GEK1022 Geopolitics: Geographies of War & Peace

Geopolitics: Geographies of War & Peace introduces key ideas and contemporary themes of geopolitics. Geopolitics draws upon a lot of "popular" geopolitics materials in the form of video, film, blogs, images and other multi-media to illustrate key issues. Students will learn about the geography of conflict, war and peace-making in the twentieth century. Students will be led to understand the current and future trends and debates, including issues such as the New (and old) World Order, terrorism, peacekeeping and conflicts in and over 'cyberspace' and natural resources. The course introduces students to a wide-range of sources and encourages critical use of media, academic material and internet resources. The objective of the course is to develop a deeper and life-long understanding of the geography of international affairs.

**Mode**: University-taught course  
**Pre-requisite**: H2 Geography or History  
**Assessment**: Students undertake the following components:
- Continuous assessment (one group project, one individual project)
- Final examinations

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MA1101R Linear Algebra I

Linear Algebra I serves as an introduction to the fundamental concepts in linear algebra that are routinely applied in fields like science, engineering, statistics, economics and operations research. The vector spaces within which the general ideas are developed are all real vector spaces. The objective of the course is to inculcate a facility in both the algebraic and geometric viewpoints of linear algebra. Proofs of results will be presented in the concrete setting for a proper understanding of the fundamental concepts and techniques. The course will develop basic skills in computing with vectors and matrices (with or without any mathematical software). It will also highlight examples of the more important applications of linear algebra in other fields.

The major topics included are: systems of linear equations; matrices; determinants; Euclidean n-space; subspaces; linear independence; basis and dimension; rank of a matrix; orthogonality and orthonormal bases; eigenvalues and eigenvectors; diagonalization; linear transformations from $\mathbb{R}^n$ to $\mathbb{R}^m$; and, applications.

**Mode**: University-taught course  
**Pre-requisite**: H2 Mathematics  
**Assessment**: Students sit for the following:
- Assignment  
- Mid-term test  
- Computer Lab Quiz  
- Final Examination

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LSM1103 BIODIVERSITY

The course introduces the student to life on earth through an examination of the characteristics and diversity of living organisms within the three domain, six kingdom system. Though lectures, laboratory sessions and field trips to local terrestrial and marine ecosystems, the student will explore the major groups of microbial, plant and animal life. Throughout the course, the need of to maintain a diverse and intricate balance of nature through the conservation of biodiversity will be explored.

Mode : University-taught course  
Pre-requisite : H2 Biology or equivalent,  
Assessment : Students sit for the following:  
  • Essay Assignments  
  • Practical Test  
  • Final Examination

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PC1144 PHYSICS IV

The module provides an opportunity for students to gain a deep conceptual understanding and appreciation for the development of Modern Physics in the 20th century. Topics covered are a) Einstein's theory of special relativity, including Lorentz Transformations, time dilation, length contraction, relativistic momentum and his famous equation \( E=mc^2 \), b) Quantum physics, where the observed phenomena of black body radiation, the photoelectric effect and Compton scattering leads to the quantization of angular momentum and energy, atomic transitions and atomic spectra, c) Introduction to quantum mechanics, introducing the Heisenberg uncertainty principle, wave-mechanics and wave particle duality, the meaning of wave functions and using them to predict the behaviour of free particles as well as particles trapped in harmonic and square potential wells, d) Nuclear physics, introducing radioactivity and decay processes, nuclear models, nuclear interaction and binding energy, nuclear fission and fusion, and e) Detection and classification of sub-atomic elementary particles, standard model of particle physics and a brief introduction to cosmology.

Mode : University-taught course  
Pre-requisite : H2 Physics  
Assessment : Students sit for the following:  
  • Practical Test  
  • Mid-Term Test  
  • Final Examination

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