

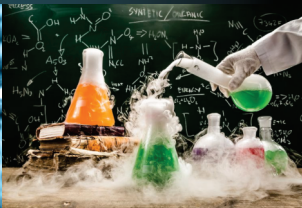
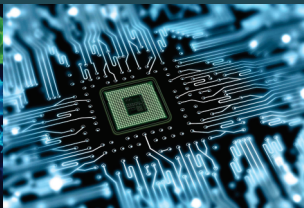
ADMISSION AUTUMN 2021

AIOU

Prospectus

BS Programmes

- Microbiology
- Statistics
- Computer Science
- Chemistry
- Biochemistry
- Mathematics
- Physics

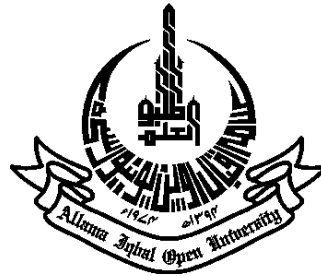


Allama Iqbal Open University, Islamabad

www.aiou.edu.pk

Help Line: (051) 111-112-468

PROSPECTUS
OF
BS (face to face) Programmes
For
SEMESTER: AUTUMN, 2021



Allama Iqbal Open University, Islamabad

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CONTENTS

	Page
VICE-CHANCELLOR MESSAGE	iv
ALLAMA IQBAL OPEN UNIVERSITY	1
FACULTY OF SCIENCES	1
Department of Biology and Environmental Sciences	3
BS in Microbiology (4 years)	3
BS in Biochemistry (4 years)	7
Department of Chemistry	12
BS Chemistry Programmes	13
Department of Computer Sciences	17
BS Computer Science (4 years)	18
Department of Mathematics	24
BS Mathematics (4 years)	24
Department of Physics	28
BS Physics (4 years)	29
Department of Statistics	35
BS Statistics (4 years)	35
GENERAL INFORMATION	40
Procedure for Depositing Fee	42
Important Telephone Numbers	42

Vice-Chancellor's Message

Dear Student,

السلام عليكم

Allama Iqbal Open University (AIOU) is one of the mega universities of the world and it occupies a unique position in the education sector of Pakistan. Because of its affordability and high quality distance and online academic programs. AIOU has now turned into the most favorite university of the country with high international of repute. The university made a landmark progress by ensuring access to quality education rural areas under-privileged students for the people of all ages particularly the females can now select and join the programs of their choice while sitting at their residence and along with continuing their jobs. After assessing the success of many degree programs in Pakistan, AIOU is now going to offer a ranges programs for the students in UAE, Saudi Arabia, Kuwait, Qatar, Bahrain, Oman, USA and many other countries currently. More than 1.3 million students are getting benefits from the high quality educational services of AIOU in all regions of the country through more than fifty regional offices of the university. It offers-suggests many undergraduate and Post Graduate programs at rural and remote areas providing an unparalleled opportunity to all the poor and deprived sections of the society at an affordable cost. The university has recently digitalized all its student-support services for facilitating its students on priority basis. This digitization of the system, it is hoped, will enable AIOU students to get all kinds of educational using their Learning Management system (LMS) portal support online.



Committed for your bright future

Prof. Dr. Zia-Ul-Qayyum
Vice Chancellor, AIOU

**MINIMUM AND MAXIMUM TIME DURATION/SEMESTERS
FOR THE COMPLETION OF FACE TO FACE PROGRAMME
(From Spring 2021 Semester)**

Sr. #	Degree Level	Minimum Duration	Maximum Duration
1.	PhD	3 Years / 6 Semesters	7 Years*
2.	MS/MPhil/MSc (Hons)/MBA/COL MBA	2 Years / 4 Semesters	4 Years**
3.	MA/MSc (2 Years)	2 Years / 4 Semesters	4 Years
4.	BS (4 Years)	4 Years / 8 Semesters	6 Years
5.	Associate Degree (2 Years)	2 Years / 4 Semesters	4 Years
6.	Postgraduate Diploma (1 Year)	1 Year / 2 Semesters	2 Years
7.	Certificate (6 Months)	6 Months / 1 Semester	1 Year

*&** As per AIOU rules.

ALLAMA IQBAL OPEN UNIVERSITY

Allama Iqbal Open University, a mega university was established in 1974 under an Act of Parliament. The main campus of the university is situated in sector H-8, Islamabad. It was the second open university of the world and the first of its kind in Asia and Africa. The aim of establishing AIOU was to provide affordable and accessible education through distance learning at the door-steps to those people who could not continue their education journey through formal system of education. The University (AIOU) operates on semester system and admits students in Autumn and Spring semesters. Under graduate admissions are offered in both the semesters where-as post graduates are offered once a year. The enrolled students are given course books specially prepared by the university on self instructional principles. However at post graduate level reprints of foreign books alongwith allied material and university prepared study guides help students to polish their skills.

