

ISLAM AND SCIENCE: Scientific & Religious Perspectives on Life and Cosmos International

Institution: Institute of Islamic Thought (IIIT) & Islamic Research Institute (IRI)
International Islamic University Islamabad, Pakistan

Instructor: Muzaffar Iqbal

COURSE DESCRIPTION

The course will explore the history of relationship between Islam and science using contemporary pedagogic techniques. Philosophical and historical aspects of the relationship will be examined with the aim of providing inspiration for the development of new methodologies for the study of this highly complex relationship. Each of the eight seminars will focus on one specific aspect of the relationship between Islam and science. An extensive bibliography will be provided. Each seminar will include a question/answer session to be followed by a presentation by at least one of the participants. An open-minded exploration will aim to foster critical thinking among the participants. Sound scholarly perspectives will be presented with adequate historical background.

COURSE OBJECTIVES

Overall course goals include the following: 1. To enhance our understanding of the historical and contemporary issues at the interface of Islam and Science. 2. To develop a basic understanding of scientific methodology within the framework of Islamic scientific thought. 3. To fully appreciate the complexity of the Islam and science discourse in its historic as well as contemporary aspects. 4. To actively engage a group of scholars/researchers in discussions on certain theology-specific issues which have arisen as a result of recent developments in natural sciences.

COURSE FORMAT

Readings Each participant will complete core readings prior to the beginning of the course. A list of primary texts will be provided. Photo copies of the supplementary material will be distributed. Relevant portions of the major Islamic texts will be used.

Seminars Each 60-minute seminar will be followed by questions/answers and one or more presentations by the participants.

Discussions/Group Learning A major feature of this seminar course is group learning. The required background reading would have equipped the participants with necessary skills for discussion at a sophisticated level. Drawn from different disciplines, the participants will compliment each other's skills and contributions.

Presentations Each participant will prepare a research paper on one of the areas of the seminar course. These papers will be distributed three weeks before the commencement of the course in November 1999 and presented in the second half of each seminar. These presentations will be thoroughly discussed, thus enriching us all. The seminar course as a

whole will be evaluated by each participant. A form will be provided for evaluation. Likewise, each presentation by the participants will be evaluated using a similar format.

COURSE TEXTS

Each of the eight seminars has a specific reading list attached at the end of its outline. In addition, the participants will be provided reference to other resources available on various websites.

OUTLINE OF SEMINAR TOPICS

Each of the eight seminars will discuss specific issues in the Islam and science discourse. The following synopsis is not exhaustive but gives adequate outline of each seminar and specifies texts which will be used for that seminar.

COURSE OUTLINE

Seminar 1: Islam & Science: An Historical Survey

Seminar 2: Chance or Design: Creation in Islam and Science

Seminar 3: Human & Cosmic Destiny: Eschatology & Concept of Time

Seminar 4: Paths to Knowledge: Models, Symbols and Paradigms in Islam & Science

Seminar 5: Classification of Sciences in Islam

Seminar 6: Islamic Worldview and Modern Science: Points of Convergence and Divergence

Seminar 7: Nature in Islam and Science Seminar 8: Islam & Science: A Futuristic Exploration

SEMINAR 1 ISLAM & SCIENCE: AN HISTORICAL SURVEY

Background Information The 20th century has presented many new challenges to the discourse on Islam and science. Recent discoveries in natural sciences and theories formulated on the basis of these discoveries have raised specific questions about life and our concept of origin of the universe. From Big Bang theory to the theories of evolutionary biology, there is a whole range of scientific literature which challenges belief systems of all monotheistic faiths. Genetic engineering and other biotechnological advances have opened a whole range of ethical issues. This has added to the complexity of the relationship between Islam and science. There are many areas of this equation which have not been sufficiently explored in contemporary scholarship. One reason for this situation is the lack of trained scholars who could easily move between the two fields. This complexity demands sound scholarship in both Islam and science but Muslim religious scholars (*c Ulema*) have generally been uninterested in science. On the other hand, Muslim scientists have been generally lacking scholarship in theology. Of course there are exceptions and whatever has been investigated about the rich and complex relationship between Islam and science owes its existence to these exceptional individuals. This preliminary seminar will discuss the emergence of sciences in Islam and give an historic account of the developments of discourse on science and Islam. It will pinpoint issues. It will also attempt to draw parallels between the formidable challenge posed by the Greek Scientific Thought to the Islamic scholars (after the intense translation activity of the scholars associated with *Baitul Hikmah*, “The House of

