atmosphere; (3) measurement techniques of atmospheric parameters and constituents; (4) satellite and remote sensing instrumentation; and (5) data inversion methodology and algorithm.

**PHYS 7360 Green Laboratory (3,0,3)**
This laboratory course includes lectures, lab exercises, and project-based experiments. The laboratory provides a set of practical experiments, which related to (1) energy harvesting; (2) energy conversion efficiency; (3) energy conservation; (4) measurements of meteorological parameters and atmospheric constituents; (5) meteorological instrumentation; and (6) characterizations of energy harvesting materials and solar cells.

**PHYS 7371-2 Project in Green Technology (6,0,3)**
The objective of the course is to enable students to develop mastery of green technology related concepts, including energy harvesting, energy conservation, and pollution monitoring. Students are expected to perform a highly independent work. After completion of this course, they will be able to demonstrate their mastery of course materials and apply what they have learnt in implementing practical problems. Students may propose a topic or select a project from a list of topics provided by the Department.



**PHYS 7410 Physics for Green Technology (3,3,0)**
This course covers the physics for green technology and environmental science, including classical and fluid mechanics, thermodynamics, electrostatics and electricity, electromagnetic waves, optics, and modern physics.

**PHYS 7420 Energy Usage, the Environment and Sustainability (3,3,0)**
This course allows students to comprehend the significance of energy sources, their capacity, security, costs and their effects on the environment. The energy production and economic distinction between non-renewable (e.g. coal, gas, oil and nuclear fuel) and renewable sources (e.g. wood, biomass, hydro, solar, wind, geothermal and ocean) upon amongst different countries will be explored. In addition, an examination on the role of nuclear energy and its concerns in radiation, spent fuel waste disposal and safety issue are addressed.

**PHYS 7430 Introduction to Modern Materials (3,3,0)**
This course aims to provide a broad base on properties of modern materials and their applications. Topics cover structure, properties and functionality of materials including metals, ceramics, polymers and semiconductors.

**PHYS 7440 Principles of Optoelectronics (3,3,0)**
This course aims to provide a broad base on optoelectronic properties of semiconductors and device applications. Topics cover surface and interface of semiconductors, optical properties of semiconductors, light generation in semiconductors and recent advances in organic electronics.

**PHYS 7450 Principles of Photonic Physics (3,3,0)**
This is an introduction into advanced topics in propagation of electromagnetic waves in a medium and interaction of electromagnetic waves with matter. Topics covered include derivation of optical constants such as susceptibility and dielectric constants, absorption, scattering and refraction.

**PHYS 7460 Advances in Displays and Lighting (3,3,0)**
This course provides students an insight on understanding the principles of displays and lighting that are widely used for application in mobile appliance, automotive lighting, traffic signals, signage, LCD backlighting, advanced displays and energy efficient lighting.

**PHYS 7470 Energy Audit and Management (3,3,0)**
This is a professional training course leading to the certified energy manager (CEM) requirement under the Association of Energy Engineers (AEE), USA. The course covers the latest energy cost reduction techniques in commercial building and the manufacturing industries of which CEM is an internationally recognized professional certification in energy management. The training focuses on the technology, the economics, the policies and the regulations for effective energy management.

**PHYS 7480 Organic Electronics (3,3,0)**
This interdisciplinary course describes the fundamentals of organic semiconductor materials, molecular design, synthesis, material processes, discusses the operation principle of organic semiconductor devices, enables students to become familiar with relevant terminology and be aware of the latest progresses in the emerging field of organic electronics, including functional organic semiconductors for applications in solar cells, transistors, sensors, advanced flat panel displays, and generation solid state lighting etc.

**POLS 1005 Foundations of Political Science (3,2,1)**
This is a course which introduces students to a comprehensive review of the field of political science. Basic concepts, political theories and methodologies, political institutions, political parties are all examined. The Subfields of comparative politics and international relations are also integral parts of the course so as to lay down the foundation for further studies. Political developments in Europe and China are frequently employed as examples and related to the introduction of political ideas.

**POLS 1110 Introduction to Research Methods (3,2,1)**
This course is designed to enhance students' ability to perceive, evaluate and understand political phenomena through a systematic introduction to a wide range of approaches, methods and theories of political science. Basic research procedures and academic writing are the other foci of the course. Students are encouraged to analyse and explain the current political development of Europe, mainland China or Hong Kong with the help of particular perspectives and research methods. This course is open to GIS and European Studies majors only.

**POLS 1120 Introduction to Political Economy (3,2,1)**
Political economy, with its roots in the European 17th and 18th centuries, was the forefather of what developed in the 20th century into the two separate disciplines of political science and economics. However, it has remained as that discipline which examines the relationship of the individual to society, the economy, and the state. It is the study of relations and choices, of structures and institutions, of scales from the personal and local to the national, international, and global. Its originators include Locke, Hobbes, Adam Smith, Karl Marx, and Max Weber. Including choice theory and market theory, system theory, development theory and public policy theory, political economy examines the historic and human behavioural linkages among values/morals, politics, economic reality and economic reasoning. This course is open to GIS majors and GIS minors only.

**POLS 1140 Political Movements: Chinese and European (3,2,1)**
Prerequisite: *For GIS major*: POLS 1510 Foundations of Political Science or POLS 1520 Government and Politics of China
*For ES major*: EURO 1111 Europe: Unity and Diversity
The course examines three major political movements—nationalism, liberalism, and socialism—within a comparative context. By "movement" is meant not solely an ideology, but an ideology in relation to concrete political developments and popular mobilization. European experience of the three movements will be compared and contrasted with Chinese experience. This course is open to GIS and European Studies majors only.