirical and policy aspects of the economics of technology and technological change. Topics include the economics of research and development, inventions and patenting, the Internet, e-commerce, and incentives for efficient implementation of technology. 3 hours lecture; 3 semester hours.

EBGN321. ENGINEERING ECONOMICS. 3.0 Semester Hrs.
Equivalent with CHEN421,
Time value of money concepts of present worth, future worth, annual worth, rate of return and break-even analysis applied to after-tax economic analysis of mineral, petroleum and general investments. Related topics on proper handling of (1) inflation and escalation, (2) leverage (borrowed money), (3) risk adjustment of analysis using expected value concepts, (4) mutually exclusive alternative analysis and service producing alternatives.

EBGN330. ENERGY ECONOMICS. 3.0 Semester Hrs.
Equivalent with ENGY330,
Study of economic theories of optimal resource extraction, market power, market failure, regulation, deregulation, technological change and resource scarcity. Economic tools used to analyze OPEC, energy mergers, natural gas price controls and deregulation, electric utility restructuring, energy taxes, environmental impacts of energy use, government R&D programs, and other energy topics.

EBGN340. ENERGY AND ENVIRONMENTAL POLICY. 3.0 Semester Hrs.
This course considers the intersection of energy and environmental policy from an economic perspective. Policy issues addressed include climate change, renewable resources, externalities of energy use, transportation, and economic development and sustainability. Prerequisites: EBGN201. 3 hours lecture; 3 semester hours.

EBGN345. PRINCIPLES OF CORPORATE FINANCE. 3.0 Semester Hrs.
Introduction to corporate finance, financial management, and financial markets. Time value of money and discounted cash flow valuation, risk and returns, interest rates, bond and stock valuation, capital budgeting and financing decisions. Introduction to financial engineering and financial risk management, derivatives, and hedging with derivatives. 3 hours lecture; 3 semester hours. Prerequisite: EBGN305.

EBGN346. INTRODUCTION TO INVESTMENTS. 3.0 Semester Hrs.
This course is an introduction to the principles of investment in competitive financial markets. The course will provide an overview to: 1) the structure of capital markets, 2) theories and practice of portfolio construction and management, 3) asset pricing theories used to analyze securities, 4) equity and debt securities, and 4) derivative instruments. 3 hours lecture; 3 semester hours. Prerequisites: EBGN305 or EBGN321.
Course Learning Outcomes

- Identify and describe a wide variety of financial assets.
- Discuss securities makrets and how they operate.
- Determine the intrnsic value of stocks and bonds.
- Determine the efficient diversification of a portfolio.
- Calculate the value of options.
- Apply investment theory to real world problems.

EBGN351. INTRODUCTION TO DECISION SCIENCE. 3.0 Semester Hrs.
This course focuses on how to unwind complex situations to gain clarity, model uncertainty, and enable confident decision making. Students will learn how to frame the problem correctly, ensure clarity around the objectives, develop creative alternative strategies, and qualitatively or quantitatively evaluate those alternatives. Several tools for accomplishing these goals will be introduced. Topics will include decision trees, common psychological biases and traps, scenario analysis, game theory, modeling techniques, and subject-matter-expert interviews. Students will learn to analyze and present model outputs and how to avoid common pitfalls.
Course Learning Outcomes

EBGN360. INTRODUCTION TO ENTREPRENEURSHIP. 3.0 Semester Hrs.
This course introduces students to the entrepreneurial process, focusing on the concepts, practices, and tools of the entrepreneurial world. This will be accomplished through a combination of readings, cases, speakers, and projects designed to convey the unique environment of entrepreneurship and new ventures. The mastery of concepts covered in this course will lead to an initial evaluation of new venture ideas. In this course students will interact with entrepreneurs, participate in class discussion, and be active participants in the teaching/learning process. 3 hours lecture; 3 semester hours.
Course Learning Outcomes

