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## NUpath

Northeastern’s academic core, known as NUpath, is built around essential, broad-based knowledge and skills—such as understanding societies and analyzing data—integrated with specific content areas and disciplines. It offers students the flexibility to integrate core learning into their individual educational journeys. NUpath is Northeastern University’s set of institution-wide general education requirements for all students in all majors. You may find a list of these requirements with further details on the NU Core Curriculum webpage: <https://www.northeastern.edu/core/requirements/>.

Throughout this guide you will find the following abbreviations for NUpath categories. Below is a list of these NUpath categories and their accompanying codes.

NUpath Abbreviation	NUpath Attribute
ND	Engaging with the Natural and Designed World
EI	Exploring Creative Expression and Innovation
IC	Interpreting Culture
FQ	Conducting Formal and Quantitative Reasoning
SI	Understanding Societies and Institutions
AD	Analyzing and Using Data
DD	Engaging Difference and Diversity
ER	Employing Ethical Reasoning
WF	Writing in the First Year
WI	Writing Intensive in the Major

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## N.U.in Canada, McGill University

### Applied Quantitative Methods

This course will cover the fundamentals of mathematics and algebra, and introduce statistical and quantitative techniques with a focus on applications related to the field of finance, such as simple and multiple linear regressions, financial forecasting methods, and generation of Pro-Forma Financial statements.

*NU Course Equivalent: MATH 2280, Statistics and Software. NUpath: AD.*

### Architectural History 1

The study of architecture and cities from ancient times to 1750. History is "the process of inquiry into the past of man in society" (E.H. Carr). History and Theory of Architecture are connected disciplines. History defines and illustrates the cultural context in which theories (scientific, artistic, architectural, and philosophical) and architectural objects (cities, buildings, bridges, etc.) emerge. This course comprises a series of lectures and readings on selected topics in the history of western architecture before 1400, rather than a comprehensive survey of world architecture.

*NU Course Equivalent: ARCH 1310, Buildings and Cities, A Global History. NUpath: IC, DD.*

### Architectural Structures

The aim of this course is to give students an insight into the many and varied aspects of structures in general and architectural structures in particular. This course will take a qualitative approach to structures. As architectural structures are executed in physical materials, the techniques of material extraction, the processes of manufacturing and the techniques of assembling will also form part of the material covered. Structures will often be viewed from a historical perspective when this throws light on the discovery of structural principles and the development of construction practices.

*NU Course Equivalent: ARCH 2260, Introduction to Building Systems. NUpath: ND.*

### Basic French

For students at an elementary level wishing to acquire competency in reading and writing. Vocabulary and grammar through written/oral exercises and communicative activities are aimed at helping students develop the linguistic skills required to operate in various simple social and cultural contexts.

*NU Course Equivalent: FRNH 1101, Elementary French 1.*

*NOTE: More advanced French language courses may be available, per placement test at McGill University.*

### Basic Materials: Western Music

A combination of elementary theory and ear training (sight-singing and aural recognition), and basic piano skills. Topics include: notation of pitch and rhythm, intervals, scales and modes, concept of key, triads and seventh chords, introductory melody and accompaniment writing.

*NU Course Equivalent: MUSC 1990, Music Elective.*

### Critical Analysis and Composition

This course offers students the opportunity to move across texts and genres, focusing on the basics of compositions and the use of metaphor, organization, selection, gaps and silences, tone, and point of view. Through a series of sequenced assignments, students read fiction and non-fiction texts, make the critical interpretation of these texts the occasion for their own writing, write the expository prose that makes use of a variety of rhetorical strategies, conduct library research when appropriate, reflect on and assess their writing, and refine their documentation skills. Requires students to write multiple drafts and emphasizes the writing process as well as the quality of the finished product.

*NU Course Equivalent: ENGW 1111, First-Year Writing. NUpath: WF.*

### Feminist and Social Justice Studies

Introduction to the key concepts, issues, and modes of analysis in the interdisciplinary fields of feminist and social justice studies. Emphasis on the intersections of gender, race, class, sex, sexuality, and nation in systems of power from historical and contemporary perspectives and the means for collectively transforming them.

*NU Course Equivalent: WMNS 1103, Introduction to Women's, Gender, and Sexuality Studies. NUpath: SI, DD.*

**N.U.in Canada, McGill University – continued**

**International Politics: State Behaviour**

The purpose of this course is to introduce students to what we know about international politics and to the main theoretical lenses that we use to know what we know. After a critical survey of the main theoretical approaches to the study of world politics, the course invites students to revisit the history of modern international relations, and to discuss, in this context, specific theories of world politics. While not exclusively, special attention is given to questions of conflict and cooperation in matters of international security.

*NU Course Equivalent: POLS 1160, International Relations. NUpath: SI.*

**Introduction to Communication Studies**

The social and cultural implications of media. Surveys theory and case studies relevant key issues such as the ownership, structure and governance of media industries; the significance of emergent media technologies; and the roles of media as cultural forms and practices.

*NU Course Equivalent: COMM 1101, Introduction to Communication Studies. NUpath: SI, ER.*

**Introduction to Cultural Studies**

A survey of cultural studies, its history and subject matter, presenting key interpretive and analytic concepts, the aesthetic and political issues involved in the construction of sign systems, definitions of culture and cultural values conceptualized both as a way of life and as a set of actual practices and products.

