



کراچی یونیورسٹی

University of Karachi

Department of International Relations

Second Semester 2008

IR 622 (Science, Technology and International Relations): Course Outline

Activity	Dates	
Introduction day		<i>Class Schedule *</i>
Teaching	July 14 – November 15	Thursday, Saturday
Reports Due	October 16	1020h – 1110h
Viva-Voce Examination	October 16, 18	Friday 0950h – 1030h
Semester Examinations	November 17 – December 6	<i>Office Hours *</i>
Vacations	December 7–31 (Winter)	Saturday 1206h

Course Supervisor: Professor Dr. Syed Arif Kamal

Member AIAA (USA), IBRO (France)

MS (Indiana, Bloomington, USA); MA (Johns Hopkins, USA); PhD

Telephone: 9926 1300-6 ext. 2380 (Tuesday, Thursday 1600h – 1700h)

Homepage: <http://ngds-ku.org/kamal> (*Handout address:* http://ngds-ku.org/Int_Rel/IR622_08.pdf)

For course announcements, assignments and past papers, go to *Pedagogical Section*, click on “Courses (offered during the current semester)”.

e-mail: [kamal\(at the rate of\)ngds-ku.org](mailto:kamal(at the rate of)ngds-ku.org)

Office: Room No. 6, Department of Mathematics, University of Karachi

Directions: <http://www.ngds-ku.org/kamal/contact.htm#Directions>

Course Objectives

This course aims to examine and highlight the role of science and technology in shaping the policies of states in today's world. It provides information on major scientific and technological issues in the context of international relations (IR). After completing this course the students should be able to:

- Understand what is science and what is not science
- Learn the basic tools to evaluate proposals involving technological innovations
- Appreciate the role played by a sound science and technology policy in the existence and the prosperity of a country

Course Outline

Section A: Conceptual appraisal of science and technology, importance, impact on interstate relations, scientific method, modeling, observations and experiments, industrial projects, tools to evaluate technology

Section B: Space technology, satellites (geostationary and polar), role in communications and warfare, satellite-launch vehicles, targeted spacecrafts (SRBM, IRBM, ICBM, ABM), SDI (strategic defense initiative), impact of space technology in IR

Section C: Nuclear technology, nuclear fission and fusion, enrichment process, fission bomb, fusion bomb, neutron bomb, chemical and biological weapons, role in strategic power balance

Section D: Case study of two aerospace giants: Boeing and Airbus, impact of weakened dollar on aircraft industry

Section E: Security technologies, biometric identifiers, full-body scan, impact on personal health and privacy

Section F: X rays, benefits and hazards, medical imaging (X rays, CT scans, moiré fringe topography, rasterstereography)

Section G: Technology policies of developed and developing countries (China, France, Germany, India, Israel, Japan, Korea, Pakistan, Russia, UK and USA)

* Refer to Time Table (Pedagogical Section) and Contact Information for *Class Schedule* and *Office Hours* during the month of Ramadhan (September 2008)

** Web address of this handout: http://www.ngds-ku.org/Int_Rel/IR622_08.pdf



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IR 622 (Science, Technology and International Relations): Marks Breakdown

<i>Evaluation Parameter</i>	<i>Marks</i>
Reports on Science Policy (due on Oct 16) *	15
Viva-Voce Examination (on Oct 16, 18) *	15
Final Examination **	70
<i>Total</i>	100

* **Bonus marks** for on-schedule presentations and on-time submission of *Reports* and on-schedule appearance for *Viva-Voce Examination*

** **3 bonus marks**, if you are in possession (in your hand, NEITHER in your bag NOR in the department office) of your valid admit card (original) and **2 bonus marks** for enrolment card (original) at the time of final examination

Recommended Reading

- Ruth & Stephen Bernstein: *Schaum's 3000 Solved Problems in Biology*, McGraw-Hill Education, Europe (December 31, 1989); **ASIN:** 007099157X
- Rom Harré: *Great Scientific Experiments: Twenty Experiments That Changed Our View of the World*, Dover Publications, New York (March 2002); **ISBN:** 0486422631
- Michael Zielik: *Conceptual Astronomy - A Journey of Ideas*, John Wiley, New York (December 1992); **ASIN:** 0471509965



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IR 622 (Science, Technology and International Relations): Course Plan

Month	Date	Topic	Month	Date	Topic
July	17	Conceptual appraisal of	September	18	Chemical and biological weapons
	18	science and technology		19	Case study of two aerospace
	19	Importance		20	Giants: Boeing and Airbus
	24	Impact on interstate relations		25	Impact of weakened dollar on
	25	Scientific method, modeling		26	aircraft industry
	26	Observations and experiments		27	<i>Latat-ul-Qadr (NoClass)</i>
August	31	Solar and lunar eclipses @	October	02	<i>Eid-ul-Fitr (No Class)</i>
	01	Precautions to observe eclipse		03	<i>Eid-ul-Fitr (No Class)</i>
	02	Industrial projects		04	<i>Eid-ul-Fitr (No Class)</i>
	07	Tools to evaluate technology		09	<i>Presentations</i>
	08	-do-		10	Security technologies
	09	-do-		11	Biometric identifiers
	14	<i>Independence Day (No Class)</i>		16	Impact on personal health and
	15	Space technology		17	Privacy
	16	Satellites		18	X rays, benefits and hazards
	21	Satellite-launch vehicles		23	CT scans
	22	Targeted spacecrafts		24	Moiré fringe topography
	23	SDI, impact on IR		25	Rasterstereography
	28	<i>No Class</i>		30	Sample paper
	29	<i>No Class</i>		31	Exam-taking strategy
September	30	Nuclear technology	November	01	Philosophy and motivation of
	04	Nuclear fission and fusion		06	doing science and technology
	05	Enrichment process		07	Review
	06	Reflections on 1965 War *		08	-No Class (44 classes completed)-
	11	Reflections on Quaid & 9/11 #		13	-do-
	12	Fission and fusion bombs		14	-do-
	13	Neutron bomb		15	-do-

@ On July 31, 2008, there was a partial solar eclipse in Karachi. The students were educated on the mathematical, the physical and the biological aspects of solar eclipse, in particular, focusing on precautions to observe the event

* On September 6, 1965, war between India and Pakistan started on Kashmir issue, the author was stranded in India during the whole war — recollections from the other side of border

September 11 is the death anniversary of Father of Nation, Quaid-é-Azam Muhammed Ali Jinnah (died 1948), and, also, the solemn remembrance of those, who lost their lives in New York and Virginia (2001)