- no change

EBGN381. PREDICTIVE BUSINESS ANALYTICS. 3.0 Semester Hrs.
Predictive analytics employs mathematical modeling techniques, utilizing known data to generate predictions about unknown events. This course offers an introduction to predictive analytics. In this course, students will learn the core concepts of supervised and unsupervised learning approaches. The course also addresses performance metrics for evaluating the prediction models and introduces ensemble modeling to enhance the precision and robustness of predictive models. Prerequisite: EBGN280.
Course Learning Outcomes

EBGN382. PRESCRIPTIVE BUSINESS ANALYTICS. 3.0 Semester Hrs.
Prescriptive analytics strives to identify the best operational, tactical, and strategic decisions for organizations. In this course, students will learn the art of model building and will use linear, integer, and mixed-integer programming for a variety of business applications. Additionally, the course will provide an overview of specially structured models and model enhancement techniques. Prerequisite: EBGN280.
Course Learning Outcomes

EBGN397. GLOBAL BUSINESS EXPERIENTIAL LEARNING. 1-6 Semester Hr.
This an experiential learning in business, economics and culture and will examine theoretical aspects of engaging with other cultures and applying various methodologies of business and economics. The course will consist of practical exercises in which students will observe, document, research, and reflect upon assigned topics. The course will require students to evaluate their experience, personal growth, and learning. It will also challenge them to think critically about the host country and their own identity. The course will equip students with tools for analyzing their learning process and identifying cultural patterns, differences, similarities, and values. Ultimately it will guide them towards becoming global citizens while remaining ambassadors for their own culture.

EBGN398. SPECIAL TOPICS IN ECONOMICS AND BUSINESS. 1-6 Semester Hr.
(I, II) Pilot course or special topics course. Topics chosen from special interests of instructor(s) and student(s). Usually the course is offered only once. Prerequisite: none. Variable credit; 1 to 6 credit hours. Repeatable for credit under different titles.

EBGN398. SPECIAL TOPICS. 1-6 Semester Hr.

EBGN398. SPECIAL TOPICS. 0-6 Semester Hr.

EBGN399. INDEPENDENT STUDY. 1-6 Semester Hr.
(I, II) Individual research or special problem projects supervised by a faculty member, also, when a student and instructor agree on a subject matter, content, and credit hours. Prerequisite: "Independent Study" form must be completed and submitted to the Registrar. Variable credit; 1 to 6 credit hours. Repeatable for credit.

EBGN399. INDEPENDENT STUDY. 1-6 Semester Hr.

EBGN403. ECONOMICS CAPSTONE. 1-4 Semester Hr.
Equivalent with EBGN402,
This is the capstone course for the economics major. Students will apply the tools they learned throughout the program to (1) conduct original economics research or (2) conduct an economic analysis for a client. In addition to the project, the capstone course will provide students opportunities to interact with practitioners of economics and business as well as prepare a career plan. Prerequisite: EBGN301, EBGN302, EBGN303.

EBGN430. ECONOMICS OF INTERNATIONAL ENERGY MARKETS. 3.0 Semester Hrs.
With the global energy transition to a low carbon future in full swing, understanding and shaping energy outcomes in an international context is as important as ever. This course equips students with foundational economic analytical tools and techniques to enhance such understanding and help make economic policy recommendations to achieve the socially desired outcomes. Students will apply economic models to understand markets for fossil fuels, electricity, and renewable energy resources. Models, modeling techniques, and applications include energy market structure and trading; energy efficiency and project analysis; energy taxes and subsidies, energy policy and regulation; risk management with futures and options; and evaluating energy-economy interactions. International databases will be introduced in support of data-based modeling and policy analysis. Given the interdisciplinary nature of energy markets other disciplines will be touched upon including cutting edge energy technologies, energy geopolitics, as well as softer topics such as environmental, social, and governance (ESG) issues, international and intercultural management, and social justice. Prerequisites: MATH111, EBGN201.
Course Learning Outcomes