Wisdom”) and the contemporary challenges posed by the Western scientific enterprise. This first seminar will provide the religious, intellectual and cultural context for the whole course. The Qur’an and Hadith (sayings of the Prophet Muhammad) will be the basic sources for the presentation of various aspects of Islamic worldview. References will be made to the verses in the Qur’an which bear relationship with the natural sciences without going into details (which will be part of inquiry in the subsequent seminars). Specifically, the seminar will discuss the Qur’anic data on God and His Attributes, Creation Narrative, God and the World, God’s relationship to Man, Qur’anic theory of three kinds of knowledge: (i) Knowledge by inference (*c ilm al-yaqeen*); (ii) knowledge by perception and reported perception or observation (*c ain al-yaqin*) and (iii) knowledge by personal experience or intuition (*haqq al-yaqin*). A short discussion of the limitations of human knowledge as compared to God’s knowledge will also be included. Developments of various doctrines about natural sciences within the Islamic thought will be treated chronologically, culminating in the twentieth century. A very brief account of science-religion discourse in the west will be given. Muslim response to the science-religion dialogue will be examined. We will look at the broad trends under the heading of “Fallacy of Proving Revelation by Science and Fallacy of Proving Science by Revelation”.

Readings

al-Ghazali, *Ihya ul-Ulum*, [henceforth *Ihya*] (Original Arabic or any of one of the English or Urdu translations can be used), Chapters “Acquisition of Knowledge” and “Foundation of Belief”; al-Ghazali, *Jawahir al-Qur’an* (The Jewels of the Qur’an), original or the English translation by Muhammad Abdul Quasem, chapters 4 & 5; Syed Hossein Nasr, *Science and Civilization in Islam*, [henceforth *S & C*] (Sohail Academy, 1968), pp. 21-29; Osman Bakr, *Tawhid and Science*, [henceforth *T & S*] (Secretariat for Islamic Philosophy and Science, Kuala Lumpur, 1991) Chapters 1, 2, 4 and 7; For a survey of 20th century Muslim positions: Leif Stenberg, *The Islamization of Science: Four Muslim Positions, Developing an Islamic Modernity*, Lund Studies in History of Religions, Ludwig, 1996

SEMINAR 2 CHANCE OR DESIGN: CREATION IN ISLAM AND SCIENCE

This seminar will cover the following topics: God the Creator (*al-Khaliq*); Creation and *Tawhid* (Unicity of God); Qur’anic data on Creation; Stages of Creation; *Creation ex Nihilo*; Relation of God to His creation; the Problem of “Creation in time” and co-eternity; Time and Space in Islamic Thought; Creation of human beings: from a clot of blood (*c Alaq*) to the high station of being the viceregent of God; Chance or Design: Looking around us. Position of major Muslim thinkers on the creation of Man and Universe will be discussed. Modern scientific views on creation/ evolution will be presented along with the design argument. Traditional Islamic perspective on Creation will be discussed through the presentation of views of major Muslim scientists.

Readings

M. M. Sharif, *A History of Muslim Philosophy*, Pakistan Philosophical Congress, 1961, [henceforth MP] pp. 65, 444- 459, 532-550, 578-85, 1626; Seyyed Hossein Nasr and

Oliver Leaman, *Routledge History of World Philosophies*, 2 Vol., [henceforth *Routledge*] (Routledge, London & New York, 1996, pp. 148-150, al-Ghazali on creation: 111, 262, 314, 318; Ibn Rushd on creation: 313-14, 332, 1017, Ibn Sina on creation: 111, Ibn Tufayl on creation: 318- 20, Isma c ili position: 795-6; al-Kindi: 171, Mullah Sadra: 648-50; al-Razi: 204-5, creation *ex nihilo (ibda)* pp. 57, 206, 219, 307, 253, 339, 170, 262, 283-4; Perry N. Whittall, *The Widening Breach: Evolutionism in the Mirror of Cosmology*, (Quinta Essentia, Cambridge, 1995) [henceforth *Perry*], ch. 2: “Creation *ex Nihilo*”, ch. 5: “Nominalism to Atomism”, Titus Burckhardt, *Alchemy, Science of the Cosmos, Science of the Soul*, (Quinta Essentia, Cambridge, 1995), ch. 1-3, For general accounts: Mark W. Worthing, *God, Creation and Contemporary Physics*, (Fortress Press, and Stephen W. Hawking, *A Brief History of Time*, [henceforth *Hawking*] (Bentam Press, London); For specific dimension of Time and Space: Daniel Athearn, *Scientific Nihilism*, (State University of New York Press, Albany, 1994) ch. 7: “Time, Space and Genetic Structure”. Following papers presented at the “First International Conference on Scientific Miracles of the Qur’an and Sunnah” will be distributed among the participants: (i) Joe Leigh Simpson, *et al*, “Embryogenesis and Human development in the first forty days”; (ii) Keith L. Moore, *et al*, “Description of the second and third stages of human development”; (iii) T.V.N. Persaud, *et al*, “Human Development after the Forty-second day”; (iv) Joe Leigh Simpson, *et al*, “Genetic Programming in the *Nutfah* Stage: Complexity due to multiple mechanism”.

