

Northeastern University Oakland Fall 2023 and Spring 2024 Academic Programs

Northeastern University Oakland students will complete academic programs that feature the same core curriculum requirements as degrees offered at our Boston campus. Please click on a program to review the course catalog for the program. Please be advised that while core courses will remain the same across campuses, elective options may differ from campus to campus. The updated catalog and fall 2023 course offerings are typically published in June each year.

Northeastern University Oakland students can pursue a variety of interdisciplinary degree programs positioned at the intersection of technology, healthcare, science, and business. Four majors will be available in Oakland this coming fall:

- [Biology \(College of Science\)](#)
- [Business Administration \(D'Amore McKim School of Business\)*](#)
- [Computer Science \(Khoury College of Computer Sciences\)](#)
- [Health Science \(Bouvé College of Health Sciences\)](#)

These offerings will also include 10 of Northeastern's signature combined majors:

- [Business Administration and Communication Studies](#)
- [Business Administration and Design](#)
- [Business Administration and Economics](#)
- [Computer Science and Business Administration](#)
- [Computer Science and Biology](#)
- [Computer Science and Communication Studies](#)
- [Computer Science and Design](#)
- [Computer Science and Economics](#)
- [Health Science and Communication Studies](#)
- [Health Science and Business Administration](#)

*Eligible Concentrations for the D'Amore-McKim School of Business:

- [Entrepreneurial Startups](#)
- [Finance](#)
- [FinTech](#)
- [Marketing](#)
- [Social Innovation and Entrepreneurship](#)

Discover Oakland

In addition to the programs listed above, some students will enroll at the Oakland campus through the Discover Oakland Program. Students in the Discover Oakland Program will gain exposure to the fourteen degree programs offered through the Oakland campus for the Fall 2023 – Spring 2024 academic year. Students who choose to complete their degree in Oakland will be able to transition into one of these fourteen programs. Students who choose to transition to the Boston campus after their first year will select a major prior to transitioning to the Boston campus.

Experiential Entrepreneurship:

Unique to Northeastern University Oakland academic programs and the Bay Area Context, students in the 14 majors listed above will have the opportunity to engage in a series of experiential entrepreneurship components starting the summer before their first semester and extending throughout the four years of study on the Oakland campus. Ranging from workshops and full credit courses to living learning communities and extracurricular events, offerings will engage students with thought leadership, provide teaching and training in key principles and tools, and build project development experience.

NU Path:

Please visit this [page](#) to learn more about Northeastern’s core curriculum, NU Path.

Courses Required for Majors and Combined Majors:

The following core courses will be offered during the fall 2023 – spring 2024 academic year:

COURSES REQUIRED FOR MAJORS and COMBINED MAJORS:		
Term	Course	NU Path Attribute
Fall	ACCT 1201: Financial Accounting and Reporting	
Spring	ACCT 2301: Managerial Accounting	
Fall & Spring	ARTF 1122: Color and Composition	EI
Fall	ARTG 1001: Design Perspectives	
Fall	ARTG 1002 Seminar for Design Perspectives	
Spring	ARTG 1250: Design Process Contexts and Systems	EI
Fall & Spring	BIOL 1111 General Biology 1	ND; AD
Fall & Spring	BIOL 1112 Lab for Biology 1	

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Spring	BIOL 1113: General Biology 2	ND
Spring	BIOL 1114: Lab for Biology 2	
Fall	BIOL 2217 Integrated Anatomy and Physiology I	
Spring	BIOL 2219: Integrated Anatomy and Physiology 2	ND
Spring	BIOL 2220: Lab for BIOL2219	AD
Spring	BIOL 2221: Foundations of Microbiology	
Spring	BIOL 2222: Lab for BIOL2221	
Spring	BIOL 2301 Genetics and Molecular Biology	ND
Spring	BIOL 2302 Lab for Genetics and Molecular Biology	AD
Fall	CHEM 1163: Recitation for CHEM 1161	
Fall & Spring	CHEM 1161: General Chemistry for Science Majors	ND
Fall & Spring	CHEM 1162: Lab for CHEM 1161	
Fall & Spring	CHEM 1163: Recitation for CHEM 1161	
Spring or Summer	CHEM 2311: Organic Chemistry 1	
Spring or Summer	CHEM 2312: Lab for Organic Chemistry 1	
Fall	COMM 1101 Intro to Communication Studies	ER; SI
Fall	COMM 1112 Public Speaking	EI
Spring	COMM 1231: Principles of Organizational Communication	IC
Fall	CS 1802: Seminar for Discrete Structures	
Fall	CS 1800: Discrete Structures	FQ
Fall	CS 2500: Fundamentals of Computer Science	ND; FQ
Fall	CS 2501: Lab for CS2500	
Spring	CS 2510 Fundamentals of Computer Science 2	ND; AD
Spring	CS 2511 Lab for CS2510	
Spring	CS 3200 Database Design	AD
Spring	DS 2000/2001 Programming with Data	AD
Fall & Spring	ECON 1115: Principles of Macroeconomics	SI; AD
Fall & Spring	ECON 1116: Principles of Microeconomics	SI; AD
Fall & Spring	ENGLW 1111: First-Year Writing	WF
Fall & Spring	ENGW 1102: First-Year Writing for Multilingual Learners	WF
Spring	ENTR 2201: Entrepreneurship!	EI
Fall & Spring	ENTR 2301: Innovation!	EI
Spring	FINA 2201 Financial Management	
Spring	INPR 2955: Interdisc. Project-Principles of Experiential Entrepreneurship	
Fall & Spring	INTB 1203: International Business and Global Social Responsibility	IC; ER
Fall	Intro to College	

Fall & Spring	MATH 1231: Calculus for Business and Economics	FQ
Fall & Spring	MATH 1341: Calculus 1 for Science and Engineering	FQ
Fall & Spring	MATH 1342: Calculus 2 for Science and Engineering	FQ
Spring	MATH 1365: Introduction to Mathematical Reasoning	
Fall & Spring	MGSC 2301: Business Statistics	AD
Spring	MISM 2301: Management Information Systems	
Fall & Spring	MKTG 2201: Introduction to Marketing	
Spring	MKTG 2301: Marketing and Society	ER; SI
Fall	PHTH 1260: The American Healthcare System	SI
Spring	PHTH 2350 Community and Public Health	SI
Spring	PHTH 2515 Healthcare Policy and Administration	
Fall & Spring	PSYC 1101: Foundations of Psychology	ND; SI
Spring	SCHM 2301 Supply Chain and Operations Management	

Selected Elective Courses:

The following are a selection of elective courses that we anticipate will likely be offered for the fall 2023 – spring 2024 academic year in Oakland. This list does not reflect the full range of potential elective offerings for the coming year, but is shared at this time to give students a sense of likely elective options. This list will be updated as we receive confirmation of specific courses selected to be offered for the fall 2023 – spring 2024 academic year.

SELECTIVE ELECTIVE COURSE:		
Term	Course	NU Path Attribute
Spring	ANTH 1101: Peoples and Cultures	IC
Spring	ANTH 2305: Global Markets and Local Culture	IC
Fall	ARCH 1310: Buildings and Cities, A Global History	DD; IC
Fall	ARCH 1311. Recitation for ARCH 1310	
Spring	ARCH 2130: Site, Space, Program	
Spring	ARCH 2240: Architectonic Systems	EI, ND
Spring	ARCH 2370: Topics in Architectural History	WI
Fall & Spring	ARTF 1120 Observational Drawing	EI
Spring	ARTG 2250 Typography 1	EI
Spring	ARTG 2251 Typography Tools	
Spring	ARTH 2200: Topics in Design History	