At present, the AIOU is offering programmes from Matric to PhD level in diverse disciplines comprised of four faculties. The university has established study centres across the country where distance education students are provided necessary guidance by their respective tutors. Moreover, the university has established full-time study centres wherein the students of MBA (IT), MBA (Banking and Finance), BS (CS), MSc/BS Chemistry, MSc/BS Microbiology etc. are being provided instruction, guidance and counselling through face-to-face education. AIOU is also offering four years undergraduate degrees.

Apart from curricular and extra-curricular activities during the academic year, the AIOU and its regional centres actively participate in the co-curricular activities by arranging educational and literary seminars, workshops and conferences, attended not only by the students and faculties of the university but also by the renowned dignitaries and scholars. For the science students and the research scholars, a science complex has been built where they use the latest equipment of international standard for experiments and research. To meet the present day challenges, internet facility is also available in the student hostel and the Central Library where computers have been provided to enable students to access latest information available through open source databases.

Faculty of Science

Faculty of Sciences forms an important and integral part of the university. Since its establishment in 1982 with five teaching departments, it has undergone major development changes. It now comprises nine teaching and research departments which are offering courses at the undergraduate and postgraduate levels to more than ten thousands students. The Faculty operates under the basic guidelines of the University Act and on “Education for All as Convenient” basis so that maximum students get benefit from its academic programmes and educational facilities. This principle has necessitated some structural changes in the non- formal mode, particularly at the postgraduate level, in the offering of theory courses and practical lab work. This conceptual adjustment has been quite

successful and many of its in-service students are benefiting from the postgraduate study programmes. Improvement in qualifications for a better life is a right of everyone and the Faculty's programmes meet this challenge by offering opportunities to all. In particular a significant number of beneficiaries are those who cannot afford education in formal institutions due to a variety of reasons.

Realizing the importance of science education and growing needs of the Faculty of Sciences, the University has completed a building, the Research Complex, at a cost of Rs 35 million. The Research Complex now accommodates departments of Agricultural Sciences, Biology, Chemistry, Environmental Sciences, Home & Health Sciences, Mathematics, Statistics and Physics. These departments are running a variety of postgraduate technical, scientific and professional programmes successfully. The Research Complex also has a Computer Lab with Internet and On-line Library Facility for literature survey, Seminar Room, Lecture Hall and Library. In addition, there are many labs for practical work, teaching and research, and instrumentation labs for analysis. The University is developing these labs through its own resources. The Faculty of Sciences is fortunate to have Prof. Dr. Zia-Ul-Qayyum as the University's Vice-chancellor, who has given personal attention to the development of the Faculty of Sciences by providing generous amount of funds and valuable guidance.

Two Model labs have been developed in the Research Complex with the assistance of the Higher Education Commission to meet the training needs of science teachers.

This development is significant for training of teachers since under the new educational policy four-year BS programme has started in undergraduate educational institutions.

More than fifty highly qualified full-time faculty members are on the roll of the Faculty of Sciences. Their role in the planning, designing and development of courses to meet student's needs is vital. Faculty members also engage in imparting and supervising of instructions so that high standards are maintained. In addition highly qualified and experienced professors are also engaged on contractual basis or as part time instructors for postgraduate study programmes. The Faculty is also offering academic positions under the tenure-track system to attract the best minds in scientific and technological fields.

Research is an integral part of the postgraduate study programmes leading to MSc, MPhil and PhD degrees in Agricultural Sciences, Chemistry, Computer Sciences, Home and Health Sciences, Physics, Mathematics and Statistics. Rules and regulations governing the postgraduate study programmes are those approved by the Higher Education Commission (HEC).

The Faculty has launched BS programme in Chemistry and Microbiology from semester Spring 2009. The four-year BS programme is structured according to the recent policies of the Higher Education Commission for the improvement of the standard of education so as to bring it at par with the international standards.

DEPARTMENT OF BIOLOGY AND ENVIRONMENTAL SCIENCES

The Department of Biology was established in 1998 with a mission to serve those who could not continue their formal education in various disciplines of Biological Sciences due to economic or job constraints and the production of well-trained manpower to serve various sectors of the country like education and research for the attainment of the goal of self-sufficiency.