- Identify and list major properties of key energy sources: coal, oil, natural gas, electricity, and renewable energy, know definitions of the key energy concepts and policies provided within each chapter.
- Make conversions using metric/non-metric rates, price indices, and exchange rates.
- Use the international databases provided to the class to identify, graph, discuss, and measure energy trends, growth rates, correlations between variables, and large market players and complete assigned tasks to help maintain and enhance the collection of databases.
- Review and apply the models and tools in microeconomics (market models), calculus (optimization, derivatives, integrals), and probability and statistics (means, variances, correlations, expected values) to specific energy examples.
- Apply qualitative models to show and explain the effects that causal variables have on energy markets.
- Build and solve quantitative models with manual solutions for simple examples and computer applications (Excel and Gams) for more complicated models and to check manual solutions.
- Recognize how, what, when, and where models can be used for forecasting, policy analysis, project evaluation, economic decision-making, and analyzing current events and controversies relating to energy markets.
- Develop critical thinking skills to identify energy economic myths or misconception from the popular press or internet and be able to use concepts from the course to explain why they are misleading or wrong.

EBGN431. ECONOMICS OF METAL INDUSTRIES AND MARKETS. 3.0 Semester Hrs.
This course explores the economic principles governing global metal industries and commodity markets. Students analyze metal supply dynamics—including main product, byproduct, and secondary sources — and demand trends. Key topics include market organization, price formation, international trade patterns based on comparative advantage, and the impact of policy on commodity markets. Prerequisite: EBGN201.
Course Learning Outcomes

- Describe the structure and competitive environment of variety of metals industries and markets.
- Analyze the behavior of mineral and metals commodity markets.
- Evaluate the impacts of policy on metals markets.
- Conduct research on metals and communicate the findings of that research.

EBGN434. PROPERTY RIGHTS AND NATURAL RESOURCES. 3.0 Semester Hrs.
When choosing how to allocate our scarce resources, institutions serve as constraints at any given time. Over time, these institutions form and evolve when it appears profitable to do so. This course focuses on the North American story of resource use and draws on economics, law, and history to understand those processes and their implications. The course will provide a framework to understand why certain institutions were adopted and how they now shape our economic decisions today. Prerequisite: EBGN201.
Course Learning Outcomes

- Distinguish between legal and economic rights
- Understand how the distribution of economic rights impacts economic decisions
- Understand the impetus and frictions of changing economic property rights
- Be able to apply the property right theory to any example
- Have a better understanding of historical and current resource development in the American West

EBGN435. ECONOMICS OF WATER RESOURCES. 3.0 Semester Hrs.
This course seeks to develop the underlying economic problems of water use and how policy impacts the allocation of water in our economy. Water is a critical input for a number of sectors; from our basic sustenance to agriculture production, from industrial processes to ecological services, and from mineral extraction to energy production. Meanwhile, the supply of water is highly variable across space and through time while pollutants can further diminish the useable extent, making the policies to allocate and manage the resource central to understanding how the resource is utilized. The course will survey topics across sectors and water sources while applying economic theory and empirical/policy analysis. Prerequisite: MATH213.
Course Learning Outcomes

- Apply economic modelling to water systems
- Analyze water policies empirically
- Review valuation techniques for water resources
- Conduct Cost-Benefit Analysis
- Comprehend how institutional structure effect development
- Use economic tools to asses water allocation and water pollution
- Analyze water use in specific sectors (ag, energy, mining, recreation, etc.)

EBGN436. MINERAL POLICIES AND INTERNATIONAL INVESTMENT. 3.0 Semester Hrs.
This course examines the evolution of global mineral policies and their impact on governments, host countries, mineral producing firms, and investors. The course explores the "resource curse" and theories of economic development, the complexities of sharing mineral benefits, and the balance between governments, stakeholders, and attracting investors. Mineral policies and investment decision making are evaluated across numerous real-world case studies. Prerequisites: EBGN201 and EBGN321.
Course Learning Outcomes

- Explain the traditional and alternative views of economic growth and development.
- Conduct empirical analysis of the resource curse.
- Discuss the implications of taxation for mineral companies and governments.
- Explain how firms and governments balance rent-seeking and attracting investment.
- Evaluate how the mining process, risk, and other factors impact investment decisions.
- Explore company and investor perspectives relating to mineral investments.