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Fall & Spring	Beginner/Intermediate French	
Fall & Spring	Beginner/Intermediate Spanish	
Spring	CAEP 1280: Mindfulness	IC
Fall	CLTR 1120 Introduction to Languages, Literature, and Culture	IC
Spring	COMM 1131: Sex and Relationships	SI
Spring	COMM 1112: Public Speaking	EI
Spring	COMM 2303: Global and Intercultural Communication	SI; DD
Fall	CRIM 1100: Introduction to Criminal Justice	SI
Spring	CRIM 1120: Criminology	SI
Spring	CY 2550 Foundations of Cybersecurity	
Fall	DS 2000: Programming with Data	AD
Fall	DS 2001: Practicum for DS2000	AD
Spring	ENGL 3376: Creative Nonfiction	EI; WI
Spring	ENGL 3377: Poetry Workshop	EI
Spring	GAME 1110 Games and Society	
Fall	GE 1501: Cornerstone of Engineering 1	
Spring	HIST 2211: The World Since 1945	SI; DD
Spring	HIST/AFAM/WMNS 1225: Gender, Race and Medicine	DD
Spring	HSCI 1105: Nutrition	ND
Fall	CAEP 2012 Health Psychology	
Fall	INTL 1101: Globalization and International Affairs	SI
Spring	JRNL 1150: Understanding Today's News	
Spring	MATH 2321: Calculus 3 for Science and Engineering	FQ
Spring	MATH 2341 : Differential Equations & Linear Algebra	
Spring	MSCR 1320: Media and Social Change	ER
Fall	MUSC 1001: Music in Everyday Life	EI; IC
Spring	MUSC 1113: Film Music	IC; EI
Fall	PHIL 1145: Technology and Human Values	SI; ER
Spring	PHIL 1180: Environmental Ethics	SI; ER
Spring	PHMD 2100 Entrepreneurship in Health Sciences	
Spring	PHMD 2550 Entrepreneurship and Drug & Medical Device Development	
Spring	PHTH 1270 Introduction to Global Health	SI
Fall	PHYS 1151 Physics for Engineering 1	ND; AD
Fall	PHYS 1152 Lab for PHYS 1151	
Fall	PHYS 1153. Interactive Learning Seminar for PHYS 1151	
Spring	PHYS 1155 Physics for Engineering 2	ND; AD

Spring	PHYS 1156: Lab for Physics for Engineering 2	
Spring	PHYS 1157: Recitation for Physics for Engineering 2	
Spring	POLS/SOCL 2358: Current Issues in Cities and Suburbs	SI; DD
Fall	POLS 1150: American Government	SI
Fall & Spring	POLS 1160: International Relations	SI
Spring	PSYC 3402: Social Psychology	
Spring	PSYC 3404: Developmental Psychology	
Fall	SOCL 1101: Introduction to Sociology	SI; DD
Spring	SOCL 1246 Environment and Society	SI; DD
Spring	SOCL 3270: Race and Ethnic Relations	SI, DD
Spring	SOCL/WMNS 1102: Sex, Gender and Popular Culture	SI; DD
Fall	SOCL 1102: Sex, Gender, and Popular Culture	DD; ICI
Fall	SOCL 2358: Current Issues in Cities and Suburbs	DD; SI
Fall & Spring	THTR 1125: Improvisation	EI

Course Descriptions:

ACCT 1201. Financial Accounting and Reporting. (4 Hours)

Covers the basic concepts underlying financial statements and the accounting principles followed in the preparation of the balance sheet, the income statement, and the statement of cash flows. Offers students an opportunity to become familiar with accounting terminology and methods designed to enable them to interpret, analyze, and evaluate published corporate financial reports. Wherever appropriate, the course relates current economic, business, and global events to accounting issues. Analyzes how financial reporting concepts affect the behavior of investors, creditors, and other external users. Emphasizes the importance of ethics in financial reporting.

ACCT 2301. Managerial Accounting. (4 Hours)

Focuses on the development and use of information—especially financial information—for managerial decisions within the firm. Introduces managerial accounting concepts, analyses, and practices that support business decisions through class discussions, exercises, and case analysis. Topics include budgeting, cost management and behavior, cost-volume-profit analysis, relevant costs for decision making, cost allocation issues, and performance evaluation. Emphasizes the importance of ethics.

Prerequisite(s): [ACCT 1201](#) with a minimum grade of D- or [ACCT 1209](#) with a minimum grade of D- or [ACCT 1202](#) with a minimum grade of D-

ARTF 1122. Color and Composition. (4 Hours)

Offers an opportunity to discover and research basic principles, language, and concepts inherent in two-dimensional visual systems. Offers students an opportunity to learn to think critically, analyze, and apply basic principles to design and art projects. In a studio workshop setting, three primary phases explore art, design, and photography.

Attribute(s): NUpath Creative Express/Innov

ARTG 1001. Design Perspectives: An Introduction to Design in the World. (2 Hours)

Introduces students to a range of perspectives and points of view on design as a human activity. Explores a mix of theories, principles, practices, and histories that constitute various understandings of design across cultures. Through illustrative case studies, examines impacts, influences, accomplishments, consequences, possibilities, and limits of design in the world. Investigates what it means to develop a personal design practice.

Corequisite(s): [ARTG 1002](#)

ARTG 1002. Seminar for Design Perspectives. (2 Hours)

Offers a small-group discussion format to cover material in [ARTG 1001](#) and provides opportunities for the application of course topics.

Corequisite(s): [ARTG 1001](#)

ARTG 1250. Design Process Context and Systems. (4 Hours)

Explores common design practices, principles, and vocabularies, introducing the design process as a method of inquiry and problem solving through studio projects. Emphasizes the importance of an awareness of audience and context in the creation of meaningful communications and experiences. Explores the practice of design as an iterative process, offering students an opportunity to obtain an understanding of the value of systems thinking and the importance of feedback and exchange as a means for assessing the quality of design's effectiveness in helping users achieve their goals.

Attribute(s): NUpath Creative Express/Innov

BIOL 1111. General Biology 1. (4 Hours)

Explores basic principles of biology with a focus on those features shared by all living organisms and seen through the lens of evolutionary theory. Through lectures, readings and discussion, offers students an opportunity to understand how the scientific method has been and is used to address biological questions. Central topics include recent advances in cell anatomy and physiology, including the interplay between organelles, membrane transport, and cell-signaling; energy transfer through cells and through the biosphere; cellular reproduction and cancer; heredity and human genetic disorders; and protein synthesis and biotechnology. Explores the societal implications of such topics as biopharmaceuticals, ocean acidification, climate change, human diseases, epigenetics, cancer, and cloning.

Attribute(s): NUpath Natural/Designed World

BIOL 1112. Lab for BIOL 1111. (1 Hour)

Accompanies [BIOL 1111](#). Offers students an opportunity to collect quantitative data through hands-on experimentation as well as simulations. Data is analyzed statistically and presented in written form.

Prerequisite(s): [BIOL 1111](#) (may be taken concurrently) with a minimum grade of D-

Attribute(s): NUpath Analyzing/Using Data

BIOL 1113. General Biology 2. (4 Hours)

Continues [BIOL 1111](#). Examines the evolution of structural and functional diversity of organisms; the integrative biology of multicellular organisms; and ecological relationships at the population, community, and ecosystem levels.

Prerequisite(s): BIOL 1101 with a minimum grade of D- or [BIOL 1107](#) with a minimum grade of D- or [BIOL 1111](#) with a minimum grade of D- or [BIOL 1115](#) with a minimum grade of D-

Attribute(s): NUpath Natural/Designed World

BIOL 1114. Lab for BIOL 1113. (1 Hour)

Accompanies [BIOL 1113](#). Covers topics from the course through various experiments.

Prerequisite(s): [BIOL 1113](#) (may be taken concurrently) with a minimum grade of D-

BIOL 2217. Integrated Anatomy and Physiology 1. (4 Hours)

Introduces students to integrated human anatomy and physiology. Focuses on structure and function of cells and tissues. Presents the anatomy and physiology of skin, bones, muscles, blood, and the nervous system.

Corequisite(s): [BIOL 2218](#)

Attribute(s): NUpath Natural/Designed World

BIOL 2219. Integrated Anatomy and Physiology 2. (4 Hours)

Continues [BIOL 2217](#). Presents the structure and function of the human endocrine, reproductive, cardiovascular, respiratory, urinary, and digestive systems as well as the regulation of metabolism and body temperature.