*NU Course Equivalent: SOCL 2300, Social Theory. NUpath: WI.*

**Introduction to Film Studies**

An introduction to key concepts in film studies. Exemplary works from the history of film will be studied to introduce students to such topics as the aesthetics of film; sound's production of meaning; film as narrative; film and genre; period and national cinemas; film's role in culture.

*NU Course Equivalent: MSCR 1990, Media and Screen Studies Elective.*

**Introduction to Modern Art**

This Art History course is an introduction to the modern period in art history which begins around 1750. It examines the development in both painting and sculpture and relates to changes in the social and political climate of the times.

*NU Course Equivalent: ARTH 2210, Modern Art and Design History. NUpath: IC, SI.*

**Introduction to Political Science**

This course presents an introduction to political science, including the basic theories, concepts, and approaches to the enduring questions that motivate political research. The objective of the course is to prepare students for further coursework in political science, while providing perspective of the relevance of political science, encouraging students to further their knowledge in the field. Students will obtain a better empirical grasp of current political debates, as well as an overall understanding of some of the approaches to these issues from political theory, comparative politics, international relations, and Canadian politics.

*NU Course Equivalent: POLS 1990, Political Science Elective.*

**Introduction to Shakespeare**

This course provides an introduction to the drama of William Shakespeare by covering a selection of plays chosen from the various genres represented in his canon (comedy, history, tragedy, romance). The plays will be examined from a variety of critical perspectives. As well as the themes of the works, we will study issues such as Shakespeare's language, his use of sources, and the historical, cultural and political context in which he wrote. Since Shakespeare's drama was written to be performed, we will explore early modern stage practices and will also examine the subsequent performance history of the plays up to the present day on both stage and screen. Students will also see and discuss a live Shakespeare performance.

*NU Course Equivalent: ENGL 1600, Introduction to Shakespeare. NUpath: IC, SI.*

**N.U.in Canada, McGill University – continued**

**Introduction to the Study of Canada**

An introduction to the ideas and methods that scholars have applied to and derived from the study of Canada. It has been designed to familiarize you with some of the foremost issues, which have shaped and continue to influence contemporary life in Canada. You will be introduced to the anthropology, history, geography, and sociology of Canada as well as its politics, literature, and culture. This course examines how Canadians have lived together: by what means they have interacted with one another, earned a living, and responded to various political regimes. The course will also consider long-standing and shifting deliberations about identity, citizenship, and representations of what constituted exemplary Canadians and French-Canadians/Québécois.

*NU Course Equivalent: INSH 1990, Interdisciplinary Studies Elective in Social Sciences & Humanities. NUPath: SI, DD.*

**Introduction to the Study of Quebec**

This course is an introduction to the ideas and approaches that scholars have used and developed to study Quebec. It will familiarize students with some of the foremost issues which have shaped Quebec historically and continue to influence contemporary life. Employing an interdisciplinary focus, QCST 200 examines changing notions about territory, identity, language, citizenship and belonging. The complexity and diversity of Quebec (11 Aboriginal nations, multilingual, multiethnic and religious communities, minority status within Canada and much more) will also be explored from a comparative perspective to identify characteristics that Quebec shares with other nations and those that are different.

*NU Course Equivalent: HIST 1990, History Elective.*

*NOTE: Listening and writing comprehension of French is helpful but not required.*

**Introduction to Theatre Studies**

An introduction to dramatic literature, text analysis, textual and performance theory, and theatre history. This course provides a critical introduction to theatre studies, in its branches of dramatic literature, dramatic theory, and theatre history. This introduction to the field will include plays drawn from the major episodes of western theatre history, beginning with Ancient Greek tragedy through contemporary Canadian and postcolonial performance. Through the plays, students examine what “theatre” is in different periods and places, how it is constituted by the material conditions of performance, codified in dramatic genres, and conceptualized in dramatic theory.

*NU Course Equivalent: THTR 1101, Introduction to Theatre. NUPath: EI, IC.*

**Jazz History Survey**

An introductory study of the principal recordings, artists and musical trends in jazz from its origins to the present day. This course is designed to introduce students to many different musical aspects of the jazz tradition; through the recorded medium, students study compositional and improvisational contributions from the great jazz masters. Recordings will be played and discussed in class, and students will be expected to recognize important soloists and ensemble traits through repeated listening.

*NU Course Equivalent: MUSC 1112, Jazz. NUPath: IC, DD.*

*NOTE: Requires prerequisites. Students should have an interest in listening to an abundance of jazz, and be able to recognize differences in instruments and stylistic traits.*

**Microeconomic Analysis and Applications**

A university-level introduction to demand and supply, consumer behavior, production theory, market structures and income distribution theory. The course is intended to equip students with basic knowledge in microeconomics. We will go over basic concepts and notions in microeconomics and will see several practical applications of the theory. This will help students to understand how market goods, capital and labor markets work and interact as well as how government policy intervention can change market participants’ actions. This course does not have calculus requirement though knowing it is always an asset.

*NU Course Equivalent: ECON 1116, Principles of Microeconomics. NUPath: SI, AD.*

**Popular Music after 1945**

An historical survey of major artists, genres, and styles in the most widespread traditions of postwar commercial music. The course will include practice in techniques of listening, discussion of the shaping institutions of commercial music, and consideration of the interaction of musical style and culture.