SEMINAR 3 HUMAN & COSMIC DESTINY: ESCHATOLOGY & CONCEPT OF TIME

Both the Qur’an and science point to the end of life as we know it, both for individuals as well as for the universe. The Qur’anic view of creation of the universe indicates that life has been created for a purpose and for an appointed term (*ajal al-Musamma*) both for individuals as well as for the universe. Characteristic features of Islamic Eschatology (*al-ma c d*) and the Qur’anic data on the events of Last Day will be reviewed. Eschatology in Islamic thought will be examined with particular reference to the works of Mullah Sadra (particularly the fourth book of *Asfar*) because he sums up the thought of previous scholars. By all scientific accounts, the universe is heading towards a final Crunch, which will make this hospitable planet unsuitable for life. How do these predictions fit with Islamic eschatology? What bearings do they have on the concept of Hope. What kind of life will be there after Resurrection? What are the scientific limits of knowledge on the subject of life after death? How does our scientific concept of Time relate to the “everlasting” Time of the “Hereafter”? Parallel Times; Time of God and Time of Man.

Readings

Mulla Sadra, *al-Asfar al-arabacat al-c qliyyah*, (“Four intellectual journeys”) ed. c Allamah Muhammad Husayn Tabataba c i, (Qom, 1968) Fourth Book, also his *al-Hikmah al-c arshiyah*, (“The Wisdom from the Divine Throne”), trans. James Morris (Princeton, 1981) and al-Mabda’ wa’l-ma c ad (“The Beginning and End”), *Hawking*, ch. 8, John Polkinghorne, *The Faith of a Physicist*, (Princeton University Press, 1993) ch. 9.

SEMINAR 4 PATHS TO KNOWLEDGE: MODELS, SYMBOLS AND PARADIGMS IN ISLAM & SCIENCE

This seminar will deal with the fundamental concepts of knowledge in science and Islamic thought. Islamic Epistemology and theory of Knowledge will be discussed. We will examine sources of knowledge, mechanisms of transmission of Knowledge: [Revelation (*Wahi*), Inspiration (*Ilham*), Intuition (*Wajdan*), Instinct (*Jibilah*)]; Scientific methodology in Islam and its relationship with the modern science; Three categories of knowledge in Islam: (*c ilm-ul-yaqeen, c ain-ul-yaqeen, Haqq-ul-Yaqeen*). Methods of modern science; Kuhnian Revolution; The nature of scientific theories; Models for understanding the science-religion relationship.

Readings

Ihya, ch. 1; Carl Hempel, *Philosophy of Natural Science* (Prentice-Hall, 1966), chs. 2-3; Thomas Kuhn, *The Structure of Scientific Revolutions* (2nd ed., 1970), chs. 2, 3, 5-8, 12; Ian Barbour, *Religion and Science: Historical and Contemporary Issues* (Harper Collins, 1997)[henceforth *Barbour*], chs. 1-2 (pp. 9-46); Dudley Shapere, "The Structure of Scientific Revolutions," in Gary Gutting (ed.), *Paradigms and Revolutions: Applications and Appraisals of Thomas Kuhn's Philosophy of Science* (Notre Dame, 1980), 27-38; Albert Einstein, "Science and Religion," in James E. Huchingson (ed.) *Religion and the Natural Sciences: The Range of Engagement* (Harcourt-Brace, 1993), [henceforth abbreviated "H"] pp. 148-52; Martin Buber, "I and You," in H67-70; Langdon Gilkey, "Theories in Science and Religion," in H 61-66; D. M. MacKay, "Contemporality in Scientific and Theological Thinking," *Zygon* 9, 3 (1974)

SEMINAR 5 CLASSIFICATION OF SCIENCES IN ISLAM

Science and *Kalam*; The relationship between God, man and science; Muctazillah and cAsharite Formulations; Science and the mystical experience; Problem of Classification of Knowledge; Scientific Methodology in Islam; Classification schemes of major Muslim scientists-scholars: Jabir ibn Hayyan (c. 103/721-c.200/815); al-Kindi (c.185/801-c.260/873), al-Khuwarazmi (d. c. 249/863), Abu Nasr al-Farabi (c. 258/870-339/950), al-Mascudi (d. 345/956), Ibn Sina (370/980-428/1037), Ibn al-Haitham (c. 354/965-430/1039), al-Biruni (362/973-c.442/1051), al-Ghazali (450/1058-505/1111), Omar Khayyam (b. 429/1038 or 440/1048, d. 517/1123 or 526/1132), Ibn Rushd (520/1126-595/1198), al-Tusi (597/1201-672/1274, Qutb al-Din al-Shirazi (634/126-710/1311), Ibn Khaldun (732/1332-808/1406)

Readings

Nasr, S & C, pp. 59-64, Osman Bakr, *Classification of Knowledge in Islam*, [henceforth *Class.*] (Institute for Policy Research, Kuala Lumpur, 1992), Routledge: c ilm, science, knowledge, rational thought, pp. 22, 183, 391, 905, 1164, 786, 935-945 and the sections on classification of sciences.