Prerequisite(s): BIOL 1117 with a minimum grade of D- or [BIOL 2217](#) with a minimum grade of D-

Corequisite(s): [BIOL 2220](#)

Attribute(s): NUpath Natural/Designed World

BIOL 2220. Lab for BIOL 2219. (1 Hour)

Accompanies [BIOL 2219](#). Covers topics from the course through various experiments.

Corequisite(s): [BIOL 2219](#)

Attribute(s): NUpath Analyzing/Using Data

BIOL 2221. Foundations of Microbiology. (4 Hours)

Focuses on how to identify, control, and live with bacteria and viruses. Emphasizes the mechanisms of disease production, natural host defense systems, and medical interventions.

Corequisite(s): [BIOL 2222](#)

BIOL 2222. Lab for BIOL 2221. (1 Hour)

Accompanies [BIOL 2221](#). Covers topics from the course through various experiments.

Corequisite(s): [BIOL 2221](#)

BIOL 2301. Genetics and Molecular Biology. (4 Hours)

Focuses on mechanisms of inheritance, gene-genome structure and function, and developmental genetics and evolution. Examples are drawn from the broad spectrum of plants, animals, fungi, bacteria, and viruses. Topics and analytical approaches include transmission genetics, molecular biology and gene regulation, DNA molecular methods, quantitative and population genetics, bioinformatics, genomics, and proteomics.

Prerequisite(s): (BIOL 1103 with a minimum grade of D- or [BIOL 1113](#) with a minimum grade of D- or [BIOL 1115](#) with a minimum grade of D- or BIOL 2297 with a minimum grade of D- or [BIOL 2299](#) with a minimum grade of D- or [EEMB 1105](#) with a minimum grade of D- or [EEMB 2290](#) with a minimum grade of D- or ENVR 2400 with a minimum grade of D- or [EEMB 2400](#) with a minimum grade of D-); ([CHEM 1211](#) with a minimum grade of D- or CHEM 1217 with a minimum grade of D- or [CHEM 1151](#) with a minimum grade of D- or [CHEM 1161](#) with a minimum grade of D-)

Attribute(s): NUpath Natural/Designed World

BIOL 2302. Lab for BIOL 2301. (1 Hour)

Accompanies [BIOL 2301](#). Reinforces and extends concepts presented and practiced in the accompanying lecture course through the application of scientific investigation methods and data analysis.

Prerequisite(s): [BIOL 2301](#) (may be taken concurrently) with a minimum grade of D-

Attribute(s): NUpath Analyzing/Using Data

CHEM 1161. General Chemistry for Science Majors. (4 Hours)

Introduces the principles of chemistry, focusing on the particulate nature of matter and its interactions and reactions that form the basis for the underlying molecular dynamics of living systems. Presents basic concepts of chemical bonding and intermolecular interactions for molecules and molecules' behavior in aqueous solutions with examples from biologically relevant molecules. Introduces kinetics and chemical thermodynamics with examples from biological systems. Offers students an opportunity to obtain a framework for understanding the chemical basis for different methods for separating and purifying biological compounds.

Corequisite(s): [CHEM 1162](#), [CHEM 1163](#)

Attribute(s): NUpath Natural/Designed World

CHEM 1162. Lab for CHEM 1161. (1 Hour)

Accompanies [CHEM 1161](#). Introduces basic laboratory techniques. Covers a range of topics including qualitative and quantitative analysis and the characteristics of chemical and physical processes.

Corequisite(s): [CHEM 1161](#), [CHEM 1163](#)

CHEM 1163. Recitation for CHEM 1161. (0 Hours)

Accompanies [CHEM 1161](#). Covers various topics from the course. Offers students an opportunity to work interactively with instructors and other students to learn and apply the knowledge acquired in lecture.

Corequisite(s): [CHEM 1161](#), [CHEM 1162](#)

CHEM 2311. Organic Chemistry 1. (4 Hours)

Introduces nomenclature, preparation, properties, stereochemistry, and reactions of common organic compounds. Presents correlations between the structure of organic compounds and their physical and chemical properties, and mechanistic interpretation of organic reactions. Includes chemistry of hydrocarbons and their functional derivatives.

Prerequisite(s): [CHEM 1151](#) with a minimum grade of D or [CHEM 1214](#) with a minimum grade of D or CHEM 1220 with a minimum grade of D or [CHEM 1161](#) with a minimum grade of D

Corequisite(s): [CHEM 2312](#)

CHEM 2312. Lab for CHEM 2311. (1 Hour)

Accompanies [CHEM 2311](#). Introduces basic laboratory techniques, such as distillation, crystallization, extraction, chromatography, characterization by physical methods, and measurement of optical rotation. These techniques serve as the foundation for the synthesis, purification, and characterization of products from microscale syntheses integrated with [CHEM 2311](#).

Corequisite(s): [CHEM 2311](#)

COMM 1101. Introduction to Communication Studies. (4 Hours)

Surveys the field of communication studies. Covers major theories and methodological approaches in communication studies and situates communication within larger social, political, and economic institutions. Exposes students to ways of ethical reasoning across communication contexts, including organizational communication, social media, intercultural communication, mass media, and interpersonal communication.

Attribute(s): NUpath Ethical Reasoning, NUpath Societies/Institutions

COMM 1112. Public Speaking. (4 Hours)

Develops skills in public communication. Topics include choosing and researching a topic, organizing and delivering a speech, handling speech anxiety, listening critically, and adapting language to an audience. Offers the opportunity for students to present a series of speeches and receive advice and criticism from an audience.

Attribute(s): NUpath Creative Express/Innov

COMM 1231. Principles of Organizational Communication. (4 Hours)

Surveys the communication process in complex organizations. Topics include the evolution of organizational communication, communication networks, information management, and communication climate. Analyzes case studies and teaches how to improve the quality of communication in an organization.

Attribute(s): NUpath Interpreting Culture

CS 1802. Seminar for CS 1800. (1 Hour)

Accompanies [CS 1800](#). Illustrates topics from the lecture course through discussions, quizzes, and homework assignments.

Corequisite(s): [CS 1800](#)

CS 1800. Discrete Structures. (4 Hours)

Introduces the mathematical structures and methods that form the foundation of computer science. Studies structures such as sets, tuples, sequences, lists, trees, and graphs. Discusses functions, relations, ordering, and equivalence relations. Examines inductive and recursive definitions of structures and functions. Discusses principles of proof such as truth tables, inductive proof, and basic logic. Also covers the counting techniques and arguments needed to estimate the size of sets, the growth of functions, and the space-time complexity of algorithms.

Corequisite(s): [CS 1802](#)

Attribute(s): NUpath Formal/Quant Reasoning

CS 2500. Fundamentals of Computer Science 1. (4 Hours)

Introduces the fundamental ideas of computing and the principles of programming. Discusses a systematic approach to word problems, including analytic reading, synthesis, goal setting, planning, plan execution, and testing. Presents several models of computing, starting from nothing more than expression evaluation in the spirit of high school algebra. No prior programming experience is assumed; therefore, suitable for freshman students, majors and nonmajors alike who wish to explore the intellectual ideas in the discipline.

Corequisite(s): [CS 2501](#)

Attribute(s): NUpath Formal/Quant Reasoning, NUpath Natural/Designed World

CS 2501. Lab for CS 2500. (1 Hour)

Accompanies [CS 2500](#). Covers topics from the course through various experiments.

Corequisite(s): [CS 2500](#)

CS 2510. Fundamentals of Computer Science 2. (4 Hours)

Continues [CS 2500](#). Examines object-oriented programming and associated algorithms using more complex data structures as the focus. Discusses nested structures and nonlinear structures including hash tables, trees, and graphs. Emphasizes abstraction, encapsulation,

inheritance, polymorphism, recursion, and object-oriented design patterns. Applies these ideas to sample applications that illustrate the breadth of computer science.

Prerequisite(s): [CS 2500](#) with a minimum grade of D-

Corequisite(s): [CS 2511](#)

Attribute(s): NUpath Analyzing/Using Data, NUpath Natural/Designed World

CS 2511. Lab for CS 2510. (1 Hour)

Accompanies [CS 2510](#). Covers topics from the course through various experiments.