*NU Course Equivalent: MUSC 2310, Popular Music Since 1945. NUPath: IC, SI*

*NOTE: Requires prerequisites. Students should have ability to read music notation, have a basic understanding of music theory and be able to recognize differences in instruments and stylistic traits.*

**N.U.in Canada, McGill University – *continued***

**Survey of Basic Mathematics 1**

This course offers development of the fundamental principles of calculus. Topics include functions and graphs; limits, continuity, and derivative; differentiation rules; applications; and anti-differentiation.

*NU Course Equivalent: MATH 1231, Calculus for Business and Economics. NUpath: FQ.*

**The Art of Listening**

An introduction to the major forms and styles in Western music from the baroque to the present, with emphasis on guided listening in the classroom.

*NU Course Equivalent: MUSC 1101, Introduction to Music.*

*NOTE: The ability to read music is not a prerequisite.*

## **N.U.in England, New College of the Humanities (NCH)**

### **Academic Writing**

The goal of this course is to help students learn how to participate in an academic community, in part by helping students to become aware of the ways information and communication function within all sorts of different cultural groups. Students will learn how to assess a variety of communication situations, and how to make choices that will help them participate effectively in those situations. This course aims to help students negotiate writing goals and audience expectations regarding conventions of genre, medium, and situation; formulate and articulate a stance through writing; revise writing using responses from others, including peers and teachers; effectively use and appropriately cite sources in your writing; use multiple forms of evidence to support your claims, ideas, and arguments; practice critical reading strategies; provide revision-based response to your peers; and self-assess as writers.

*NU Course Equivalent: ENGW 1111, First Year Writing. NUPath: WF.*

### **Architecture of London: Building a Global Metropolis**

This course traces the history of London from the mid-17th century to the present. The course explores the urban growth, buildings, critical debates and stylistic developments that have shaped London's contemporary built environment. Students will become familiar with the architects, projects, buildings, styles and historiographies that have shaped Western architecture. These include the birth and diffusion of Palladianism and Neoclassicism during the 17th and 18th centuries; mass infrastructures and the reactions to industrialization in the 19th century, and Brutalism and radical architectural experimentalism in the post-war era. London is the ideal place to study the chronology of architectural history, and site visits will be used to complement the lectures, introducing students to the methodologies for its study and the significance of buildings and architecture in our understanding of the built environment.

*NU Course Equivalent: ARCH 2370, Topics in Architectural History*

### **Britain and the World: Interaction and Empire**

Welcome to 'Britain and the World: Interaction and Empire'. This course introduces students to the history of Britain and its interaction with the world. The course follows British history from the Roman Empire to today. The aim is to examine the Britain's relationships with other countries and cultures, exploring social, economic, and cultural developments, as well as political and diplomatic ones. As well as understanding these developments discretely, students will also be encouraged to see how they affect one another.

*NU Course Equivalent: HIST 2376, Britain and the British Empire, NUPath: SI, DD.*

### **British Drama and the London Stage**

In this course students will study a range of drama from the British Isles across six centuries, with a particular emphasis on the evolving nature of theatre and performance in London. Attention is given to major playwrights, movements, styles and themes and their historical, critical and performance contexts. Throughout the course we will be considering the relationship between page and stage: between the dramatic text as it appears in written form, and its life in performance. After an overview we will proceed chronologically, from Elizabethan and Jacobean Shakespeare through to the eclectic British theatre of the twenty-first century. Lectures are highly interactive and are structured around significant playwrights, genres, movements and topics. We will use the wealth of theatres and productions happening on our doorstep in London as a resource.

*NU Course Equivalent: THTR 1990, Theatre Elective, NUPath: EI, IC.*

### **Calculus for Business**

Calculus for Business is a calculus course intended for those studying business, economics, or other related business majors. The following topics are presented with applications in the business world: functions, graphs, limits, differentiation, integration, techniques and applications of integration, partial derivatives, optimization, and the calculus of several variables. Each textbook section has an accompanying homework set to help the student better understand the material.

*NU Course Equivalent: MATH 1231, Calculus for Business and Economics. NUPath: FQ.*

**N.U.in England, New College of the Humanities (NCH) – continued****Cultures of London**

This course is about the relationship between place, people, and culture in the widest sense of the term. In this course you will encounter and study a wide range of cultural manifestations in and of London: examining how different people and different art forms have helped form an idea of the city across different time periods; and how the city has in turn influenced the people who live here and the directions art forms have taken. Wherever possible we will be studying London and its cultures first-hand. The course focuses on a wide variety of art that has been produced in, or which reflects upon, London, including in the visual arts and architecture, and with a strong emphasis on literary representations. We will study a range of poetry, prose and drama spanning more than 450 years, tracing continuities and differences in relation to historical and sociological change. Above all, the aim is for students to enhance their semester abroad by reflecting deeply on their own experiences of London as visitors from overseas, in relation to the similar experiences of overseas visitors and immigrants to London over the past five centuries.