According to its vision the Department of Biology and Environmental Sciences is striving hard to uplift the teaching standards and provide a congenial environment for research in the field of Biology and Environment. The Department always seeks to introduce more disciplines at graduate and postgraduate levels as per demand of the society, so as to keep its graduates well informed with the recent advances in Biological Sciences. This will help to produce well-trained manpower meant to serve science both at national and International levels.

Currently the Department is offering MSc and BS Microbiology, Botany and Environmental Sciences Programmes. The four years BS Programme in Microbiology has been launched from the semester Spring 2009 and from Spring 2015 the Department is also offering MSc Programme in Microbiology. From Spring 2016 the department is also offering BS Environmental Sciences programme.

The Department started MSc Botany and MSc Environmental Science from Spring 2017 and BS Botany

programme from Spring 2018. In addition to that, Department is offering some courses from basic to post graduate levels for main pool of AIOU's general programmes.

The Department of Biology and Environmental Sciences has collaboration with members of other Universities of Pakistan and Post Graduate institutions for its Biological Science courses/programmes. One multidisciplinary laboratory in block No. 4 for FSc students was established in 1999 and two labs in Science Block were established for students of BS Microbiology during 2008 to cater for their Practical/Research needs. There are also labs in the Science Block for BS/MSc Environmental Sciences and Botany programmes

BS in Microbiology (4 Years)

a) Introduction

The Department of Biology is well aware of the fact that this is the era of scientific revolutions. Microbiology, which is parallel to molecular biology as well as biotechnology, is an emerging scientific field. Lots of work is being done at international level but Pakistan is still behind in this field. The trained manpower well versed with laboratory techniques and disease diagnostic facilities is limited in the country.

Keeping this thing in view, the Department of Biology has launched four years BS Programme in Microbiology from the semester Spring, 2009.

This Programme is designed to:

- Train human resource/researchers for a broader purpose of public health benefit.
- Accelerate innovative scientific culture with support of well designed laboratories.

b) Objectives:

After completing this program, students will acquire the necessary knowledge in the area of microbiology, which is very important with reference to food industry, diagnostics of infectious diseases and epidemiological studies.

The overall objective of this programme is **to promote education of Applied/Life Sciences in the country.**

The Specific Objectives are:

1. To provide skilled microbiologists/human resources for higher scientific research as well as for diagnostic laboratories.
2. To provide foundation for higher studies in Biological/Medical Sciences.
3. To create awareness about the importance of this science for general public health.

Target Groups

FSc (Pre-Medical) OR Equivalent A level qualification with biology as major subject.

FOR ONLINE ADMISSION

1. The online application form can be accessed from university official website www.aiou.edu.pk
2. Applicants are required to fill all the desired fields on online application form.
3. Applicants are desired to deposit application fee on the prescribed challan form in specified banks.
4. The challan number after fee submission should be entered in online application form for successful completion.
5. Incomplete forms shall not be entertained.
6. Selected candidates will be made strictly on the basis of merit.
7. Only selected candidates will be informed about their admission.
8. The selected candidates will be required to pay the dues.

Note:

Only selected candidates will be asked to deposit prescribed fee. The fee should not be submitted before the confirmation of the admission. The deposited fee will not be refundable or adjustable for further admission. The document showing fee deposit must be provided in the office of

**CHAIRMAN
Department of Biology
AIOU, H-8 Sector, Islamabad.**

In case of noncompliance, it would be assumed that fee has not been deposited and the student is not any more interested in getting admission. The department may invite a candidate

in waiting list for admission against the vacant seat.

Eligibility/Selection Criterion

FSc (Pre-Medical) OR Equivalent A level qualification with biology as major subject.

Medium of Instruction

The medium of instruction shall be English

Study Material

Class lectures and handouts will be provided by respective teachers. However, the students are advised to consult other reference books recommended by the department.

Mode of Teaching

- University will provide face to face teaching to the students.
- The schedule of classes and dates of submission of assignments will be handed over along with study material.

Assessment and Evaluation

For each course, the registered students will be assessed on the basis of the followings:

- a) Continuous assessment through written assignments/tests or Workshop or practical activities.
- i) For each discipline specific face to face course the marks obtained by each student in the two written assignments will constitute 2/3 part of the continuous assessment. A student has to obtain a minimum of 50% marks in the

two assignments collectively in order to pass this component.

- ii) For each discipline specific face to face course the marks obtained by each student in the practical workshop will constitute 1/3 part of the continuous assessment. A student has to obtain a minimum of 50% marks in the practical workshop individually in order to pass this component.
- b) Final examinations: three hours written examination for each course with 50% passing marks.

Note:

The continuous assessment and final examination will contribute 30% and 70% to the student's final course grade, respectively. For successful completion of each course the student will be required to qualify each of the two above components separately.