Corequisite(s): [CS 2510](#)

CS 3200. Database Design. (4 Hours)

Studies the design of a database for use in a relational database management system. The entity-relationship model and normalization are used in problems. Relational algebra and then the SQL (structured query language) are presented. Advanced topics include triggers, stored procedures, indexing, elementary query optimization, and fundamentals of concurrency and recovery. Students implement a database schema and short application programs on one or more commercial relational database management systems.

Prerequisite(s): [CS 2500](#) with a minimum grade of D- or [DS 2000](#) with a minimum grade of D- or CS 1500 with a minimum grade of D- or [EECE 2560](#) with a minimum grade of D-

Attribute(s): NUpath Analyzing/Using Data

DS 2000. Programming with Data. (2 Hours)

Introduces programming for data and information science through case studies in business, sports, education, social science, economics, and the natural world. Presents key concepts in programming, data structures, and data analysis through Python and Excel. Integrates the use of data analytics libraries and tools. Surveys techniques for acquiring and programmatically integrating data from different sources. Explains the data analytics pipeline and how to apply programming at each stage. Discusses the programmatic retrieval of data from application programming interfaces (APIs) and from databases. Introduces predictive analytics for forecasting and classification. Demonstrates the limitations of statistical techniques.

Corequisite(s): [DS 2001](#)

Attribute(s): NUpath Analyzing/Using Data

DS 2001. Data Science Programming Practicum. (2 Hours)

Applies data science principles in interdisciplinary contexts, with each section focusing on applications to a different discipline. Involves new experiments and readings in multiple disciplines (both computer science and the discipline focus of the particular section). Requires multiple projects combining interdisciplinary subjects.

Corequisite(s): [DS 2000](#)

ECON 1115. Principles of Macroeconomics. (4 Hours)

Introduces macroeconomic analysis. Topics include the flow of national income, economic growth and fluctuation, the role of money and banking, and monetary and fiscal policies. Emphasizes the development of conceptual tools to analyze the economic problems facing modern society, including long-run growth, unemployment, inflation, and inequality. Analyzes strengths and weaknesses of aggregate measures of economic activity, including how aggregation can hide underlying inequalities across racial, gender, and socioeconomic lines.

Attribute(s): NUpath Analyzing/Using Data, NUpath Societies/Institutions

ECON 1116. Principles of Microeconomics. (4 Hours)

Focuses on development of basic theory of demand, supply, and market price. Highlights the role of preferences in the attainment of environmental and social justice and economic equity. Explores applications to selected microeconomic problems, such as basic monopoly and competition, and other issues related to the role of the pricing system in resource allocation and income distribution. Addresses the limitations of reliance on market value. Evaluates the social responsibility of externalities.

Attribute(s): NUpath Analyzing/Using Data, NUpath Societies/Institutions

ENGW 1111. First-Year Writing. (4 Hours)

Designed for students to study and practice writing in a workshop setting. Students read a range of texts in order to describe and evaluate the choices writers make and apply that knowledge to their own writing and explore how writing functions in a range of academic, professional, and public contexts. Offers students an opportunity to learn how to conduct research using primary and secondary sources; how to write for various purposes and audiences in multiple genres and media; and how to give and receive feedback, to revise their work, and to reflect on their growth as writers.

ENGW 1102. First-Year Writing for Multilingual Writers. (4 Hours)

Designed for students whose first or strongest language is not English. Parallels [ENGW 1111](#) but focuses on the concerns of multilingual writers. Students study and practice writing in a workshop setting; read a range of texts in order to describe and evaluate the choices writers make and apply that knowledge to their own writing; explore how writing functions in a variety of academic, professional, and public contexts; and write for various purposes and audiences in multiple genres and media. Offers students an opportunity to learn how to conduct research using primary and secondary sources and to give and receive feedback, to revise their work, and to reflect on their growth as writers.

ENTR 2301. Innovation!. (4 Hours)

Designed for students across the entire University who wish to learn about innovation—the creative process, the different types of innovation, how innovations are created, and how innovations can be transformed into commercial reality either as new products or new services

and either in startups, existing corporations, and nonprofit entities. Offers students an opportunity to obtain the fundamental insight needed to understand the innovation process and to become a player in it.

Attribute(s): NUpath Creative Express/Innov

FINA 2201. Financial Management. (4 Hours)

Designed to develop the financial skills and logical thought processes necessary to understand and discuss financial policy decisions in a global economy. Specific objectives include developing an understanding of the time value of money; using financial statements in decision making; and understanding the nature of financial markets, the cost of capital, valuation of stocks and bonds, management of short-term assets, short-term and long-term financing, capital markets, and multinational financial management. Addresses the impact of legal, social, technological, and ethical considerations on efficient economic outcomes. Requires a financial calculator and provides an opportunity to develop computer spreadsheet skills.

Prerequisite(s): [ACCT 1201](#) with a minimum grade of D- or [ACCT 1209](#) with a minimum grade of D- or [ACCT 1202](#) with a minimum grade of D-

INPR 2955. Interdisciplinary Project. (1-4 Hours)

Offers students an opportunity to work in an applied, interdisciplinary project setting on a research project, community or regional initiative, or industry-based solution. Students collaborate to define and refine the problem to be addressed, work toward one or more solutions, develop recommendations that are shared with a partnering project sponsor, and create a plan for implementation. An interdisciplinary team-based approach allows students to contribute their unique perspectives from multiple disciplines toward complex problems facing researchers, communities, and businesses. Offered on multiple Northeastern campuses as part of a semester-long program.

INTB 1203. International Business and Global Social Responsibility. (4 Hours)

Introduces the student to forces and issues confronted in our era of rapid globalization. Managers must understand forces from interconnected social, political, and economic national environments that affect their company's operations. At the same time they need to draw on their ethical foundations to address and act on social responsibility imperatives across national borders.

Attribute(s): NUpath Ethical Reasoning, NUpath Interpreting Culture

MATH 1231. Calculus for Business and Economics. (4 Hours)

Provides an overview of differential calculus including derivatives of power, exponential, logarithmic, logistic functions, and functions built from these. Derivatives are used to model rates of change, to estimate change, to optimize functions, and in marginal analysis. The integral calculus is applied to accumulation functions and future value. Emphasis is on realistic business and economics problems, the development of mathematical models from raw

business data, and the translation of mathematical results into verbal expression appropriate for the business setting. Also features a semester-long marketing project in which students gather raw data, model it, and use calculus to make business decisions; each student is responsible for a ten-minute presentation. (Graphing calculator required, see instructor for make and model.)

Attribute(s): NUpath Formal/Quant Reasoning

MATH 1341. Calculus 1 for Science and Engineering. (4 Hours)

Covers definition, calculation, and major uses of the derivative, as well as an introduction to integration. Topics include limits; the derivative as a limit; rules for differentiation; and formulas for the derivatives of algebraic, trigonometric, and exponential/logarithmic functions. Also discusses applications of derivatives to motion, density, optimization, linear approximations, and related rates. Topics on integration include the definition of the integral as a limit of sums, antidifferentiation, the fundamental theorem of calculus, and integration by substitution.

Attribute(s): NUpath Formal/Quant Reasoning

MATH 1342. Calculus 2 for Science and Engineering. (4 Hours)

Covers further techniques and applications of integration, infinite series, and introduction to vectors. Topics include integration by parts; numerical integration; improper integrals; separable differential equations; and areas, volumes, and work as integrals. Also discusses convergence of sequences and series of numbers, power series representations and approximations, 3D coordinates, parameterizations, vectors and dot products, tangent and normal vectors, velocity, and acceleration in space. Requires prior completion of [MATH 1341](#) or permission of head mathematics advisor.

Attribute(s): NUpath Formal/Quant Reasoning

MATH 1365. Introduction to Mathematical Reasoning. (4 Hours)

Covers the basics of mathematical reasoning and problem solving to prepare incoming math majors for more challenging mathematical courses at Northeastern. Focuses on learning to write logically sound mathematical arguments and to analyze such arguments appearing in mathematical books and courses. Includes fundamental mathematical concepts such as sets, relations, and functions.

MGSC 2301. Business Statistics. (4 Hours)

Offers students an opportunity to obtain the necessary skills to collect, summarize, analyze, and interpret business-related data. Covers descriptive statistics, sampling and sampling distributions, statistical inference, relationships between variables, formulating and testing hypotheses, and regression analysis in the context of business. Use of the SPSS statistical programming package is an integral part of the course.