*NU Course Equivalent: INSH 1600, Cultures of London – Abroad. NUpath: IC.*

**Deconstructing the Canon: Social Histories of European Art**

This course forms a critical introduction to the study of art history, taught through the lens of London's significant and extensive museums and galleries. Students will develop an awareness of how European art history emerged as a discipline defined by stylistic categorization, historical periodization and ideas of 'greatness'. They will be exposed to works that disrupt the dominant art historical narratives surrounding European art, alongside the masterpieces that have been used to build and sustain its canon. The notion that certain works can be considered 'representative' will be considered critically and we will explore how objects can change in appearance, meaning and function over time. Capitalizing on their time in London, site visits will be used for students to consider and critique the role of institutions in establishing hierarchies of visual and material culture. Students will explore the part played by museums and galleries in creating and sustaining cultural narratives upon which local, national and global identities are so often based. Each week, students will have lectures and study visits. The course is designed to be highly interactive, offering an opportunity for those who are studying history of art for the first time, or at a more advanced level, to actively participate in each lecture and study visit.

*NU Course Equivalent: ARTH 1110, Global Art and Design History: Ancient to Medieval. NUpath: IC, SI.*

**Discrete Structures**

This course 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.

*NU Course Equivalent: CS 1800/1802, Discrete Structures with Seminar. NUpath: FQ.*

**European Comparative Political Systems**

Comparative politics centers on the study of political behavior within states. Whereas international relations deals with relations between states, comparative politics focuses on domestic developments and explores these with a comparative approach. This course examines how democracies can be organized through the formation and development of democratic political institutions. The focus of the course is on institutional development and this provides organizational coherence to the weekly themes examined within it. The background to many of the discourses within this course is the variety of European political systems and the richness of both the normative and the empirical evidence relies heavily on this. The logic behind it is informed by the historical development of modern democracies for which the European context serves as a backdrop.

*NU Course Equivalent: POLS 1155, Comparative Politics.*

**Foundations of Psychology**

This course provides an introductory insight into psychology. It surveys fundamental principles, concepts, and issues in the major areas of contemporary scientific psychology. The goal of this course is for you to gain an understanding of multiple major areas of psychology including biological, behavioral, cognitive, and social factors that influence and regulate learning and motivation; personality dynamics; psychopathology and its treatment; life-span development; sensory and perceptual processes; and communication and social behaviors. We will be able to see how psychology is applied to explain individual differences in behaviors, attitudes and feelings. You will learn how psychological experiments are conducted and what famous psychological studies have revealed about human behavior.

*NU Course Equivalent: PSYC 1101, Foundations of Psychology, NUpath: ND, SI.*

**N.U.in England, New College of the Humanities (NCH) – continued****Fundamentals of Computer Science with Lab**

This course is an introduction to computing and programming. Our major goal is to introduce you to the principles of systematic problem solving through programming and the basic rules of computation. By the end of this course, you will have a sense for the differences between a programmer and a well-trained software engineer. You will also have a sense of the complexities involved in developing solid software. You'll be able to apply what we learn to solve many non-computational problems in a systematic way. This course does not assume any prior programming experience. It is suitable for all students, majors and non-majors alike, who wish to explore the ideas behind the discipline of computer science. It does assume familiarity with (high-school-level) arithmetic and algebra, and it demands curiosity, self-discipline, and the capacity to work well with others. *NU Course Equivalent: CS 2500/2501, Fundamentals of Computer Science 1 with Lab, NUpath: ND, FQ.*

**Great Moments in Philosophy**

This course will provide you with an introduction to central issues in philosophy by way of study of a selection of classic texts from the history of the subject. The texts have been selected for their importance in philosophy's history and also for the power with which they can speak to us today. You will study works from different periods with lecturers who have specialist expertise in and enthusiasm for their chosen authors. Students will be able to develop a firm sense of what philosophy is and what it can be – of what goes to make a philosophical problem and what different kinds of way there have been of addressing philosophical problems. Among the issues we will examine together are: mind and body; the nature of inductive reasoning; the history of values; the critique of capitalist society; the reality or unreality of time; the notion of scientific progress; and the ways in which our 'selves' are socially constituted. We will be studying these through the works of philosophers in the western tradition, starting in classical antiquity with Plato, and moving on to Descartes and his successors in the last four hundred years. Each week students will be reading primary texts by the great philosophers themselves, often with the help of some secondary literature to guide our interpretation and evaluation of those texts. In reading such a text philosophically our aim is not only to analyze and clarify the author's position but also to consider how persuasive we find it, and whether and why we disagree with it at any point. The arguments of the great philosophers are typically deep and thought-provoking, but interpreting and assessing them requires various skills, which the course will help you develop.

*NU Course Equivalent: PHIL 1101, Introduction to Philosophy. NUpath: SI, ER.*

**International Business and Global Responsibility**

The emphasis of this course is on the cultural, economic, strategic, and political aspects of national business environments and their impact on international business operations. Students are exposed to a variety of key international business concepts, ranging from strategic planning in the global arena, to managing behavior and interpersonal relations. Additional topics include free trade agreements, national trade policies, foreign market analysis, and international strategic management. Outside of the classroom we will visit some British Museum galleries, which is intended to support students' understanding of global cultural business environments around the world.

