

COTTON COLLEGE STATE UNIVERSITY

PANBAZAR, GUWAHATI-781001, ASSAM, INDIA

Course Number: SHS102CMP

Course Name: Natural Science for Social Sciences & Humanities- II

Course duration: 16 contact hours (1 credit)

Target Audience- Post Graduate Students of CCSU

Course Goals: This course aims at exposing students of humanities and social sciences to the art of "*observing, reasoning, concluding & testing/applying*" -- a methodology that is at the heart of any scientific process, and to inculcate in them that "*seeing (alone) must not lead to believing!*"

The curriculum has been designed for students of humanities and social sciences who have very little exposure to the natural sciences through formal curricula. Emphasis will be on classroom demonstrations through table-top experiments, video demonstrations as well as computer simulations and lectures rather than detailed analytical derivations. Conclusions will be attempted through brainstorming sessions at the end of these demonstrations using common sense arguments rather than through rote learning.

The aim of the course is to rouse interests of students in the world around them and to help them uncover its beauties -- visible as well as those that are apparently hidden.

Mathematics being the language of science, it is important to know how to use it. This course should not require one to have familiarity with mathematics beyond what is taught in high school. However during the course, the student may expect to learn ways of using mathematics in ways that are new to them.

The course will be taught at a basic level drawing on everyday experiences covering most not necessarily all of the topics listed here, depending on the progress and feedback of the students.

Course Outline:

1. **Fundamentals of Earth Sciences:** (6 lectures)
 - ✓ Locating your place; Introduction to Climatology; Environmental Geography; Preliminary introduction to topography.
 - ✓ Earthquakes, Palaeontology (Evolution of vertebrates).
 - ✓ Indian Remote sensing program.
 - ✓ Our place in the Universe.

2. **Fascinating world of living beings:** (7 + 3 lectures)
 - ✓ Survey of the animal kingdom with emphasis on the evolution and structure, with a survey of animal diversity and ecology (Evolution of species, the relationship between structure and function at the molecular and cellular levels, ecology, biodiversity and environmental issues covering ecological theory, knowledge of field practices, knowledge of North-east India's ecosystem and environmental problems, Genetics); Role of Agriculture and Natural Resources in human history, present and future, uses of fertilizer and organic farming.
 - ✓ Know your body and health: Overview of Common medical conditions and practices. Understanding the human physiology; Causes of heart attack and heart failure; Review how the Endocrine system works; - Discuss how cancer can be initiated, spreads and how it works; Common misconceptions and practices.

Resource persons for 2015: Abhijit Barthakur and Wasim Raja, Cotton