Attribute(s): NUpath Analyzing/Using Data

MISM 2301. Management Information Systems. (4 Hours)

Explores how a wide range of enterprises around the world use information and information technology to create better-managed, more innovative, and successful organizations. The twenty-first-century enterprise runs on information, and every part of the business has been transformed by the use of information technology. Today's business leaders, therefore, must have ready access to timely, accurate, and relevant information to manage effectively in the global economy.

MKTG 2201. Introduction to Marketing. (4 Hours)

Provides an overview of the role of marketing in business and society. Considers the planning, implementation, and evaluation of marketing efforts in consumer and business-to-business companies, in service and goods companies, and in for-profit and nonprofit organizations. Also examines contemporary issues in marketing that can affect organizational success. A term project is used to enable students to apply their learning about the fundamentals of marketing.

MKTG 2301. Marketing and Society. (4 Hours)

Examines the role of marketing and business in society's central contemporary problems as well as the way marketing can take a positive and influential role in the efforts to address these problems. Reviews some of our society's main problems and a critical view of marketing and business in today's world. Also examines changing marketing practices and roles for businesses as firms and institutions become more socially responsible and ethically aware. Finally, introduces and analyzes the role of prosocial marketing, how marketing can influence people's behavior for advancing a socially desirable change. Offers students an opportunity to better understand our society and enhance an ethical mind-set, while highlighting the ways marketers can contribute to societal well-being.

Attribute(s): NUpath Ethical Reasoning, NUpath Societies/Institutions

PHTH 1260. The American Healthcare System. (4 Hours)

Introduces the organization and dynamics of the healthcare system and the role of consumers. Explores basic elements of healthcare including financing, personal insurance, high-risk status, and patient rights within the context of the U.S. system. Central to this exploration is an analysis of healthcare issues requiring informed consent from patients: patient bill of rights, healthcare directives, and the use of a proxy for decision making. Introduces the roles and responsibilities of various healthcare workers within the framework of an interdisciplinary model of healthcare.

Attribute(s): NUpath Societies/Institutions

PHTH 2350. Community and Public Health. (4 Hours)

Provides students with a basic familiarity with and appreciation of public health and community-based methods for improving the health of populations. Explores the purpose and structure of the U.S. public health system, contemporary public health issues such as

prevention of communicable diseases, health education, social inequalities in health and healthcare, public health responses to terrorism, and control of unhealthy behaviors like smoking, drinking, drug abuse, and violence. Prior completion of PHTH 1260 is recommended but not required.

Attribute(s): NUpath Societies/Institutions

PHTH 2515. Healthcare Policy and Administration. (4 Hours)

Focuses on management and policy issues in healthcare. Discusses management and administrative structures in hospitals and other healthcare organizations, including community clinics and health organizations, both private and public. Introduces the financial systems, economic information, and payment mechanisms necessary to understand healthcare financing. Also explores the variety of factors that influence population health from a healthcare policy perspective. Offers students an opportunity to learn how to analyze, prepare, and write policy briefs based on understanding the various economic, legal, and political forces shaping healthcare in the United States.

Prerequisite(s): [PHTH 1260](#) with a minimum grade of C or [PHTH 1261](#) with a minimum grade of C

PSYC 1101. Foundations of Psychology. (4 Hours)

Surveys the fundamental principles, concepts, and issues in the major areas of basic and applied psychological science. Approaches the study of psychology as a method of inquiry as well as a body of knowledge. Introduces students to research methods and to psychological research on the biological bases of behavior, learning, sensation and perception, cognition and language, development, emotion, social psychology, personality, and psychological disorders.

Attribute(s): NUpath Natural/Designed World, NUpath Societies/Institutions

SCHM 2301. Supply Chain and Operations Management. (4 Hours)

Focuses on the integrative management of business activities intrinsic to the smooth flow of goods or services, information, and financial transactions across firms from raw materials to the end customer. This collaborative approach creates competitive advantages for all members of a supply chain. Emphasizes the responsibilities of managers regarding decisions concerning the design, operation, and control of supply chains and operations. Considers customers, globalization, corporate strategy, resources, sustainability, ethics, and diversity. Topics covered include customer-centric management; supply chain and operations strategies; process structure and control; and supply, inventory, and quality management. Emphasizes the key role of information technology, logistics network design, supply chain relationships, and process evolution.

Selective Elective Course Descriptions:

ANTH 1101. Peoples and Cultures. (4 Hours)

Surveys basic concepts in cultural anthropology by looking at a range of societies and the issues they face in a globalizing world. Examines the manner in which cultures adapt to, reject, or modify all of the changes they face. These changes impact everything from traditional family structure, to religion, gender, all the way to patterns of joking and concepts of beauty the world over.

Attribute(s): NUpath Interpreting Culture

ANTH 2305. Global Markets and Local Culture. (4 Hours)

Examines selected topics in the socioeconomic transformation of other cultures, including urbanization, industrialization, globalization, commodity production, and international labor migration. Focuses on the impact of global capitalist development on contemporary developing and postcolonial societies as well as local responses and/or resistances to those changes.

Attribute(s): NUpath Interpreting Culture

ARCH 1310. Buildings and Cities, A Global History. (4 Hours)

Introduces students to architecture, as understood through buildings, cities, and landscapes from antiquity to the present. Studies important monuments in the global history of architecture, as well as tools for analyzing the built environment. Considers buildings in relation to their political, social, economic, and cultural context, and as expressions of diversity in human societies and cultural perspectives. Topics include the language of architecture, architectural drawings, the classical orders, the problem of ornament, construction techniques, materials, site, and the role of the patron. Develops students' eye for composition in two and three dimensions, aesthetic discrimination of detail, ability to see buildings as part of a larger social and cultural fabric, and critical judgment in speaking and writing.

Attribute(s): NUpath Difference/Diversity, NUpath Interpreting Culture

ARCH 1311. Recitation for ARCH 1310. (0 Hours)

Offers a small-group discussion format to cover material in [ARCH 1310](#).

ARCH 2130. Site, Space, and Program. (6 Hours)

Studies how to analyze, draw, and model the built environment. Students engage in issues of program, composition, type, and material. Offers students the opportunity to think conceptually about architectural design.

Prerequisite(s): [ARCH 1120](#) with a minimum grade of D-

ARCH 2240. Architectonic Systems. (4 Hours)

Introduces construction techniques and precise material realization of buildings as an integral part of architectural design thinking and processes. Uses historical and contemporary architectural precedents to explore the spatial and tectonic interrelationships of the primary constructional systems of wood, masonry, concrete, and steel. Uses a diverse mixture of student learning methods, including in-class lectures and student exercises; group discussions

and guest lectures; textbook reading; and the production of construction models, drawings, and diagrams.

Prerequisite(s): [ARCH 1110](#) with a minimum grade of D- or [ARCH 2260](#) with a minimum grade of D- or [ARCH 6100](#) (may be taken concurrently) with a minimum grade of C-

Attribute(s): NUpath Creative Express/Innov, NUpath Natural/Designed World

ARCH 2370. Topics in Architectural History. (4 Hours)

Covers a variety of topics in architectural history and theory. Taught by faculty according to their interests and expertise.

Attribute(s): NUpath Writing Intensive

ARTF 1120. Observational Drawing. (4 Hours)

Focuses on developing an understanding of the structure of object and figure through freehand drawing. Offers students an opportunity to explore a wide range of materials, including wash, charcoal, and pencil.

Attribute(s): NUpath Creative Express/Innov

ARTG 2250. Typography 1. (4 Hours)

Introduces typography as the basis of graphic design and visual communication. Guides students through an understanding of letterforms, words, sentences, and text as both image and information. Studies form, context, and visual meaning. Introduces use of the typographic grid and issues of hierarchy and legibility through assigned projects, readings, and lectures. Includes the historical evolution of typefaces and their classification as a rational system.