EBGN437. REGIONAL ECONOMICS. 3.0 Semester Hrs.
(WI) Analysis of the spatial dimension of economies and economic decisions. Interregional capital and labor mobility. Location decisions of firms and households. Agglomeration economies. Models of regional economic growth. Measuring and forecasting economic impact and regional growth. Local and regional economic development policy. Urban and regional spatial structure. Emphasis on application of tools and techniques of regional analysis. Prerequisite: EBGN201.
Course Learning Outcomes

- no change

EBGN441. INTERNATIONAL ECONOMICS. 3.0 Semester Hrs.
Theories and determinants of international trade, including static and dynamic comparative advantage and the gains from trade. The history of arguments for and against free trade. The political economy of trade policy in both developing and developed countries. Prerequisite: EBGN301.

EBGN443. PUBLIC ECONOMICS. 3.0 Semester Hrs.
This course covers public-sector economics, including the fundamental institutions and relationships between the government and private decision makers. It covers the fundamental generalequilibrium welfare theorems and their interaction with government policy instruments that affect efficiency and distribution. Normative topics include an intensive study of the causes and consequences of, and policy prescriptions for, market failure due to public goods, or other problems associated with externalities and income distribution. Positive analysis focuses on policy formation in the context of political- economy and public choice theories. Prerequisite: EBGN201.

EBGN447. FINANCIAL RISK MANAGEMENT. 3.0 Semester Hrs.
Analysis of the sources, causes and effects of risks associated with holding, operating and managing assets by individuals and organizations; evaluation of the need and importance of managing these risks; and discussion of the methods employed and the instruments utilized to achieve risk shifting objectives. The course concentrates on the use of derivative assets in the risk management process. These derivatives include futures, options, swaps, swaptions, caps, collars and floors. Exposure to market and credit risks will be explored and ways of handling them will be reviewed and critiqued through analysis of case studies from the mineral and energy industries. Prerequisites: EBGN201 and MATH201.
Course Learning Outcomes

- Develop a basic proficiency in identifying and quantifying financial and business risks
- Become acquainted with a variety of tools to mitigate and manage financial and business risk
- Describe the potential impact of various external risk factors on financial results
- Explain how the timing of business decisions can magnify or dampen financial risk
- Use qualitative factors to help manage financial and business risks
- Use scenario analysis to evaluate and prioritize financial business risks
- Make rational, measured business decisions in the face of risk and uncertainty

EBGN453. PROJECT MANAGEMENT. 3.0 Semester Hrs.
Project management has evolved into a business process broadly used in organizations to accomplish goals and objectives through teams. This course covers the essential principles of traditional project management consistent with professional certification requirements (the Project Management Institute's PMP certification) as well as an introduction to current agile project management methodologies. The traditional project management phases of project initiation, planning, execution, monitoring and control, and project closure are covered including related scheduling, estimating, risk assessment and other analytical tools. Students will gain experience using Microsoft Project. Organizational structure and culture issues are analyzed to understand how they can impact project management success, and the concepts of project portfolios and project programs are applied from the organizational perspective. Agile project management methodologies are introduced, including adaptive and iterative processes, scrum, lean and other Agile tools and techniques. By the end of the course, students will understand how traditional and agile project differ.
Course Learning Outcomes

- 1) Create a work breakdown structure for a proposed project
- 2) Define the five process groups of traditional project management as defined by the Project management Institute (PMI)
- 3) Investigate the role and responsibilities of a Project Manager and stakeholders
- 4) Compare the tools and techniques for small, medium and large projects.
- 5) Interpret your own leadership abilities and how to grow as a leader
- 6) Create a project statement of work document with schedule, and financial analysis

- 7) Formulate the project issues, scope changes, and the resulting risk profile changes for a project.
- 8) Perform a basic project risk assessment
- 9) Assess Agile project management and how it differs from traditional project management.
- 10) Recognize the golden rules of change management
- 11) Create a business case and financial justification for a large project.