*NU Course Equivalent: INTB 1203, International Business and Global Social Responsibility. NUpath: IC, ER.*

**Introduction to Marketing**

Shifting forces and major consumption trends impacting markets in the digital age compete to create customer value, engagement and loyal relationships. Through real-world and engaging methods, this course provides an introduction to global marketing and what are considered effective marketing strategies, encouraging learners to recognize how customer value may be created and captured. Learning outcomes will enable a broader appreciation of basic marketing concepts, case-study strategies and Twenty-First century practices.

*NU Course Equivalent: MKTG 2201, Introduction to Marketing.*

**Principles of Microeconomics**

This course teaches the fundamentals of microeconomics, providing a solid foundation for economic analysis and thinking. This course begins with an introduction to supply and demand and the basic forces that determine an equilibrium in a market economy. It introduces a framework for learning about consumer behavior and analyzing consumer decisions. The course will explore consumers and their decision-making process as well as firms and their decisions about optimal production. In addition, the course covers the impact of different market structures on firms' behavior and further includes two guest lectures by economic scholars. By the end of the course, you will be able to understand introductory microeconomic theory, solve basic microeconomic problems, and use these techniques to think about a number of policy questions relevant to the operation of the real economy.

*NU Course Equivalent: ECON 1116, Principles of Microeconomics. NUpath: SI, AD.*

**N.U.in England, New College of the Humanities (NCH) – *continued***

**Technology and Human Values**

As long as there have been humans, there has been technology. Technology so permeates our form of life that some have characterized human beings as the technological animal. But while a relationship with technology is given, the nature of that relationship is not. Both human history and the contemporary world are replete with diverse and sometimes contradictory ways of conceiving of how people and technology interact. This course is oriented around these general questions: (1) What is the proper way to understand the relationship between humanity and technology? (2) What critical perspectives and tools can we use to evaluate the social, ethical, and to political dimensions of technology? (3) How can we make good decisions about incorporating emerging technologies into our society and lives?

*NU Course Equivalent: PHIL 1145, Technology and Human Values, NUpath: SI, ER.*

## N.U.in Ireland, University College Dublin (UCD)

### **Anatomy & Physiology with Lab**

This module aims to help you understand how the human body maintains health, introducing you to scientific principles in the areas of anatomy and physiology. Learning will focus on the organization of the human body (concepts of cells and their environment), homeostasis, protection, communication, perfusion (cardiovascular and respiratory system), hydration, nutrition, metabolism and reproduction. The module will provide you with the grounding and understanding of the normal structure and function of the human body over the course of the lifespan and the basis to understand the changes that occur in altered health. The module is underpinned by the philosophy that Anatomy and Physiology is a critical element for nursing competency.

*NU Course Equivalent: BIOL 1119/1120, Integrated Anatomy and Physiology 2 with Lab, NUpath: ND, AD.*

### **Architectural Design I**

The foundation year studio program seeks to unlock the creative and intellectual potential of each student. The program introduces students to ways of observing, representing, making and thinking about architecture. It begins with a close-up consideration of spaces, objects, places, and events and gradually introduces a wider range of constructional, social, cultural and environmental concerns. This work is supported by learning a broad range of technical and representational skills through a combination of studio work and independent but related skills workshops. A series of set projects invite design responses across a range of scales employing different media; offering each student the means of developing a work method. These projects involve a combination of both individual and group work. A variety of visits to buildings and cultural events during the trimester will provide a supporting cultural program, attendance at these events is mandatory. The module requires all students to make a collective exhibition of their work at the end of the trimester. The mark in Drawing and Making Studio contributes 12% to the overall Design Studio Grade. Approximately 252 hours are dedicated to this module, including studio work, lectures, tutorials, seminars and reviews. Attendance in studio each week during scheduled studio hours is mandatory.

*NU Course Equivalent: ARCH 1990, Architecture Elective.*

### **Calculus for Several Variables**

This course introduces the calculus of functions of two or more real variables. Beginning with partial derivatives, the topics of linear approximation and the differential are dealt with. The course then examines critical points, maxima and minima, and constrained optimization. Line integrals, double integrals, vector fields and the relationships between these concepts are explored. Students will be able to: sketch a level set or multidimensional graph; compute limits of multivariable functions; calculate partial and directional derivative; find and use the linear approximation of a function; find and classify critical points; optimize a function over a region or over a curve or surface; evaluate line and double integrals, and exploit the relationship between them.

*NU Course Equivalent: MATH 2321, Calculus 3 for Science and Engineering. NUpath: FQ.*

### **Cell Biology and Genetics**

This module will provide an introduction to the cell, its structure, and functioning. The basis of genetics and inheritance will also be explored. The following topics will be covered: (1) An overview of cell structure, content and the macromolecules within them; (2) An introduction into cell communication, signaling and messaging; (3) How cells work- cellular respiration, fermentation and photosynthesis; (4) The cell cycle and the key roles of cell division; (5) How meiosis and sexual life cycles provide biological variation; (6) Introduction into genes and inheritance from a Mendelian perspective; (6) The link between chromosomes, genes and inheritance; (7) DNA and the molecular basis of inheritance; (8) How proteins are made from genes; (9) How genomes can inform our understanding of life's diversity; (10) Brief introduction into basic genetic molecular techniques.

