

Course Profile - Department of Physics

Course Number : PHY S142	Course Title : Science and Nature II
Required / Elective : elective	Pre / Co-requisites : -
Catalog Description: Newton's laws of motion. Electric and magnetic fields. The universe. Perturbation of an equilibrium system. The size and structure of an atom. Periodic table. Kinetics of a chemical reaction. Some of the important molecules in living organisms and their functions. The structure of DNA and the mechanism of heredity. Analysis and determination of symmetric structures in nature, molecular structures and crystals. Interaction and variation of living populations. Biological evolution.	Textbook / Required Material : James Trefil, Robert M. Hazen The Sciences: An Integrated Approach , Wiley 5 th Edition, 2007
Course Structure / Schedule : (3+0+0) 3 / 5 ECTS	
Extended Description : This course is designed for science non-majors students who are not on the track to become scientists or engineers, and aims to give a multidisciplinary understanding of science and nature. It will focus on the central core of cell biology and the features universal to all living things. Molecular basis of heredity, synthesis of proteins, control of the gene expression and the process of genetic engineering will be explored. Discussions will be enhanced through presentations and by watching documentary films in the relevant topics.	
Design content : None	Computer usage: No particular computer usage required
Course Learning Outcomes [relevant program outcomes in brackets]: 1. to apply analytical and critical thinking skills to contemporary global issues (). 2. to describe the interrelationships between science, technology, and society (). 3. to demonstrate an ability to function on teams(). 4. to improve students' oral and written communication skills()	

Recommended reading

The New Genetics

NIH Publication No. 07-662 <http://www.nigms.nih.gov>

Teaching methods

Class participation: Pre-readings, lecture and class discussions, individual readings and team work for presentation.

Assessment methods (Related to course outcomes):

Two mid-term examinations, a final examination, homework assignments, quizzes, class presentation.

Student workload:

Pre-class reading25 hrs

Lectures45 hrs

Homework preparatory reading30 hrs

Literature review for research 15 hrs

Team work for presentation10 hrs

TOTAL 125 hrs to match 25x5 ECTS

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