EBGN455. LINEAR PROGRAMMING. 3.0 Semester Hrs.
This course addresses the formulation of linear programming models, examines linear programs in two dimensions, covers standard form and other basics essential to understanding the Simplex method, the Simplex method itself, duality theory, complementary slackness conditions, and sensitivity analysis. As time permits, multi-objective programming, an introduction to linear integer programming, and the interior point method are introduced. Applications of linear programming models discussed in this course include, but are not limited to, the areas of manufacturing, finance, energy, mining, transportation and logistics, and the military. Prerequisite: MATH332.

EBGN458. DECISION ANALYTICS. 3.0 Semester Hrs.
Introduction to the science of decision making and risk theory. Application of decision analysis and utility theory to the analysis of strategic decision problems. Focuses on the application of quantitative methods to business problems characterized by risk and uncertainty. Choice problems such as decisions concerning major capital investments, corporate acquisitions, new product introductions, and choices among alternative technologies are conceptualized and structured using the concepts introduced in this course. Prerequisite: EBGN280.
Course Learning Outcomes

- Compare and contrast probabilistic thinking and modeling with deterministic thinking and modeling; explain how probabilistic thinking fits into the overall decision science approach.
- Build, run, and interpret the results of an economic cashflow model in Excel.
- Create and use an Influence Diagram to represent the relationships between uncertainties and decisions in a given business situation.
- Design a decision tree model using Precision Tree software, modeling the situation faced by a company in a case study and generating a recommended course of action based on mean Net Present Value.
- Design a Monte Carlo simulation model using @Risk software, modeling the situation faced by a company in a case study and calculating common financial metrics (NPV, IRR, capital efficiency), and recommend a course of action based on the results from that model.
- Recommend a decision regarding whether a company should pay a specific amount for a given piece of information, based on a Value-of-Information (VOI) assessment you perform.
- Ascertain valid P10, P50, and P90 inputs (10th, 50th, and 90th percentiles, respectively) for a probabilistic model by conducting Subject-Matter-Expert (SME) interviews for specific uncertainties in a way that mitigates known human biases (both cognitive and motivational). Valid model outputs cannot be generated without valid inputs.
- Compare and contrast applying one's risk tolerance at the portfolio level with applying one's risk tolerance at the individual project level, in terms understandable to someone with little to no background in business or statistics.

EBGN459. SUPPLY CHAIN ANALYTICS. 3.0 Semester Hrs.
This course introduces the fundamental concepts, models, and methods of supply chain management and analytics, with a focus on both theoretical foundations and practical applications. The purpose of the course is to equip students with the tools and analytical skills needed to understand, model, and improve supply chains in today's complex and uncertain environments. Students will learn how to approach key operational challenges such as demand forecasting, inventory management, facility location, and vehicle routing, and how these elements interact to influence overall supply chain performance. At a broader level, the course emphasizes the integration of analytics and decision-making across the supply chain. By blending quantitative models with managerial insights, students will gain the ability to evaluate trade-offs, manage uncertainty, and design systems that balance efficiency, resilience, and responsiveness. Prerequisite: EBGN280.
Course Learning Outcomes

- Apply probability concepts to analyze uncertainties in supply chain scenarios.
- Implement demand forecasting techniques to predict future inventory needs in various supply chain contexts.
- Utilize inventory theory and models, such as the economic order quantity and newsvendor, to determine optimal inventory levels.
- Formulate the facility location problems, traveling salesman problem, and vehicle routing problem to analyze and improve the supply chain networks and determine efficient routes and logistics performance.

EBGN460. BUSINESS MODEL DEVELOPMENT. 3.0 Semester Hrs.
This course leads students through the process of developing and validating a business model for an innovative product or service by a start-up or an established organization. The creation of a business model can be challenging, frustrating, fascinating and fulfilling. Building on skills learned in EBGN360, students explore ways to sustain and scale a promising new product or service in any context: commercial/for-profit, social/non-profit or government. It is an iterative process that involves uncovering beneficiary needs and leads to an in-depth understanding of how value is delivered, differentiated and captured. Students work in teams since new ventures are started by teams with complementary skills and a shared purpose. This is a demanding, hands-on course that integrates knowledge from entrepreneurship, business, economics and engineering classes. Students are expected to initiate and drive an intense beneficiary discovery process that involves reaching out to beneficiaries and engaging them outside class. Prerequisite: EBGN360. 3 hours lecture; 3 semester hours.
Course Learning Outcomes