Prerequisite(s): [ARTF 1122](#) with a minimum grade of D-

Corequisite(s): [ARTG 2251](#)

Attribute(s): NUpath Creative Express/Innov

ARTG 2251. Type Tools. (1 Hour)

Offers students an opportunity to acquire technical software skills used in typesetting, such as Adobe InDesign, in this introductory lab.

Corequisite(s): [ARTG 2250](#)

ARTH 2200. Topics in Design History. (4 Hours)

Explores various design history topics through pioneering designers whose work has influenced contemporary design culture. Instructor determines format and content.

CAEP 1280. Introduction to Mindfulness. (4 Hours)

Explores modern mindfulness practices and how these practices were derived from Eastern spiritual teachings, including Buddhism and Hinduism. Describes the current literature related to potential health and wellness outcomes of a mindfulness practice. Examines various meditation techniques, as well as accompanying practices such as yoga and breath work.

Focuses on developing and practicing daily mindfulness using a highly experiential approach.

Offers students an opportunity to learn and discuss the foundations on which such practices are based.

Attribute(s): NUpath Interpreting Culture

CLTR 1120. Introduction to Languages, Literature, and Culture. (4 Hours)

Examines the rich interconnections between literature and language and the culture that supports them. Discusses the relationship of language to literature and investigates how language and literatures are embedded in culture. Addresses several very broad and important questions, such as the relationship between language and culture; the relationship between language and thought; the definition of cultural relativism; and how ethical dilemmas are expressed in different cultures. Explores the relationship of esthetic and rhetorical traditions in given languages to the culture from which they sprang. In this context, examines the extremely interesting case of American Sign Language and how a gestural language sheds light on these issues.

Attribute(s): NUpath Interpreting Culture

COMM 1131. Sex, Relationships, and Communication. (4 Hours)

Focuses on communication within the context of close relationships. Topics covered include the role of communication in interpersonal attraction, relationship development, relationship maintenance, and relationship dissolution. Examines how communication impacts relationship quality and commitment. Offers students an opportunity to apply what they learn in the course to their personal and professional lives.

Attribute(s): NUpath Societies/Institutions

COMM 1112. Public Speaking. (4 Hours)

Develops skills in public communication. Topics include choosing and researching a topic, organizing and delivering a speech, handling speech anxiety, listening critically, and adapting language to an audience. Offers the opportunity for students to present a series of speeches and receive advice and criticism from an audience.

Attribute(s): NUpath Creative Express/Innov

COMM 2303. Global and Intercultural Communication. (4 Hours)

Focuses on theories of and approaches to the study of intercultural communication. Emphasizes the importance of being able to negotiate cultural differences and of understanding intercultural contact in societies and institutions. Stresses the benefits and complexities of cultural diversity in global, local, and organizational contexts.

Attribute(s): NUpath Difference/Diversity, NUpath Societies/Institutions

CRIM 1100. Introduction to Criminal Justice. (4 Hours)

Surveys the contemporary criminal justice system in the United States. Examines the phases of the criminal justice system beginning with the detection of crimes by the police; the handling of the case through the courts; and, finally, disposition and sentencing. Analyzes issues and

characteristics of each of the phases of the criminal justice system (police, courts, and corrections) and identifies its key actors (for example, police, judges, prosecutors, correctional officers). Traces the role of systemic racism and intersecting dimensions of oppression in the historical development of and current policies and practices in the criminal justice system. Also introduces students to the U.S. juvenile justice system.

Attribute(s): NUpath Societies/Institutions

CRIM 1120. Criminology. (4 Hours)

Describes the nature and extent of crime, explains its causes, and examines society's responses to it. Defines the field of criminology by discussing the different types of crime and discusses different theories of crime causation. Studies the connections between systemic racism, inequalities, and crime and the role of bias in the development of the field and criminological theories. To establish the extent of crime in society, addresses measurement issues in the field of criminology.

Attribute(s): NUpath Societies/Institutions

CY 2550. Foundations of Cybersecurity. (4 Hours)

Presents an overview of basic principles and security concepts related to information systems, including workstation security, system security, and communications security. Discusses legal, ethical, and human factors and professional issues associated with cybersecurity, including the ability to differentiate between laws and ethics. Offers students an opportunity to use a substantial variety of existing software tools to probe both computer systems and networks in order to learn how these systems function, how data moves within these systems, and how these systems might be vulnerable. Covers security methods, controls, procedures, economics of cybercrime, criminal procedure, and forensics.

Prerequisite(s): [CS 2500](#) with a minimum grade of D-

DS 2000. Programming with Data. (2 Hours)

Introduces programming for data and information science through case studies in business, sports, education, social science, economics, and the natural world. Presents key concepts in programming, data structures, and data analysis through Python and Excel. Integrates the use of data analytics libraries and tools. Surveys techniques for acquiring and programmatically integrating data from different sources. Explains the data analytics pipeline and how to apply programming at each stage. Discusses the programmatic retrieval of data from application programming interfaces (APIs) and from databases. Introduces predictive analytics for forecasting and classification. Demonstrates the limitations of statistical techniques.

Corequisite(s): [DS 2001](#)

Attribute(s): NUpath Analyzing/Using Data

DS 2001. Data Science Programming Practicum. (2 Hours)

Applies data science principles in interdisciplinary contexts, with each section focusing on applications to a different discipline. Involves new experiments and readings in multiple disciplines (both computer science and the discipline focus of the particular section). Requires multiple projects combining interdisciplinary subjects.

Corequisite(s): [DS 2000](#)

ENGL 3376. Creative Nonfiction. (4 Hours)

Explores how writers apply narrative strategies and techniques to factual material. Offers students an opportunity to read and write a variety of nonfiction forms (e.g., narrative essays and narrative journalism, travel and science writing, memoir, editorials, protest and political essays), as well as cross-genre and hybrid forms (e.g., nonfiction prose mixed with poetry, audio and graphic nonfiction). The topics for narrative nonfiction writing apply to a wide array of disciplines, including the humanities, the sciences, and journalism.

Prerequisite(s): [ENGW 1111](#) with a minimum grade of C or [ENGW 1102](#) with a minimum grade of C or ENGL 1111 with a minimum grade of C or ENGL 1102 with a minimum grade of C

Attribute(s): NUpath Creative Express/Innov, NUpath Writing Intensive

ENGL 3377. Poetry Workshop. (4 Hours)

Offers an advanced workshop in writing and reading original poetry. Students experiment in established poetic forms. Features in-class discussion of student work.

Prerequisite(s): ENGL 1102 with a minimum grade of C or ENGL 1111 with a minimum grade of C or [ENGW 1102](#) with a minimum grade of C or [ENGW 1111](#) with a minimum grade of C

Attribute(s): NUpath Creative Express/Innov

GAME 1110. Games and Society. (4 Hours)

Provides an historical and cultural perspective on games and other forms of interactive entertainment. Examines the present state and future directions of paper, card, and board games; physical games and sports; and video games. Introduces students to current issues, experiments, and directions in the field of game design. Through weekly lectures and small-group labs, students have an opportunity to develop a critical basis for analyzing game play.

GE 1501. Cornerstone of Engineering 1. (4 Hours)

Introduces students to the engineering design process and algorithmic thinking using a combination of lectures and hands-on projects and labs while encouraging critical thinking. Offers students an opportunity to develop creative problem-solving skills used in engineering design, to structure software, and to cultivate effective written and oral communication skills. Topics include the use of design and graphics communication software, spreadsheets, a high-level programming language, programmable microcontrollers as well as various electronic components, and 3-D printing. Requires students to develop an original design solution to a

technical problem as a final term project. Requires students to have a laptop computer that meets the specifications of the College of Engineering.

HIST 2211. The World Since 1945. (4 Hours)

Examines the political, economic, social, and cultural relationship between the developed and developing world since the end of World War II. Topics include the Cold War, independence and national movements in developing countries, the globalization of the world economy, scientific and technological innovations, wealth and poverty, the eradication of some diseases and the spread of others, the fall of the Soviet Union, Middle East turmoil, and the enduring conflict between Israel and Palestine.

