N.U.in Ireland: UCD Course Descriptions

The Global Experience
This course is an introduction to living and learning abroad. The main aim of this course is to help students prepare for, gain from, and reflect upon their term abroad as a profound global experience. Through workshops, seminars, course readings, discussions, and local civic engagement, the course will challenge students to become global citizens and ambassadors by actively participating in their own learning, local team and community as well the greater study abroad community, Northeastern, and beyond. Ongoing, online reflection will help students to articulate their own experiences, respond to others’ experiences and ultimately make connections between global experiences around the world.

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.

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.

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.

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).

Introduction to 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.

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The N.U.in Program
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.

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 analyse the reaction of the Irish-Americans to the rising nationalist movement in Ireland from 1890 to 1922. Moving to ‘second wave’ emigration in the 1950’s, it will research how the strength of the Irish community grew in Post-war America to become a recognisable force politically, socially and culturally.

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.

Principles of Microeconomics
This module provides a basic analytical framework for understanding the functioning of markets. The topics covered include: gains from trade, demand, supply and price determination, market failure and regulation, the economics of firms in different types of market structures (competition, monopoly, and oligopoly), strategic interaction between economic agents (elementary game theory) and basic issues in the economics of labour markets.

Psychology
This module is designed to introduce students to the breadth of topics covered by the discipline of psychology. The module covers a range of theoretical approaches used in psychology to try to explain human thought and behavior. A variety of topics will be introduced drawn from the full breadth of the discipline of psychology and may include aspects of child development, human social interaction, thinking and reasoning, and biological psychology. The module will place the material in a real world context highlighting its application and relevance to everyday life. Online support will be provided throughout the course via the Blackboard system.

Structure and Function of the Human Body
This module introduces students to the discipline of anatomy and physiology and its related concepts and terminology. While the content within the module focuses on the cardiovascular, respiratory and nervous system, the module aims to give students a broader understanding of the normal human body and how its structure and intricate processes work to maintain human life and physical and mental wellbeing. The module also focuses on the human body over the course of the lifespan paying particular attention to the neonate, child, adult and in pregnancy, and normal ageing. The overarching aim of the module is to provide students with grounding in understanding the normal body which provides the basis to later understand the changes that occur in states of altered health.

*Students will take Integrated Human Anatomy and Physiology 1 in Spring 2017. This course sequencing has been approved by Northeastern University advisers, and no previous knowledge of Anatomy and Physiology is required to enroll in Structure and Function of the Human Body (Part A).