- no change

EBGN461. STOCHASTIC MODELS IN MANAGEMENT SCIENCE. 3.0 Semester Hrs.
Stochastic models are widely used to analyze complex systems operating under uncertainty. Such models play a central role in managerial and engineering decision-making and are applied across a broad range of domains, including production systems, inventory management, logistics, marketing, and service operations. This course develops foundational tools for modeling and analyzing stochastic systems, with an emphasis on probabilistic reasoning, Markov processes, queueing models, and simulation. The objective is to equip students with the ability to formulate stochastic models, analyze their behavior, and interpret their implications

for decision-making. Students are expected to engage actively in all course activities, including class discussions, problem-solving, and independent study, in a manner consistent with professional standards. Prerequisite: EBGN280.

Course Learning Outcomes

- Explain core concepts in probability theory and stochastic processes.
- Apply conditional probability and expectation to engineering and managerial problems.
- Model and analyze discrete- and continuous-time Markov chains.
- Apply Poisson process models to systems involving random events over time.
- Characterize long-run behavior of Markov chains using stationary distributions.
- Apply queueing theory models to analyze congestion and service performance.
- Use simulation methods to study complex stochastic systems and interpret results.

EBGN470. ENVIRONMENTAL ECONOMICS. 3.0 Semester Hrs.
(WI) This course considers the role of markets as they relate to the environment. Topics discussed include environmental policy and economic incentives, market and non-market approaches to pollution regulation, property rights and the environment, the use of benefit/cost analysis in environmental policy decisions, and methods for measuring environmental and nonmarket values. Prerequisite: EBGN301. 3 hours lecture; 3 semester hours.

EBGN472. INTERNATIONAL BUSINESS. 3.0 Semester Hrs.
The purpose of this course is to provide students with a comprehensive understanding of the intricacies and impacts of globalization and a survey of the strategic implications of conducting business operations in an international context. The class begins with an examination of globalization, its drivers, and its consequences, along with analytical tools to be used throughout the semester. We then turn to analysis of relevant cross-national environments, including political/legal systems, economic/financial systems and trade policy, sociocultural forces, and technological innovation and change. From there, we study how businesses can succeed in a complex global market, including: how and when to expand internationally, how to choose an effective strategy, and how to structure and lead an international organization.

Course Learning Outcomes

- Analyze the factors that lead to the growth of business internationally, including the globalization of markets and production.
- Evaluate the key differences in political, legal, and economic systems, trade policy, sociocultural factors, and technological innovation of major nations engaged in international trade.
- Explain how managing an international business differs from managing a domestic business and know the additional skills and knowledge that business managers must possess to be successful in international ventures.
- Evaluate how institutions – both formal & informal – impact business decisions.
- Employ appropriate analytical tools to evaluate environmental conditions to form effective strategic business initiatives for expansion into new markets.

EBGN474. INVENTING, PATENTING AND LICENSING. 3.0 Semester Hrs.
(S) (WI) This course provides an introduction to the legal framework of inventing and patenting and addresses practical issues facing inventors. The course examines patent law, inventing and patenting in the corporate environment, patent infringement and litigation, licensing, and the economic impact of patents. Methods and resources for market evaluation, searching prior art, documentation and disclosure of invention, and preparing patent applications are presented. Prerequisite: None. 3 hours lecture; 3 semester hours.

EBGN477. ORGANIZATIONAL LEADERSHIP. 3.0 Semester Hrs.
This course is designed to provide an introduction to leadership by examining topics such as the nature of leadership, recognizing leadership traits, and developing leadership skills. The course will focus on effective leadership through the investigation of leadership theories and assessment of leadership styles. The emphasis in the course is on the practice of leadership and what it means to be a good leader. Students will assess their leadership traits and skills to improve their own leadership performance. Prerequisites: junior standing (60CH).