Assignments/Tests

Handwritten Assignments to be submitted by the students shall be of literature and activity based nature. The students will submit the assignments to their teacher who will return the same after assessment with necessary academic guidance.

Degree Requirement:

In order to become eligible for the award of Degree in BS Microbiology, the students will have to earn a total of **129** credit hours including six credit hours for research project. Minimum duration of the programme is 4 years, extendable maximum up to 6 years.

c) Scheme of Studies:

Semester Wise Breakup of Courses BS in Microbiology

Semester-1

Sr. No.	Course Code	Course	Credit Hours
1.	4401	Cell Biology, Genetics & Evolution	4(3+1)
2.	4403	Fundamentals of Microbiology	4(3+1)
3.	4421	Inorganic Chemistry	4(3+1)
4.	4431	Pre-Calculus	3
5.	9407	English-I (ODL)	3
		Total credits	18

Semester-2

Sr. No.	Course Code	Course	Credit Hours
1	4445	Environmental Microbiology	4(3+1)
2.	4402	Diversity of Plants	4(3+1)
3	4422	Organic Chemistry	4(3+1)
4	4432	Calculus-I	3
5	9408	English-II (ODL)	3
		Total credits	18

Semester-3

1	4441	Introduction to Environmental Sciences	4(3+1)
2	4469	Diversity of Animals	4(3+1)
3	9402	Pakistan Studies (ODL)	3
4	9409	English-III (ODL)	3
		Total credits	14

Semester-4

1	3400	Fundamentals of Computer	4(3+1)
2	4412	Biotechnology	4(3+1)
3	9401/418	Islamic Studies / Ethics	3
4	9404	Public Relations	3
5	7413	Scientific Research	4(3+1)
		Total credits	18

Semester-5

1	4407	Microbial Genetics	4(3+1)
2	4408	Virology	4(3+1)
3	4481	Introductory Biochemistry	4(3+1)
4	4482	Biostatistics	3
		Total credits	15

Semester-6

1	4405	Microbial Anatomy and Physiology	4(3+1)
2	4411	Food and Dairy Microbiology	4(3+1)
3	4416	Molecular Mechanism of Antimicrobial Drugs	4(3+1)
4	4419	Molecular Biology	4(3+1)
		Total credits	16

Semester-7

1	4415	Immunology	4(3+1)
2	4413	Medical Microbiology	4(3+1)
3	4420	Industrial Microbiology	4(3+1)
4	4410	Soil Microbiology	4(3+1)
		Total credits	16

Semester-8

1	4417	Epidemiology	4(3+1)
2	4418	Research Project	6
3	4414	Genetic Engineering	4(3+1)
4	4400	Seminar	1
		Total credits	15

Total Credit Hours: 18+18+14+14+15+19+16+15 = 129

Fee Structure:

Registration Fee:	Rs.500/-
Admission Fee:	Rs.1000/-
Technology Fee (per semester)	Rs.500/-
Course Code (Lab)	Fee
4401	Rs.8000/-
4403	Rs.8000/-
4421	Rs.8000/-
4431	Rs.6000/-
9407	Rs.600/-
Lab fee (per semester)	Rs.3000/-
First Semester Fee	Rs.35,600/-

BS in Biochemistry (4 years)**Introduction**

Biochemistry can be considered as *chemistry of life* and is central to all areas of the biological and life sciences. It deals with chemical processes taking place in all living organisms from viruses and bacteria to plants and animals. It specifically focuses on the study of biomolecules and vital processes that give rise to complexities of life. It comprehensively demonstrates biochemical aspects of living organisms pertaining to the wellbeing and in the pathological state.

Scope of the Program

This program has an interdisciplinary and multidisciplinary scope enabling students to understand the significance and concepts of Biochemistry.

The scope of the discipline is extremely broad and graduates in Biochemistry can progress to a wide range of careers. They can work in national and international organization in either public or private sectors, biochemical industries, food production companies, hospitals and diagnostic laboratories, pharmaceutical industries and research institutes etc.

Biochemists may emerge as *Genetic counselor, Forensic scientists, Healthcare officials, Sequencing data analyst, Research scientists, Project officers, Quality control officers, Genetic engineers* etc.

Aim

The program aims at developing human resources in the field of Biochemistry through appropriate education and research.

Objectives

Objectives of this programme are

- To equip students with the in-depth knowledge and skills necessary for understanding advanced and recent trends in Biochemistry and Molecular Biology
- To impart skills to carry out independent scientific and technical research in key areas of Biochemistry
- To equip students with laboratory procedures and techniques necessary to understand the life processes and can serve in diagnostics and research labs
- To inculcate confidence among students to pursue higher education in their specialized areas of interest

Launching Scheme

In the pilot phase, this program is being offered in Islamabad/Rawalpindi regions only. Face to face classes and labs will be schedule at the main campus. After that this program may be launched at other regional campuses depending on the availability of laboratory facilities.