SEMINAR 6 ISLAMIC WORLDVIEW AND MODERN SCIENCE: POINTS OF CONVERGENCE AND DIVERGENCE

This will be a seminar in two parts. In the first part we will cover the developments in natural sciences from Renaissance to the late twentieth century. This is the most important period for the re-emergence of the Muslim world as we know it today. This is also the period during which natural sciences have taken the pivotal position in the hierarchy of knowledge and, at least for some, have replaced religion. This first part of the seminar will take a three-directional approach: at the first level, we will recount the fascinating story of developments in natural sciences, at the second, effect of these developments on western society and Christianity and at the third level, the focus will be on the effect of changing worldviews in the West on the Muslim societies. Through this initial three-fold approach, the seminar will focus on the emergence of natural sciences as a major force in the West and examine the relationship between this emerging force and Christianity, on the one hand, and Islam on the other. After reconstruction of the “scientific worldview” in the first half of the seminar, the second part will be devoted to discuss points of convergence and divergence between Islam and the scientific worldview. This part of the seminar will examine the relationship between some of the main theological concerns of Islam and the understanding of life stemming from a scientific worldview.

Readings

For the first part of the seminar: *Barbour*; J.H. Brooke, *Science & Religion--Some Historical Perspectives*, Cambridge Univ. Press, 1991, [henceforth *Brooke*]; M. Fuller, *Atoms & Icons-- A discussion of the relationship between science and theology*, Mowbray, 1995, [henceforth *Fuller*]; A. Peacocke, *Theology for a Scientific Age*, SCM, 1996, [henceforth *Peacocke*]; D.Pailin, *Probing the Foundations--A Study in Theistic Reconstruction*, Pharos, Kampen, The Netherlands, 1994, [henceforth *Pailin*]. For the second part: *Perry*, ch. 1; Gai Eaton, *Islam and the Destiny of Man*, Suhail Academy, Lahore, 1997 [henceforth *Eaton*], ch. 1, 10; Syed Hossein Nasr, *Traditional Islam in the Modern World*, Suhail Academy, Lahore, 1987 [henceforth *Trad. Islam*], ch. 8.

SEMINAR 7 NATURE IN ISLAM AND SCIENCE

This seminar will examine various concepts of Nature in Islam and science. Starting with the Greek thought, we will proceed to explore the changing concepts of nature and critically evaluate the most important concepts of nature in natural sciences. Is Nature merely a playground for Man’s unrestricted quest for power? What are the building blocks of Nature? How do we conceive Nature? How does modern science see Nature? Some of the marvelous mechanisms of restoration of equilibrium in Nature will also be examined. Concept of Nature in Islam will be discussed on the basis of primary sources. According to the Qur’an, before inviting Man to accept the covenant, God had presented it other creatures in Nature but they did not accept the heavy burden; it was only Man who dared to do so. What does this mean in a world dominated by a science which sees Nature as something to be overpowered? What does stewardship of Nature mean? What are the factors in our scientific enterprise which are responsible for producing a conflict with the environment? Are we, as humans, custodians of Nature or its exploiters? How does the regularity and predictability of natural phenomena affect our belief system?

Readings

Robert Russell, Nancey Murphy, and C.J. Isham, eds., *Quantum Cosmology and the Laws of Nature: Scientific Perspectives on Divine Action* (Vatican City State, 1993). Daniel C. Matt, *God and the Big Bang* (Woodstock, 1996). Heyerdahl, Thor, "The Big Bang meets the Great Spirit," *New Perspectives Quarterly*, Vol. 15, Iss: 1, winter 1998, pp. 9-11. For the concept of Nature in the Qur'an, we will use various commentaries of the Qur'an. Also, bibliography in S. Nomanul Haq, *The Encyclopaedia of Islam*, New edition, Brill, Leiden [henceforth *EI*], vol. ix, pp. 25-28.

SEMINAR 8 ISLAM & SCIENCE: A FUTURISTIC EXPLORATION

This concluding seminar will be devoted to a group discussion on the major issues in the Islam and science discourse and for exploring various areas which need further attention. Special emphasis will be given to the methodology of research and to the ways of relating Islamic thought and science. The seminar will present a critical examination of the available material on Islam and science discourse with the aim of entering into a process of creative thinking with the group to produce agenda for further research.

Readings

Summary of major issues discussed in the previous seminars will be made available to the participants. A select bibliography of major publications on Islam and science will also be circulated before the end of the course.