

SCIENTIFIC INQUIRY

Courses in the Scientific Inquiry (SI) domain are designed to provide students with an opportunity to learn the methods of modern science and its impact in understanding the world around us. Courses are designed to help students develop a more complete perspective about science and the scientific process, including:

- an understanding of the major principles guiding modern scientific thought;
- a comprehension of the varying approaches and aspects of science;
- an appreciation of the connection among the sciences;
- an awareness of the roles and limitations of theories and models in interpreting, understanding, and predicting natural phenomena; and
- a realization of how these theories and models change or are supplanted as our knowledge increases.

Where required, Quantitative Reasoning (MAT 120) is a prerequisite for SI Domain courses. Generally, two SI courses are required; depending on their program of study students may be required to take a designated SI Science as a Way of Knowing (SWK) or SI Lab, or both. The QR and MCD waiver cannot be applied to the SI Domain.

Learning Outcomes

Scientific Inquiry: Science as a Way of Knowing

Students will be able to:

- Demonstrate understanding of the natural science content that is the focus of the course.
- Interpret and create multiple representations of data (e.g. graphical, mathematical, pictorial/diagrammatic, and/or descriptive).
- Use scientific evidence to support or refute predictions made by scientific hypotheses, state the limitations of the scientific method, and identify unsubstantiated claims, such as those based on pseudoscience.
- Describe the process of scientific research, including aspects such as skepticism, ethics, collaboration, diversity of community, disparate impacts, funding, peer review, or the dissemination of results.
- Substantiate the claim that scientific knowledge inherently evolves over time as previous understandings are revised with new evidence and perspectives.

Scientific Inquiry: Lab

Students will be able to:

- Pose meaningful scientific questions and generate testable scientific hypotheses.
- Plan, design and conduct scientific investigations in a collaborative environment using appropriate tools and techniques to gather relevant data in order to test and revise scientific hypotheses.
- Develop and use scientific models (conceptual, physical, and mathematical) to make predictions and develop explanations of natural phenomena.
- Address variability in the data and recognize and analyze alternative explanations and predictions.
- Communicate scientific procedures, results, and explanations and engage in arguments based on scientific evidence.

Courses

Below please find examples of courses previously offered for scientific inquiry credit. For information on current offerings, please consult Campus Connection.

Scientific Inquiry: Science as a Way of Knowing Courses

Course	Title	Quarter Hours
Anthropology		
ANT 130	SCIENCE AND PSEUDOSCIENCE IN ARCHAEOLOGY	4
ANT 270	HUMAN EVOLUTION	4
ANT 272	INTRODUCTION TO MEDICAL ANTHROPOLOGY	4
Asian Studies, Global		
AAS 230	INTERNATIONAL ENVIRONMENTAL CONSERVATION	4
Biology		
BIO 104	EVOLUTION AND SOCIETY	4
BIO 105	THE SCIENCE BEHIND HUMAN HEALTH	4
BIO 110	EVOLUTION IN HEALTH AND MEDICINE	4
BIO 115	INTRODUCTION TO BIOLOGY	4
BIO 118	MARINE BIOLOGY	4
BIO 119	FROM MUSIC TO MIND: THE NEUROSCIENCE OF MUSIC	4
BIO 120	THE SCIENCE AND ART OF VISION	4
BIO 121	INFECTIOUS DISEASES AND IMMUNITY	4
BIO 122	INTRODUCTION TO PALEOBIOLOGY	4
BIO 126	BRAIN AND BEHAVIOR	4
BIO 128	STRESS, HORMONES AND THE NERVOUS SYSTEM	4
BIO 134	HOW THE HUMAN BODY WORKS	4
Chemistry		
CHE 100	OUR CHEMICAL WORLD	4
CHE 102	MOLECULES THAT SHAPED THE WORLD	4
CHE 104	CHEMICALS, DRUGS AND LIVING SYSTEMS	4
Education		
EDU 125	THE SCIENCE OF HUMAN COGNITION	4
Environmental Science		
ENV 101	INTRO TO ENVIRONMENTAL SCIENCE WITHOUT LAB	4
ENV 116	GEOLOGY OF THE ENVIRONMENT	4
ENV 118	EARTH THROUGH TIME	4
ENV 200	CITIES AND THE ENVIRONMENT	4
ENV 202	RESOURCES, POPULATION, AND THE ENVIRONMENT	4
ENV 204	ENERGY AND THE ENVIRONMENT	4
ENV 230	GLOBAL CLIMATE CHANGE	4
Geography		
GEO 101	ENVIRONMENTAL GEOGRAPHY	4
GEO 210	INTERNATIONAL ENVIRONMENTAL CONSERVATION	4
GEO 219	WOMEN AND SCIENCE	4