Attribute(s): NUpath Difference/Diversity, NUpath Societies/Institutions

HIST/AFAM/ WMNS1225: Gender, Race and Medicine

Examines the basic tenets of “scientific objectivity” and foundational scientific ideas about race, sex, and gender and what these have meant for marginalized groups in society, particularly when they seek medical care. Introduces feminist science theories ranging from linguistic metaphors of the immune system, to the medicalization of race, to critiques of the sexual binary. Emphasizes contemporary as well as historical moments to trace the evolution of “scientific truth” and its impact on the U.S. cultural landscape. Offers students an opportunity to develop the skills to critically question what they “know” about science and the scientific process and revisit their disciplinary training as a site for critical analysis. [AFAM 1225](#), [HIST 1225](#), and [WMNS 1225](#) are cross-listed.

Attribute(s): NUpath Difference/Diversity

HSCI 1105. Human Nutrition. (4 Hours)

Examines the fundamental role of nutrition in promoting health and how lifestyle and the socioecological model work together. Covers the physiological functions of energy-providing nutrients in the body and interrelationships, including the key functions of macronutrients and micronutrients. Introduces the use of two different diet assessment tools to assist individuals in selecting food for health promotion. Offers students an opportunity to gain a deeper understanding of what it means to make healthy choices and the role nutrients have on a person’s wellness.

CAEP 2012. Health Psychology: An Introduction. (4 Hours)

Introduces the field of health psychology, which studies the role of psychology in health, illness, and healthcare. Topics include sustaining and promoting health, as well as experiencing illness and the body. Discusses focusing on people’s behaviors, perceptions, emotions, and understandings of health and illness, within the contexts of relationships and culture. Also discusses how the theories and concepts of health psychology are instrumental in health promotion and prevention (including relevance to students’ own well-being). Specific themes include the biopsychosocial model of health; stress, coping, and social support; health-

promoting and health-risk behaviors; behavior change theories and approaches; gender and health; health disparities; and the relevance of health psychology for health promotion.

INTL 1101. Globalization and International Affairs. (4 Hours)

Offers an interdisciplinary approach to analyzing global/international affairs. Examines the politics, economics, culture, and history of current international issues through lectures, guest lectures, film, case studies, and readings across the disciplines.

Attribute(s): NUpath Societies/Institutions

JRNL 1150. Understanding Today's News. (4 Hours)

Examines the media institutions that shape the news and how the challenges of economics, politics, diversity, and globalization change the function of the website, newspaper, news magazine, and news broadcasts. Examines stories and news decisions from different perspectives to evaluate national, political, local, foreign, sports, and science news in the U.S. media. Topics include responsibilities of the press and the changing ways news is gathered, processed, and disseminated. Explores how other societies in different parts of the world view the news; freedom of the press; and the role of reporters, producers, and editors.

Attribute(s): NUpath Difference/Diversity, NUpath Societies/Institutions

MATH 2321. Calculus 3 for Science and Engineering. (4 Hours)

Extends the techniques of calculus to functions of several variables; introduces vector fields and vector calculus in two and three dimensions. Topics include lines and planes, 3D graphing, partial derivatives, the gradient, tangent planes and local linearization, optimization, multiple integrals, line and surface integrals, the divergence theorem, and theorems of Green and Stokes with applications to science and engineering and several computer lab projects.

Requires prior completion of [MATH 1342](#) or [MATH 1252](#).

Attribute(s): NUpath Formal/Quant Reasoning

MATH 2341. Differential Equations and Linear Algebra for Engineering. (4 Hours)

Studies ordinary differential equations, their applications, and techniques for solving them including numerical methods (through computer labs using MS Excel and MATLAB), Laplace transforms, and linear algebra. Topics include linear and nonlinear first- and second-order equations and applications include electrical and mechanical systems, forced oscillation, and resonance. Topics from linear algebra, such as matrices, row-reduction, vector spaces, and eigenvalues/eigenvectors, are developed and applied to systems of differential equations.

Requires prior completion of [MATH 1342](#).

MSCR 1320. Media and Social Change. (4 Hours)

Explores media's role in movements for social, economic, and cultural change. Specifically examines how people use media technologies to organize themselves and communicate their message to wider audiences in order to achieve social change. As a way to develop and improve ethical reasoning, students are asked to think about the accountability of media institutions and

actions of groups and individuals who use media technologies and tactics in the name of social change.

Attribute(s): NUpath Ethical Reasoning

MUSC 1001. Music in Everyday Life. (4 Hours)

Dedicated to exploring, expanding, and exploding traditional meanings of what music is; of what it means to be a composer, performer, and audience member; and of what it means to listen. The overarching goal is to provide students with the tools and opportunities necessary for determining for themselves what place music holds in everyday life.

Attribute(s): NUpath Creative Express/Innov, NUpath Interpreting Culture

MUSC 1113. Film Music. (4 Hours)

Emphasizes the various ways that music is used in film, including music depicted on-screen and musical scores. Music is a crucial element of meaning in film, yet its presence is easy to ignore. Offers students an opportunity to learn basic approaches to the analysis of music and sound in film, to develop the ability to think critically about film, and to become knowledgeable about key historical developments in film music and sound. No musical background is necessary.

Attribute(s): NUpath Creative Express/Innov, NUpath Interpreting Culture

PHIL 1145. Technology and Human Values. (4 Hours)

Studies philosophy of technology, as well as ethics and modern technology. Considers the relationship between technology and humanity, the social dimensions of technology, and ethical issues raised by emerging technologies. Discusses emerging technologies such as biotechnology, information technology, nanotechnology, and virtual reality.

Attribute(s): NUpath Ethical Reasoning, NUpath Societies/Institutions

PHIL 1180. Environmental Ethics. (4 Hours)

Focuses on a current ecological crisis and addresses the values that underlie our concern over this crisis, whether the values at issue are anthropocentric or biocentric. Explores the ethical implications these ecological concerns have for our individual lifestyles, and for our role as members of communities.

Attribute(s): NUpath Ethical Reasoning, NUpath Societies/Institutions

PHMD 2100. Entrepreneurship in Health Sciences. (4 Hours)

Addresses principles and applications of entrepreneurship in the healthcare industry, focusing on healthcare ventures and technology. Explores different business organizations, including sole proprietorships, partnerships, corporations, joint ventures and not-for-profit enterprises. Such explorations offer students an opportunity to identify and evaluate business skills and commitment necessary to successfully operate an entrepreneurial venture and address the challenges and rewards of entrepreneurship. Considers the requirements, costs, and benefits of various forms of financial options open to entrepreneurs. Presentations and discussions are led by accomplished entrepreneurs and practitioners engaged in healthcare teaching, research, and

business. Case studies identify the challenges and rewards of successful entrepreneurial ventures that set positive examples for budding entrepreneurs in leading change and innovation.

PHMD 2550. Innovation, Entrepreneurship, and Drug and Medical Device Development. (4 Hours)

Introduces the process of innovation and entrepreneurship within drug and medical device development. Explores the perspectives of the pharmaceutical industry and medical device industry, as well as regulatory agencies, within the United States. Presents drug/device discovery, development, deployment, and life cycle as it pertains to business development and planning. Examines the roles of individuals in innovation and entrepreneurship across the industry.

PHTH 1270. Introduction to Global Health. (4 Hours)

Introduces global health in the context of an interdependent and globalized world focusing on four main areas of analysis: infrastructure of global health; diseases; populations; and terms, concepts, and theories. While the focus is on lower-income countries, the course examines issues in a broader global context, underscoring the interconnections between global health disparities and global health policy response. Applies case studies describing interventions to improve healthcare in resource-poor settings in sub-Saharan Africa and elsewhere to help illuminate the actors, diseases, populations, and principles and frameworks for the design of effective global health interventions. AFRS 1270 and PHTH 1270 are cross-listed.

Attribute(s): NUpath Societies/Institutions.

PHYS 1151. Physics for Engineering 1. (3 Hours)

Covers calculus-based physics. Offers the first semester of a two-semester integrated lecture and laboratory sequence intended primarily for engineering students. Covers Newtonian mechanics and fluids. Stresses the balance between understanding the basic concepts and solving specific problems. Includes topics such as one-dimensional and three-dimensional motion, Newton's laws, dynamics friction, drag, work, energy and power, momentum and collisions, rotational dynamics, forces, torque and static equilibrium, pressure, fluids, and gravity.