Admission procedure

1. Admission to fresh students will be offered in spring and autumn semesters as per AIOU policy.
2. Applications for admission will be invited through National press.

3. Prescribed admission application available on AIOU admission portal will be filled electronically and hard copies of admission form along with degree/transcript/certificate will be submitted to:

**Head of Department
Department of Biology and Environmental Science
Allama Iqbal Open University
Sector H-8, Islamabad**

4. Selection of candidates will be made strictly on the basis of merit.
5. Only selected candidates will be informed about their admission
6. The selected candidates will be required to pay the dues in time.

Note

Only selected candidates will be asked to deposit the prescribed fee. The fee should not be submitted before the confirmation of the admission. The deposited fee will not be refundable or adjustable for future admission. The receipt showing fee deposit must be provided in the office of

**The Incharge
Department of Biology and Environmental Science
Allama Iqbal Open University
Sector H-8, Islamabad**

In case of noncompliance it would be assumed that fee has not been submitted and the student is not interested in getting admission. The department will invite a candidate in waiting list for admission against the vacant seat.

Eligibility/ Selection criterion

F.Sc (Pre-medical) OR Equivalent A Level qualification with Biology as major subject.

Foreign certificate holders will need to produce equivalence certificate from IBCC to seek admission in 4 years BS Biochemistry

Medium of Instruction

The Medium of Instructions for BS Biochemistry will be English.

Study Material

The students are advised to consult reference books recommended by the department.

Mode of Teaching

University will provide face to face teaching to the students. However online mode of teaching can be adopted, if required.

Assessment and Evaluation

For each course the student progress will be assessed on the basis of the followings:

- a. Continuous Assessment through written assignments/ class tests or Workshop or practical activities.**
- i. Continuous assessment will be based on the marks obtained by the students in class assignments/class tests. A student has to obtain a minimum of 50% marks in theory in order to pass this component.

- ii. In addition, a student has to obtain a minimum of 50% marks in the practical workshop individually in order to pass this component.

- b. Final Examinations:** A three-hour written examination for each course with 50% passing marks.

Note:

The continuous assessment and final examination will contribute 30% and 70% to the student's final course grade, respectively. For successful completion of each course the student will be required to qualify each of the two above components separately.

Degree Requirement and Duration

In order to be eligible for the award of BS in Biochemistry, the student will have to earn a total of 133 credit hours including six credit hours for research within a minimum period of 4 years (8 semesters). Failing which, a student can be given an extension of up to 2 Years in maximum, after completion of initial period.

Scheme of Studies**Semester-1**

Sr. No.	Course	Course code	Credit Hours
1	Introductory Biochemistry	4481	4(3+1)
2	Inorganic Chemistry	4421	4(3+1)
3	Pre-Calculus	4431	3
4	English I (ODL)	9407	3
5	Cell Biology, Genetics and Evolution	4401	4(3+1)
	Total Credits		18

Semester-2

Sr. No.	Course	Course code	Credit Hours
1	Diversity of Plants	4402	4(3+1)
2	Organic Chemistry	4422	4(3+1)
3	Calculus-I	4432	3
4	English II (ODL)	9408	3
5	Plant Biochemistry	7407	3(2+1)
	Total Credits		17

Semester-3

Sr. No.	Course	Course code	Credit Hours
1	Diversity of Animals	4469	4(3+1)
2	Fundamentals of Microbiology	4403	4(3+1)
3	Pakistan Studies (ODL)	9402	3
4	English III (ODL)	9409	3
5	Introduction to Env. Science	4441	4(3+1)
	Total Credits		18

Semester-4

Sr. No.	Course	Course code	Credit Hours
1	Human Physiology	4409	4(3+1)
2	Biotechnology	4412	4(3+1)
3	Fundamentals of Computer	3400	4(3+1)
4	Islamic Studies / Ethics (ODL)	9401	3
5	Public Relations	9404	3
	Total Credits		18

Semester-5

Sr. No.	Course	Course code	Credit Hours
1	Nutritional Biochemistry	7481	4(3+1)
2	Biostatistics	4482	3(3+0)
3	Principles of Genetics	7412	3(3+0)
4	Immunology	4415	4(3+1)
5	Bio-membranes and Cell Signaling	7482	3(3+0)
	Total Credits		17