*NU Course Equivalent: BIOL 1111/1112, General Biology 1 with Lab. NUpath: ND, AD.*

### **College Writing**

This course offers students the opportunity to move across texts and genres, thus focusing on the basics of compositions and the use of metaphor, organization, selection, gaps and silences, tone, and point of view. Through a series of sequenced assignments, students read fiction and non-fiction texts of some complexity, make the critical interpretation of these texts the occasion for their own writing, write the expository prose that makes use of a variety of rhetorical strategies, conduct library research when appropriate, reflect on and assess their writing, and refine their documentation skills. Requires students to write multiple drafts and emphasizes the writing process as well as the quality of the finished product. Students keep a portfolio of their work.

*NU Course Equivalent: ENGW 1111, First-Year Writing. NUpath: WF.*

**N.U.in Ireland, University College Dublin (UCD) – continued****Composition, Performance, and Reception**

Music, film, and theatre constitute three distinctive art forms, and as such they each rely upon (and sometimes break) the conventions specific to their medium. Nevertheless, they also share elements of formal structure, thematic content, and perhaps most importantly, an emphasis on temporality, with the expectation that an audience would experience and understand these art forms in real time. These three art forms also influence, intensify, and transform each other, both in situations where they are directly combined, and more generally through dialogue between texts.

*NU Course Equivalent: INAM 1990, Interdisciplinary Studies Elective in Arts, Media, and Design.*

**Digital Judgement**

An important attribute of the effective digital consumer and scholar is the ability to critically appraise and discern high quality online information. However, the knowledge and skills required for selecting and evaluating digital information accessed through the Internet using websites and apps such as Google, Facebook, Twitter and YouTube, on mobile phones, tablets, and other devices, continue to elude many. Students on this module will learn to act as intelligent digital judges, exploring digital information as an entity to be scrutinized, verified, and classified to enable us to locate, generate, and apply trustworthy digital information in personal, professional, and academic contexts. They will also consider the questions of online privacy, the presentation of self online, and digital footprints, in order to understand the potential consequences of their online activities.

*NU Course Equivalent: INSH 1990, Interdisciplinary Studies Elective in Social Sciences & Humanities.*

**Discovering Ireland's Geology**

The Irish geological record contains over a billion years of Earth history preserving memories of the uplift of Himalayan-sized mountains, volcanic eruptions, warm tropical seas and polar ice caps. This module will introduce through fieldtrips and online material how we can interpret the ancient rock record to reveal the past, and explore the links between the bedrock beneath us and today's landscape and society. As part of this module students will visit sites of outstanding geological interest in the Dublin area and beyond, including to the world famous Cliffs of Moher and Burren and use Google Earth to explore global plate tectonics and climate change through time. The module is intended for students with an interest in geology and the environment and as an introductory course is designed for those with limited or no prior knowledge of geology or geography.

*NU Course Equivalent: ENVR 1200/1201, Dynamic Earth with Lab, NUPath: ND.*

**Dublin Its Museums and Collections**

This new elective module will be team-taught by lecturers in the School of Art History and Cultural Policy. Dublin is home to a rich variety of museums, whose collections survey the entire history of Irish art, but also include outstanding examples of European and Islamic painting. The purpose of this module is to create an enhanced appreciation of art among students who are not majoring in art history, by fostering a direct engagement with these works of art and architecture. Two one-hour meetings a week incorporating both slide lectures and at least some discussion will focus upon art in Dublin museums and the architecture of the museums themselves. Although short readings will be assigned, the principal demand made upon students outside of class hours will be to visit the collections in which the works are displayed. This module is introductory in nature, and aimed at students with no previous experience of art history. It is not suitable for students intending to major/minor in art history.

*NU Course Equivalent: ARTH 1111, Global Art and Design History: Renaissance to Modern. NUPath: IC, SI.*

**Foundations of Digital Technology**

How do mobile phones actually work? Why are binary and hexadecimal of fundamental importance to computers? What should I look out for when buying a laptop? How do I read a CPU spec? What is the difference between the Internet and the World Wide Web? What is a programming language? These questions and more will be answered in this module. It aims to provide students with a grounding in the principal technological components of modern information systems. It will also help students to successfully tackle the technological aspects of subsequent level 2, 3 and 4 Information & Communication Studies modules.

*NU Course Equivalent: CS 1990, Computer Science Elective.*

**N.U.in Ireland, University College Dublin (UCD) – continued****Foundation of Physics**

In this module, students learn to tackle problems of relevance for society with a high content of physics and engineering. Problems chosen by the students themselves are tackled in small working groups similar to the way in which industry handles research and development tasks. Examples that can be studied include energy supply and green energy, telescope building, optical communication networks, image processing, and many more. In the course of study, basic physical concepts are reviewed according to the needs. Group working skills in relation to problem solving will be essential for a successful realization of the module.

*NU Course Equivalent: PHYS 1151/1152/1153, Physics for Engineering with Lab, and Interactive Learning Seminar. NUpath: ND, AD.*

**General Chemistry for Science Majors with Lab (Pending NU Approval)**

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. The Lab introduces basic laboratory techniques. Covers a range of topics including qualitative and quantitative analysis and the characteristics of chemical and physical processes.