Course Learning Outcomes

- Students will assess potential leadership philosophy, traits, skills, behaviors, and develop a leadership portfolio.
- Students will evaluate fundamental leadership practices relevant to contemporary organizations.
- Students will enhance their writing skills by comparing and contrasting different leadership approaches.
- Students will apply strategies of leadership to various situations and contexts.
- Students will articulate the difference between management and leadership activities.
- Students will Identify and describe different styles of leadership.
- Students will analyze activities and actions that impact leadership effectiveness
- Students will evaluate their own personal leadership characteristics.

EBGN485. BUSINESS STRATEGY. 3.0 Semester Hrs.
Business strategy is focused on formulating and implementing the major goals of the firm in relation to changing competitive environmental conditions, firm resources, and individuals' motives and values. This course is about the issues and challenges of running a firm in a competitive environment from the perspective of a senior manager. The challenge for senior managers goes well beyond applying an appropriate formula to a problem because to date there are not any universal formulas for successful companies. Rather, senior managers must be able to identify that a problem exists and then to bring resolution, despite partial information. This course requires identifying, analyzing, and solving firm problems with original thinking and execution. A key instructional objective of this course is to help you develop a rigorous approach for addressing complex business problems. Prerequisites: EBGN307, EBGN308, EBGN309, and EBGN345.

Course Learning Outcomes

- Understand the fundamental concepts associated with Strategic Management, such as conducting analyses of the competitive environment a firm faces, assessing firm resources and potential sources of competitive advantages
- Be able to identify problems in a complex business scenario

- Understand what pieces of information are important in diagnosing a strategic challenge and to apply the correct tools in addressing that challenge
- Develop an understanding of how to design and implement firm level strategies that develop, exploit and sustain competitive advantage

EBGN490. BUSINESS ANALYTICS CAPSTONE. 3.0 Semester Hrs.
The business analytics capstone course provides an opportunity for students to integrate and apply the skills and tools learned in previous business analytics courses to define, formulate, analyze, and recommend a solution for a significant, real-world business problem. Students will work as a team, and will draw on the breadth and depth of the curriculum to address an industry supplied problem. Prerequisites: EBGN381, EBGN382.
Course Learning Outcomes

EBGN495. ECONOMIC FORECASTING. 3.0 Semester Hrs.
An introduction to the methods employed in business and econometric forecasting. Topics include time series modeling, Box- Jenkins models, vector autoregression, cointegration, exponential smoothing and seasonal adjustments. Covers data collection methods, graphing, model building, model interpretation, and presentation of results. Topics include demand and sales forecasting, the use of anticipations data, leading indicators and scenario analysis, business cycle forecasting, GNP, stock market prices and commodity market prices. Includes discussion of links between economic forecasting and government policy. Prerequisite: EBGN301, EBGN302, EBGN303.

EBGN497. SUMMER PROGRAMS. 0-6 Semester Hr.

EBGN498. SPECIAL TOPICS IN ECONOMICS AND BUSINESS. 0.5-6 Semester Hr.
Pilot course or special topics course. Topics chosen from special interests of instructor(s) and student(s). Usually the course is offered only once. Prerequisite: none. Variable credit; 1 to 6 credit hours. Repeatable for credit under different titles.

EBGN498. SPECIAL TOPICS. 1-6 Semester Hr.

EBGN498. SPECIAL TOPICS. 0.5-6 Semester Hr.

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EBGN499. INDEPENDENT STUDY. 1-6 Semester Hr.
(I, II) Individual research or special problem projects supervised by a faculty member, also, when a student and instructor agree on a subject matter, content, and credit hours. Prerequisite: “Independent Study” form must be completed and submitted to the Registrar. Variable credit; 1 to 6 credit hours. Repeatable for credit.

EBGN499. INDEPENDENT STUDY. 0-6 Semester Hr.

EBGN499. INDEPENDENT STUDY. 1-6 Semester Hr.

Professor

Jared Carbone

Research Professor

Roderick G. Eggert

Associate professors

Benjamin Gilbert

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Steven Smith, Associate Department Head

Assistant professors

Maxwell Brown

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Teaching Professors

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