Semester-6

Sr. No.	Course	Course code	Credit Hours
1	Fundamentals of Genomics	7483	4(3+1)
2	Protein Biochemistry	7484	4(3+1)
3	Molecular Biology	4419	4(3+1)
4	Scientific Research	7413	4(3+1)
	Total Credits		16

Semester-7

Sr. No.	Course	Course code	Credit Hours
1	Enzymology	7485	4(3+1)
2	Medical Microbiology	4413	4(3+1)
3	Microbial Genetics	4407	4(3+1)
4	Principles of Clinical Biochemistry	7486	4(3+1)
	Total Credits		16

Semester-8

Sr. No.	Course	Course code	Credit Hours
1	Research Project	4418	6
2	Genetic Engineering	4414	4(3+1)
3	Principles of Bioinformatics	7487	3 (2+1)
	Total Credits		13

Total Credits= 18+17+18+18+17+16+16+13=133

FEE TARIFF FOR 1st SEMESTER

#	Item	Rates
1.	Registration Fee (Once at time of admission)	Rs.500/-
2.	Admission Fee (Once at time of 1 st admission)	Rs.1000/-
3	Technology Fee	Rs.500/-
3.	Per 4 Credit hours course fee: Rs. 8000	Rs. 24000
4.	Per 3 Credit hours course fee: Rs. 6000	Rs. 6000/-
5.	English-I (ODL)	Rs. 600/-
6.	Lab Charges	Rs. 3000/-
	Total	Rs. 35,600

The fee structure for remaining semesters will be provided in due course of time.

All students are required to pay full fee in advance as prescribed at the beginning of each semester. The university

reserves the right to revise the fee structure or add any fee considered at any time during the study period. All such changes shall be applicable to all students.

FACULTY MEMBERS**1. Dr. Hina Fatima**

In Charge / Co-ordinator BS Environmental Science & BS Botany

Department of Biology & Environmental Science,
Research Complex, AIOU, Sector H-8, Islamabad
Ph: 051-9057279

2. Dr. Muhammad Waseem

Assistant Professor, Ph: 051-9057267

3. Dr. Zahid Ullah

Assistant Professor & Coordinator F. Sc.
Ph: 051-9057735

4. Dr. Rizwana Kousar

Assistant Professor and Program Coordinator
BS-Biochemistry, Ph: 051-9057293

5. Dr. Saba Farooq

Lecturer, Co-ordinator BS-Microbiology
Ph: 051-9057730

6. Ms. Samar Naseer (Study Leave)

Lecturer, Ph: 051-9057185

7. Ms. Sadia Latif

Research Associate, Ph: 051-9057185

DEPARTMENT OF CHEMISTRY

Introduction:

Department of Chemistry is a major department of the Faculty of Science. It was established in 1998 to offer postgraduate programmes in Chemistry. In the beginning only MSc programme was started, which was later extended to include MPhil and PhD programmes. These programmes have attracted teachers, employees of research organizations, industry and fresh graduates who found an opportunity to improve their qualifications. The faculty of the department comprises of one Professor, four Associate Professors, one Assistant Professor and four Lecturers. In addition, the department also uses services of experienced professors as visiting faculty.

The department is situated in Research Complex on the main campus where it occupies the ground floor and a portion of the lower floor. With the expansion of lab facilities, the department has extended its academic activities by launching the BS programme from Spring, 2009. BS programme is visualized in the new scheme of higher education as a fundamental step in improving the standard of graduate and postgraduate studies.

The study programmes in chemistry have been developed by the Faculty according to the guidelines provided by the Higher Education Commission (HEC). Necessary changes have been

effected to suit our students, but without deviating fundamentally from the principles set by the HEC. The Committee of Courses of the department comprising distinguished professors and scientists of the country thoroughly screened the proposed syllabi.

Chemistry is an experimental science. Students learn basic techniques in the labs. Therefore, it is essential to provide best lab facilities to students of various levels. The chemistry department takes pride in offering the most modern lab facilities in the country to its students in all branches of chemistry. Its research labs are equipped with CHNS Analyzer, Thermal Analyzer, UV-Visible, Fluorescence and FTIR Spectrophotometer, GC-MS, Flash Column Chromatography and HPLC units, Atomic Absorption Spectrometer, and Electrochemical System. Teaching labs are well equipped with routine apparatus and basic instruments. These lab facilities make us one of the leading teaching and research departments of the country.

The department believes in the “Opportunity of Education to All”. Therefore, it has modeled its academic programmes to suit in-service teachers, employees of research organizations, industry and students who could not afford formal education for some reason. The department firmly believes in the promotion of chemistry as a science and in maintaining the highest standards.

Objectives:

- To promote chemistry as a science and to provide opportunity to those who could not educate themselves in formal system of education for one reason or another.