*NU Course Equivalent: CHEM 1161/1162/1163, General Chemistry for Science Majors with Lab, and Recitation. NUpath: ND.*

**History & Theory of the Designed Environment I - Perspectives on Architecture**

The purpose of this course is to introduce the student to the various ways of approaching and learning about the history and theory of the designed environment. It is intended to build a common knowledge base for future architects, designers, landscape architects, planners and others involved in the procurement and management of the designed physical environment. Notwithstanding this perspective, it is accessible to students from all disciplines. It is an introductory course that covers several perspectives on architectural, urban and landscape forms. The narrative embraces a number of themes that embody cultural contexts, the impact of science and technology, and the work of individual designers, architects and patrons within a predominately European context. This course also seeks to indicate the relationship to other material cultural artifacts and explore cultural exchanges with North Africa and the East. Central to the course is the development of an understanding of how traditions, images and ideas have been assimilated to create new forms that respond and adapt to new requirements.

*NU Course Equivalent: ARCH 1370, Special Topics in Architectural History.*

**Introduction to Calculus for Engineers**

This is a mathematics module designed for engineering students. It provides an introduction to differential and integral calculus of functions of one variable, and to differential equations. The outline of this course is the following: (1) Review: Functions and graphs (equation of line and parabola), tangent line; (2) Limits: Notion of a limit, statements of basic limit theorems; (3) Differentiation: Notion of derivative, product and quotient rules, derivatives of polynomial functions, review of trigonometry, derivatives of trigonometric functions, chain rule, inverse functions, derivatives of inverse functions, implicit differentiation, higher derivatives; (4) Transcendental functions: Natural logarithm and its derivative, exponential function and its derivative; (5) Applications of differentiation: maxima and minima, second derivative test; (6) Indefinite and definite integrals, the fundamental theorem of calculus, substitution, integration by parts; (7) Applications of integration: area under the curve, moments; (8) Geometric series, MacLaurin and Taylor series of a function of a single variable, binomial series; (9) Differential equations: first order and second-order linear equations with constant coefficients (homogeneous and non-homogeneous).

*NU Course Equivalent: MATH 1341, Calculus 1 for Science and Engineering. NUpath: FQ.*

**Introduction to Irish Folklore**

This module is designed to give students a comprehensive overview of what is meant by the term 'folklore', and to introduce them to the academic study of the subject. In the course of the module, folklore is defined and described in its many manifestations, and students learn about some of the more important sources for the study of folklore and popular tradition in Ireland and abroad. Examples of both oral tradition and material culture are examined, including narrative and storytelling, vernacular architecture and other aspects of ethnology, traditional belief systems and views of the otherworld, as well as popular custom and practice. A basic introduction is given to a number of international systems of classification used in the study of folklore, and to some of the theoretical approaches to the subject. Contemporary forms of folklore, and the persistence of certain themes in popular culture, are also discussed.

*NU Course Equivalent: LITR 1990, Culture - Literature Elective. NUpath: IC.*

**N.U.in Ireland, University College Dublin (UCD) – continued****Introduction to Psychological Science**

Why do humans behave, think and feel as they do? This module will introduce students to a basic understanding of psychology's explanations for human thought, feelings and behavior, covering the core concepts, theories and research methods that psychologists use. Among other topics, we will cover aspects of child development; personality; thinking and learning; social interaction; therapeutic approaches and biological psychology. The module will place psychology in a real-world context, addressing cultural differences in human behavior and considering how psychology can be applied in everyday life. Online support will be provided throughout the course via Brightspace.

*NU Course Equivalent: PSYC 1101, Foundations of Psychology, NUpath: ND, SI.*

**Introduction to Sociology**

This module provides an introduction to the discipline of Sociology. The task of sociology is to explain the social world in which we live. This involves asking and answering questions about the nature of the world around us, why things are the way they are, how they developed in that way rather than any other, and so on - in fact, everything from global patterns of social change to the nature of individual identity. Studying sociology requires us to explore taken-for-granted aspects of everyday life, and to be aware that things could be, and are, different. This involves learning to see things 'sociologically' by developing a 'sociological imagination'. The aim of this module is to cultivate such an imagination. In this module, we will consider the nature of sociology in terms of its historical origins, its key theoretical traditions, and the role of research in analyzing social issues. Once we have laid this groundwork, we will consider some of the core dimensions of society - the nature of culture, the role of organizations, and so on. The module then examines some of the main social institutions and patterns of social relations around which our lives are structured, and through which resources - power, wealth, status - are distributed. Sociology helps us understand the role these institutions and structures play in our daily lives, and the ways in which society 'makes' us and how we in turn 'make' society.

*NU Course Equivalent: SOCL 1101, Introduction to Sociology. NUpath: SI.*

**Introductory Chemistry**

The module is intended for students without a strong background in chemistry. It will provide an overview of the subject, with an emphasis on fundamental principles. Topics will include: atomic structure and the periodic table; ionic and covalent bonding; shapes of covalent compounds; Lewis structures; chemical reactions, including balancing chemical equations; calculating chemical amounts as moles; oxidation and reduction reactions and the acid base reaction; and the properties and structures of carbon compounds. The principles will be illustrated by examples of the chemistry of different elements including nitrogen, carbon, hydrogen, the alkali metals and alkaline earth metals and the halogens.

