SCIENCE GENERAL ELECTIVE (SCGE)

SCGE 14750 Climate Change and Agriculture (3 Credit Hours)
This course provides an in-depth analysis of the global affects of climate change on agriculture. Additionally, it dives into how these affects uniquely impact Irish agriculture.

SCGE 20100 Connecting Organs, Origins, and Purpose (1 Credit Hour)
This 1-credit course is designed to complement a student's attendance at the 1.5 day teaching conference, 'What is an Organ?' co-sponsored by the College of Science and the Science and Religion Initiative of the McGrath Institute for Church Life. Students will learn of key concepts in anatomy related to the biological nature and purpose of organs - both as a structure in their own right and as part of an integrated system, will become familiar with key theological ideas related to our creation imago Dei, the concept of purpose both with respect to its physical and eschatalogical components, and will develop a holistic understanding of the relationship between faith/reason, science/religion, generally, and the relationship between our scientific concept of the human body (i.e. organs, organ system)/theological understanding of purpose, specifically.

SCGE 20200 Understanding Life through the Sacraments and Science (3 Credit Hours)
This Catholicism and Disciplines (CAD) course will be an intersection of Catholic theology and various disciplines in the sciences (primarily biology and chemistry, some physics). According to the Catholic Church, our ultimate goal is life in heaven and to be in union with God. This pursuit requires a desire to be a saint. A key ingredient of sainthood is sanctifying grace and the seven Sacraments are major channels of sanctifying grace. The Sacraments, some of which draw upon natural elements, reveal the goodness of God's creation. As St. Paul writes (Rom 1:20): "Ever since the creation of the world, his invisible attributes of eternal power and divinity have been able to be understood and perceived in what he has made." In this CAD course, students will have the opportunity to encounter God and his creation through (i) scripture and Catholic teaching and (ii) scientific observations, albeit limited and incomplete, of nature as-is (e.g. water molecules), contemporary miracles (i.e. nature, healing and Eucharistic miracles) or biomedical tools (e.g. CRISPR-Cas9 to edit genome). This CAD course is organized into four modules: Foundational Concepts, Creation, Redemption and Sanctification. For the latter three modules representing salvation history, Catholic theology and teaching (Bible, Catechism, etc) will be presented first followed by the related science content.
Satisfies the following University Core Requirements: WKCD-Core Cathol & Disciplines

SCGE 20220 Speech Language Pathology-transfer (3 Credit Hours)
Transfer for Introductory SLP courses at SMC. Good quality courses without a home department at ND.
Course may be repeated.

SCGE 20600 Natural Science Drawing (3 Credit Hours)
This course will introduce students to scientific illustration and visual documentation through basic drawing skills and techniques utilizing traditional and contemporary art approaches, media and tools. Students will learn to create representational renderings through close and careful observation of natural subjects including botanical, animal, insect and/or aquatic life based on field observations, study at the Museum of Biodiversity and other sites as available. Emphasis will be on accuracy, form and structure as well as integrating personal vision through developmental, conceptual and compositional sketches and exercises leading to several completed drawings and include a field journal and sketchbook. Students do not need any prior drawing experience and can be pursuing any major!
Satisfies the following University Core Requirements: WKAL - Core Art & Literature

SCGE 20601 Introduction to Epidemiology (3 Credit Hours)
Epidemiology is a flexible and powerful field of study for anyone with an interest in understanding, preventing, and treating the causes of human disease. This course will facilitate students' understanding of fundamental epidemiological concepts (e.g. terminology, calculations, etc.); methods (e.g. study designs, risk communication, etc.); and applications (e.g. screening, diseases surveillance, and outbreak investigations). Students will also learn the application of epidemiological methods to nutritional, infectious disease, and chronic disease epidemiology.

SCGE 24002 International Internship (3 Credit Hours)
Students are placed to work as interns in various organizations ranging from commercial businesses to charitable foundations. Specifics of the internship expectations and assignments depend on the international location.

SCGE 24101 AgriBiosciences (3 Credit Hours)
Since the origin of agriculture ten thousand years ago, innovations in genetics and agricultural (plant & livestock) biosciences have continued to play a critical role in ensuring future food security and sustainable development on our planet. This module provides cutting-edge training in agricultural biosciences (plants, animals), using case studies of major scientific advances and bio-challenges.

SCGE 30500 Ignorance (1 Credit Hour)
Over the last century, scientific knowledge has been increasing at an exponential rate. Curiously, our ignorance as a whole does not similarly decrease. Scientists use facts to produce new questions - to speculate about what we do not know. As a result, we can say that scientific facts serve to access ignorance. Science traffics in ignorance, cultivates it, and is driven by it. Ignorance is the critical driver of science. This course, in contrast with a more typical science class, has a focus on what we do not know. Students will gain an understanding of the scientific process by analyzing how scientists' approach what we do not know.

SCGE 30602 Introduction to Health Communication (1 Credit Hour)
Cross list number for GH 30700

SCGE 34830 Plant Biotech & Entrepreneurship (3 Credit Hours)
The aim of this course is to awaken in students an entrepreneurial spirit in relation to biology. The course has two themes, the first deals with plant and fungal biology and their application in biotechnology. Topics covered will include: plant-symbiotic fungi and their application in sustainable agriculture, genetic engineering of plants and pharmaceutical production in plants and fungi. The second theme involves an introduction to business studies. The structure and development of a small business enterprise is examined and production of a business plan to capitalise and exploit a business venture is developed. Students will be placed in groups of 3-6 and will propose a business venture (which does not have to be plant oriented) that they must then research. Students will benefit from workshops to help them with the marketing and finance aspects of the plan.