- To provide opportunities of professional growth to all those chemistry graduates who are working as technical staff in research organizations.
- To update the knowledge of in-service chemistry teachers.

BS Chemistry Programmes

a) Introduction:

There has been a continuous effort at the national level to upgrade the standard of college education. It is realized that our existing BSc programme does not meet international standards. The Higher Education Commission has recommended a four-year BS programme to be followed by a two-year MS programme. The BS degree is considered equivalent to MSc Chemistry. However, BS degree holders are given preference for the relevant job over MSc graduates as their knowledge is more focused on chemistry. It is a major structural change in our existing educational system. The country will enormously benefit from the fruits of this change in terms of improved and balanced knowledge and skill.

The department of chemistry offers the best facilities for this programme in the country. Its new labs and modern equipment together with qualified faculty makes it place to which students would like to be a part of it.

a) Objectives:

The main objectives of this programme are

- To offer training facilities of international standard.

- To inculcate spirit of research to solve problems.
- To unveil interesting finer points of chemistry and provide training facilities to all who desire to be educated.

b) Eligibility:

1. FSc (at least 2nd division with 45% marks) with Chemistry as one of the major subject.
2. DAE (Diploma Holders) in Chemical Engineering/ Chemical Technology from a Polytechnic Institute.
3. A-Level with Chemistry or Equivalent.

For further detail about admission please visit the University Website at:

www.aiou.edu.pk

OR

Department of Chemistry, University Research Complex
Allama Iqbal Open University, H-8, Islamabad.
Contact Ph: 051-9057262

(Please do not send any fee with the application form)

c) Scheme of Studies:

Currently this programme is being offered in Islamabad region only. Later on it will be opened for the entire country wherever the appropriate tutorial support and laboratories will be available.

The BS programme is minimum of four years duration, split into eight semesters. In the first four semesters, the main emphasis will

be on basic chemistry, general and compulsory subjects. In the 5th and 6th semesters, Physical, Organic and Analytical inorganic chemistry will be offered as core courses. The specialized courses will be dealt in the seventh and eighth semester. Now, the Department is offering specialization in Organic, Inorganic/Analytical and Physical Chemistry.

The maximum duration to complete BS Chemistry Programme is **Seven Years (14 Semesters)**

SEMESTER WISE COURSE OFFERING

Semester-1

Sr. #	Course Code	Course Title	Credit Hours
1.	4421	Inorganic Chemistry	4(3+1)
2.	4401	Cell Biology Genetics & Evolution	4(3+1)
3.	4431	Pre-Calculus	3(3+0)
4.	9401	Islamiat (ODL)	3(3+0)
5.	9407	English-I (ODL)	3(3+0)

Semester-2

1.	4422	Organic Chemistry	4(3+1)
2.	4402	Diversity of Plants	4(3+1)
3.	4432	Calculus-I	3(3+0)
4.	3400	Fundamentals of Computer	4(3+1)
5.	9408	English-II (ODL)	3(3+0)

Semester-3

1.	4423	Physical Chemistry	4(3+1)
2.	4425	Basic Biochemistry	4(3+1)

3.	4443	Environmental Chemistry	4(3+1)
4.	9402	Pakistan Studies (ODL)	3(3+0)
5.	9409	English III (ODL)	3(3+0)

Semester-4

1.	4424	General Chemistry	4(3+1)
2.	4426	Statistics for Chemists	4(3+1)
3.	4442	Environmental Pollution	4(3+1)
4.	9404	Public Relations (ODL)	3(3+0)

Semester-5

1.	2573	Analytical Chemistry-I	3 (3+0)
2.	2575	Physical Chemistry-I	3 (3+0)
3.	2576	Organic Chemistry-I	3 (3+0)
4.	2577	Inorganic Chemistry-I	3 (3+0)
5.	2594	Mathematics for Chemists	2 (2+0)
6.	2595	Chemistry Lab-I	4 (0+4)

Semester-6

1.	2574	Analytical Chemistry-II	3 (3+0)
2.	2580	Physical Chemistry-II	3 (3+0)
3.	2581	Organic Chemistry-II	3 (3+0)
4.	2582	Inorganic Chemistry-II	3 (3+0)
5.	2596	Chemistry Lab-II	4 (0+4)

SPECIALIZATION IN ORGANIC CHEMISTRY

Semester-7

Sr. #	Course Code	Course	Credit Hours
1.	2585	Heterocyclic Chemistry	3 (3+0)
2.	2586	Stereochemistry of Organic Compounds	3 (3+0)