Prerequisite(s): [MATH 1241](#) with a minimum grade of D- or [MATH 1251](#) with a minimum grade of D- or [MATH 1340](#) (may be taken concurrently) with a minimum grade of D- or [MATH 1341](#) (may be taken concurrently) with a minimum grade of D- or [MATH 1342](#) (may be taken concurrently) with a minimum grade of D- or [MATH 2321](#) (may be taken concurrently) with a minimum grade of D-

Attribute(s): NUpath Natural/Designed World

PHYS 1152. Lab for PHYS 1151. (1 Hour)

Accompanies [PHYS 1151](#). Covers topics from the course through various experiments. Requires concurrent registration in [PHYS 1151](#) and [PHYS 1153](#).

Attribute(s): NUpath Analyzing/Using Data

PHYS 1153. Interactive Learning Seminar for PHYS 1151. (1 Hour)

Offers interactive problem solving for [PHYS 1151](#). Emphasizes organized approaches and use of mathematical techniques, including calculus, to solve a wide range of problems in mechanics. Topics include static equilibrium, applications of Newton's laws and conservation principles, rotational dynamics, and fluids. Requires concurrent registration in [PHYS 1151](#) and [PHYS 1152](#).

PHYS 1155. Physics for Engineering 2. (3 Hours)

Continues [PHYS 1151](#). Offers integrated lecture and laboratory. Covers electrostatics; capacitors; resistors and direct-current circuits; magnetism and magnetic induction; RC, LR, and LRC circuits; waves; electromagnetic waves; and radiation.

Prerequisite(s): ([PHYS 1151](#) with a minimum grade of D- or [PHYS 1161](#) with a minimum grade of D- or [PHYS 1171](#) with a minimum grade of D-); ([MATH 1252](#) (may be taken concurrently) with a minimum grade of D- or [MATH 1342](#) (may be taken concurrently) with a minimum grade of D- or [MATH 2321](#) (may be taken concurrently) with a minimum grade of D-)

Corequisite(s): [PHYS 1157](#)

Attribute(s): NUpath Natural/Designed World

PHYS 1156. Lab for PHYS 1155. (1 Hour)

Accompanies [PHYS 1155](#). Covers topics from the course through various experiments. Requires concurrent registration in [PHYS 1155](#) and [PHYS 1157](#).

Attribute(s): NUpath Analyzing/Using Data

PHYS 1157. Interactive Learning Seminar for PHYS 1155. (1 Hour)

Offers interactive problem solving for [PHYS 1155](#). Emphasizes organized approaches and use of mathematical techniques, including calculus, to solve a wide range of problems in electricity, magnetism, and waves. Requires concurrent registration in [PHYS 1155](#) and [PHYS 1156](#).

Corequisite(s): [PHYS 1155](#)

POLS 2358. Current Issues in Cities and Suburbs. (4 Hours)

Introduces students to pressing urban issues: urban sprawl, poverty, education, transportation, economic development, and housing, through an intensive analysis of the Boston metropolitan area. The course is cotaught by university faculty and practitioners in government, community, and nonprofit organizations throughout the metropolitan area. Offers students the opportunity to analyze Boston data, go on outings to see development in progress, talk with urban practitioners about what they do, and conduct research on an urban issue of their choice.

Attribute(s): NUpath Difference/Diversity, NUpath Societies/Institutions

POLS 1150. American Government. (4 Hours)

Analyzes the system of politics and government in the United States. Topics include the philosophical basis, historical origins, design, and functioning of the Constitution as well as formal government institutions. Examines the influence of public opinion, political behavior and participation, parties, and interest groups.

Attribute(s): NUpath Societies/Institutions

POLS 1160. International Relations. (4 Hours)

Introduces a broad study of international relations, encompassing both theoretical perspectives and empirical knowledge. Reviews the role of states as well as international and nongovernmental organizations in dealing with security and war, terrorism, human rights, trade, globalization, and environmental protection, among other important contemporary issues.

Attribute(s): NUpath Societies/Institutions

PSYC 3402. Social Psychology. (4 Hours)

Provides an introductory survey of social psychology. Topics include aggression, attribution, attitude formation; and change, attraction, gender and culture, conformity, impression formation, and group processes.

Prerequisite(s): [PSYC 1101](#) with a minimum grade of D-

PSYC 3404. Developmental Psychology. (4 Hours)

Examines change throughout the life span in social relationships, emotional functioning, language, cognition, and other psychological domains, with emphasis on infancy through adolescence. Introduces major theories of development. Stresses the interaction of social and cognitive factors in development, and the interaction of the developing person with the environment. Also explores individual and cross-cultural differences in patterns of development, and research issues in developmental psychology.

Prerequisite(s): [PSYC 1101](#) with a minimum grade of D-

SOCL 1101. Introduction to Sociology. (4 Hours)

Explores diverse social phenomena, from how people try to look their best in face-to-face interactions; to how race, gender, and class shape identities and social conditions; to how industrial capitalism came to dominate the world. Offers students an opportunity to gain a grasp of key sociological theories and empirical research on topics such as social order, social conflict, and social change, as well as learn to identify social forces that shape human behavior, explain how these forces affect individuals and social groups, and make valid predictions about how they may shape future behavior or events.

Attribute(s): NUpath Difference/Diversity, NUpath Societies/Institutions

SOCL 1246. Environment and Society. (4 Hours)

Examines the social, political, and economic forces behind the global environmental crisis. Topics include such issues as global warming and climate disruption, world resource availability and the global economic crisis, environmental justice and social inequities in the exposure to ecological hazards, science and technology, environmental degradation in the Third World, globalization and unfair trade, state power and the role of the polluter-industrial complex in the United States, the history of the environmental movement, and exemplary environmental

policies and programs. This theoretically oriented course also involves practical experience in environmental problem solving.

Attribute(s): NUpath Difference/Diversity, NUpath Societies/Institutions

SOCL 3270. Race and Ethnic Relations. (4 Hours)

Focuses on the social construction of race and ethnicity and the nature of dominant/minority relations in the United States. Emphasizes the peculiar evolution of race relations in U.S. history, the political and economic conditions that have transformed race relations, and the nature of contemporary racial and ethnic relations in the United States. Topics include immigration, ethnic and racial identity, discrimination, and race-based policies (e.g., residential restrictive codes, Jim Crow segregation). Offers students an opportunity to develop a critical lens from which to observe and interpret contemporary debates over structural racism.

Attribute(s): NUpath Difference/Diversity, NUpath Societies/Institutions

SOCL 1102. Sex, Gender, and Popular Culture. (4 Hours)

Examines how femininities, masculinities, and different forms of sexual identity are produced and represented within popular culture. Using theories and concepts from both feminist/sexuality studies and popular culture studies, analyzes popular texts and media for their treatment of gender and sexuality and the intersection of those categories with racial and class identities. Explores the visual representation of women (and men) and analyzes how visual and textual media shape our attitudes and identities. Required reading and assignments include close readings of texts, film screenings, class discussions and activities, writing assignments, and creative projects.

Attribute(s): NUpath Difference/Diversity, NUpath Interpreting Culture

SOCL 2358. Current Issues in Cities and Suburbs. (4 Hours)

Introduces students to pressing urban issues: urban sprawl, poverty, education, transportation, economic development, and housing, through an intensive analysis of the Boston metropolitan area. The course is cotaught by university faculty and practitioners in government, community, and nonprofit organizations throughout the metropolitan area. Offers students the opportunity to analyze Boston data, go on outings to see development in progress, talk with urban practitioners about what they do, and conduct research on an urban issue of their choice.

Attribute(s): NUpath Difference/Diversity, NUpath Societies/Institutions

THTR 1125. Improvisation. (4 Hours)

Introduces theatre improvisation principles through games, exercises, and readings. Offers a playful and rigorous environment for students to respond to unexpected situations with confidence and agility. In this experiential studio course, students participate in group and individual exercises that explore and practice creative impulses, adaptability, risk taking, intuition, and teamwork. Culminates in a self-reflection paper.

Attribute(s): NUpath Creative Express/Innov

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