*NU Course Equivalent: CHEM 1211/1212, General Chemistry 1 with Lab. NUpath: ND.*

**Making of Modern Europe**

This module offers a sweeping introduction to some of the momentous changes which have taken place in Europe over the past five hundred years. It explores some of the major landmarks in Europe's social, political, and economic development: the development of European Empires, religious change, witchcraft, the industrial revolution, the birth of democracy, war in the modern world, the Cold War and socio-cultural change since 1945. There will be one lecture every week which will introduce students to these themes, but the heart of the course lies in the seminars. Here, students will be encouraged to challenge interpretations of the past, to debate ideas, and to draw on primary evidence.

*NU Course Equivalent: HIST 1990, History Elective.*

**Microeconomics for Business**

The aim of this module is to introduce students to core microeconomic principles and how they can be used to help understand decision making and behavior in a business environment. The module focuses on markets as the principle arena where these decisions are made and stresses that both firms and consumers make choices under conditions of scarcity and do not have unlimited resources. A model of consumer demand is presented showing how consumers respond to changes in prices, incomes and other factors. On the supply side, a model of the production decisions of firms is presented and the roles of costs and technology are explored. Market structure is also explicitly considered ranging from perfect competition to monopoly and the strategic interaction of firms is also addressed. Finally, and very importantly it is stressed that markets often fail and in those cases some form of intervention, typically but not exclusively provided by government, to correct these failures is warranted. The module assumes no previous knowledge of economics.

*NU Course Equivalent: ECON 1116, Principles of Microeconomics, NUpath: SI, AD.*

**N.U.in Ireland, University College Dublin (UCD) – continued**

**Music in Ireland**

This module provides students with both a thorough introduction and experiential immersion in the music of Ireland, and aims to encompass all its richness and variety. No previous knowledge of Irish musical history is required and neither is it necessary to be able to read musical notation. The module will engage with the music of Ireland from the seventeenth century to the present day and will encompass three principle types of music- traditional, classical, and popular. The music of Ireland will be examined in its historical context and will be situated within the wider international context. The music's historical, social, cultural, and political dimensions will be discussed. In addition to lectures, students are strongly encouraged to attend musical events around the city of Dublin, in order to engage with live music over the course of the semester.

*NU Course Equivalent: MUSC 2540, Special Topics in Music.*

**Music, Politics and Post-Truth**

In recent months alternative facts, fake news and similar terms have become more and more commonplace among politicians, media and other public influencers alike in what is now often dubbed the age of post-truth. Expertise appears to be discredited, gut feeling at least as important as facts, and facts themselves no longer valid and reliable. How and why did we get to this point, and is it really impossible now to distinguish between facts and their different interpretations by opposing parties in public discourses? This module will track philosophical, sociological and political concepts that shaped today's world views from the enlightenment via Nietzsche, psychoanalysis, structuralism, postmodernism and others. Each week, theoretical concepts will be discussed in one class while music-related examples will illustrate those concepts in the second one. Room will be given to questions raised by students regarding issues they are particularly concerned about.

*NU Course Equivalent: MUSC 1990, Music Elective.*

**Perspectives on Film I**

This module will examine a range of issues and approaches in the academic study of film, enabling students to familiarize themselves with important writing and thinking about the cinema. It will develop students' ability to analyze how film works formally and stylistically, and to think and write critically about cinema's ideologically charged relationships with society, politics, and culture.

*NU Course Equivalent: MSCR 1990, Media and Screen Studies Elective.*

**The Courts and Court Culture**

During the sixteenth and seventeenth centuries much of the most innovative art and architecture in Europe and Asia was produced in the major courts. From London to Kyoto, courts sponsored architecture intended to support their political power as well as painting, sculpture and furnishings that sustained the impression of their magnificence. Focusing on the Medici, Hapsburg, Bourbon, Stuart, Ottoman, Safavid and Mughal courts this module will explore the ways in which the arts succeeded and failed to support these rules and the impact of their production upon the emergence of modern consumer culture as well as more general transformations of society. Particular attention will be paid to the role of women as patrons, including as agents of cultural transfer.

*NU Course Equivalent: ARTH 1990, Art History Elective.*

**The Irish Presence in America**

This module will address the influence and effect of the Irish diaspora in America and explore the input, contribution and impact of the enormous Irish community there. Some 35.5 million people in America claim Irish descent. The time period under review begins with the mass emigration caused by the Great Famine in Ireland in 1845 and the assimilation and influence of this diaspora on American culture. It will analyze the reaction of the Irish-Americans to the rising nationalist movement in Ireland from 1890 to 1922. Moving to 'second wave' emigration in the 1950s, lectures will discuss how the strength of the Irish community grew in Post-War America to become a recognizable force politically, socially and culturally. The current status of the Irish in America will also be considered.

*NU Course Equivalent: INSH 1990, Interdisciplinary Studies Elective in Social Sciences & Humanities. NUpath: IC, SI.*

**N.U.in Ireland, University College Dublin (UCD) – *continued***

**Writing about Music**

This module is designed to acquaint students with different writing styles about music as well as researching and structuring an essay- both on the basis of conscious listening to music and learning to verbalize our impressions. After engaging with stylistic questions while writing a song review and a concert review students will engage in planning, researching, and writing an academic essay of 1,500 words. This they will do in three separate steps: putting together an annotated bibliography, writing a sample section of the essay and completing the essay. The feedback for the first two steps (including peer feedback by other students) is intended to improve the final product.

*NU Course Equivalent: MUSC 1990, Music Elective.*