GEO 220	OCEANOGRAPHY	4
GEO 225	EARTH'S CHANGING CLIMATE	4
GEO 243	EARTH OBSERVATION	4
Health Sciences		
HLTH 150	DISCOVERING DISEASE: SMALL POX, HIV, AND ZIKA	4
Physics		
ID 104	HAPTICS	4
PHY 104	THE SUN & ITS PLANETS	4
PHY 120	HOW THINGS WORK	4
PHY 200	LIGHT AND ATOMS	4
PHY 204	FRONTIERS OF THE UNIVERSE	4
PHY 205	EINSTEIN'S PECULIAR IDEAS	4
Psychology		
PSY 241	RESEARCH METHODS I	4
Public Health		
MPH 101	THE SCIENCE OF PROTECTING THE PUBLIC'S HEALTH	4
School of Continuing and Professional Studies		
SNC 193	SEXUAL ORIENTATION & SCIENCE	4
SNC 209	EXPLORING EARTH'S PHYSICAL FEATURES	4
SNC 210	PREHISTORIC LIFE	4
SNC 225	BIODIVERSITY	4
Neuroscience		
NEU 120	THE BRAIN THROUGH SCIENCE FICTION	4
Women's and Gender Studies		
WGS 219	WOMEN AND SCIENCE	4
Writing, Rhetoric, and Discourse		
WRD 283	ENVIRONMENTAL WRITING	4

Scientific Inquiry: Lab Courses

Course	Title	Quarter Hours
Anthropology		
ANT 104	INTRODUCTION TO BIOLOGICAL ANTHROPOLOGY	4
ANT 120	SCIENCE OF ARCHAEOLOGY	4
The Art School		
ART 223	LIGHT, COLOR, AND PHOTOGRAPHY	4
Biological Sciences		
BIO 155	INTRODUCTION TO BIOLOGY WITH LABORATORY	4
BIO 156	FOOD, FUEL FOR LIFE	4
BIO 160	MARINE BIOLOGY WITH LAB	4
BIO 161	INFECTIOUS DISEASES AND IMMUNITY WITH LABORATORY	4
BIO 162	THE BRAIN: BIOLOGY AND BEHAVIOR	4
BIO 166	INTRODUCTION TO PLANT BIOLOGY WITH LAB	4
BIO 191	GENERAL BIOLOGY I FOR SCIENCE MAJORS	4
BIO 192	GENERAL BIOLOGY II FOR SCIENCE MAJORS	4

BIO 193	GENERAL BIOLOGY III FOR SCIENCE MAJORS	4
BIO 202	HUMAN PHYSIOLOGY	4
Chemistry		
CHE 103	ENVIRONMENTAL CHEMISTRY	4
CHE 105	EXPLORING NUTRIENTS/SCIENCE OF NUTRITION	4
CHE 107	PROTEINS AND THEIR GENES	4
CHE 109	FORENSIC CHEMISTRY	4
CHE 130	GENERAL CHEMISTRY I	3
CHE 131	GENERAL CHEMISTRY I LABORATORY	1
CHE 132	GENERAL CHEMISTRY II	3
CHE 133	GENERAL CHEMISTRY LABORATORY II	1
CHE 134	GENERAL CHEMISTRY III	3
CHE 135	GENERAL CHEMISTRY LABORATORY III	1
Environmental Science		
ENV 102	INTRO TO ENVIRONMENTAL SCIENCE WITH LAB	4
ENV 115	ENVIRONMENTAL GEOLOGY	4
ENV 117	EARTH THROUGH TIME WITH LABORATORY	4
Film and Television Production		
FILM 254	IMAGE, OPTICS AND CINEMATIC MOTION (FORMERLY DC 274)	4
Nursing		
NSG 230	WOMEN'S HEALTH: THE PHYSICAL SELF	4
NSG 232	MEN'S HEALTH: THE PHYSICAL SELF	4
Physics		
PHY 110	BASIC ELECTRONICS: PRINCIPLES & TECHNIQUES	4
PHY 114	EXPLORING OTHER WORLDS	4
PHY 150	GENERAL PHYSICS I	4
PHY 151	GENERAL PHYSICS II	4
PHY 152	GENERAL PHYSICS III	4
PHY 155	GENERAL PHYSICS	6
PHY 156	GENERAL PHYSICS	6
PHY 170	UNIVERSITY PHYSICS I	4
PHY 171	UNIVERSITY PHYSICS II	4
PHY 172	UNIVERSITY PHYSICS III	4
PHY 206	SOUND AND ACOUSTICS	4
PHY 232	INTRODUCTION TO DIGITAL ELECTRONICS	4
School of Continuing and Professional Studies		
SNC 320	MAMMALOGY	4