3.	2589	Spectroscopic Methods in Organic Chemistry	3 (3+0)
4.	2597	Advanced Organic Chemistry Lab-I	3 (0+3)
5.	2598	Advanced Organic Chemistry Lab-II	3 (0+3)

Semester-8

1.	2587	Chemistry of Natural Products	3 (3+0)
2.	2590	Special Organic Reactions	3 (3+0)
3.	2591	Organic Synthesis	3 (3+0)
4.	2537	Advance Organic Chemistry Lab-III	3 (0+3)
5.	2538	Advance Organic Chemistry Lab-IV	3 (0+3)

SPECIALIAZATION IN INORGANIC/ANALYTICAL CHEMISTRY

Semester-7

Sr. #	Course Code	Course	Credit Hours
1.	2539	Coordination Chemistry	3(3+0)
2.	2540	Non-Spectroscopic Instrumental Methods of Analysis	3(3+0)
3.	2541	Basic Instrumental Methods of Analysis	3(3+0)
4.	2542	Advance Inorganic Chemistry Lab-1	3(0+3)
5.	2543	Advance Inorganic Chemistry Lab-II	3(0+3)

Semester-8

1.	2544	Organometallic Chemistry	3(3+0)
2.	2545	Group Theory for Chemist & its Applications	3(3+0)

3.	2547	Advanced Environmental Chemistry	3(3+0)
4.	3561	Advance Inorganic Chemistry Lab- III	3(0+3)
5.	3562	Advance Inorganic Chemistry Lab-IV	3(0+3)

SPECIALIAZATION IN PHYSICAL CHEMISTRY

Semester-7

Sr. #	Course Code	Course Title	Credit Hours
1.	2548	Chemical Kinetics	3 (3+0)
2.	2549	Quantum Chemistry	3 (3+0)
3.	2550	Electrochemistry	3 (3+0)
4.	2568	Advance Physical Chemistry Lab-1	3 (0+3)
5.	2569	Advance Physical Chemistry Lab-II	3 (0+3)

Semester-8

1.	2570	Molecular Spectroscopy	3(3+0)
2.	2571	Chemical Thermodynamics	3(3+0)
3.	2599	Surface Chemistry	3(3+0)
4.	3563	Advanced Physical Chemistry Lab-III	3(0+3)
5.	3564	Advanced Physical Chemistry Lab-IV	3(0+3)

d) Fee Structure

Registration Fee:	Rs.500/-
Admission Fee:	Rs.1000/-
Technology Fee (per semester)	Rs.500/-
Course Code (Lab)	Fee
4401	Rs.8000/-

4421	Rs.8000/-
4431	Rs.6000/-
9401	Rs.600/-
9407	Rs.600/-
Lab fee (per semester)	Rs.6000/-
First Semester Fee	Rs.31,200/-

f) Instructional Methodology

Study Material:

Prescribed books/ study material/ reprinted or compiled course books will be provided by the University. However, the students are advised to consult other books from the list of recommended books for further reading.

Mode of Teaching:

In this programme, regular classes for all science courses and practical work will be conducted at AIOU Main Campus. Minimum 70% attendance is required in science subjects as per AIOU rules. However, compulsory courses i.e. Pakistan Studies, Islamiyat, English, and a course from Social Sciences will be offered on distance learning mode. The tutorial meetings of all ODL courses will be held at campus to facilitate the students and for smooth running of the programme.

Assessment System

Method of Assessment for Theory and Laboratory Courses AIOU has adopted GPA/CGPA system from Spring Semester 2009 in all its four years Bachelor Degree programmes.

Continuous Assessment:

Continuous assessment will be based on assignments and class tests. The pass percentage in assignment(s)/test(s) will be 50%. Assessment for all laboratory courses will be totally based on continuous assessment. A specific number of experiments will be conducted in each lab. Each experiment will be assessed separately. Minimum pass marks for each laboratory course will be 50%. The weightage of assignment/test & practical workshop in the final result will be 30%.

Final Examination:

Final examination of 100 marks for theory course will be conducted at the end of semester. The pass percentage in final examination will be 50% and its weightage in the final result will be 70%. Student will have to successfully complete each component independently to pass a course.

Method of Assessment for Laboratory Courses:

Assessment for all laboratory courses will be totally based on continuous assessment. As already mentioned, the laboratory courses will be offered in the form of workshops. A specific number of experiments will be conducted in each workshop. Each experiment will be assessed separately, and attendance in these workshops will be compulsory for every student. Minimum required marks to pass each laboratory course will be 50%.

Degree Requirements:

In order to become eligible for the award of degree of BS Chemistry, the student will have to successfully complete all the courses within a minimum period of four years (8 semesters).

FACULTY MEMBERS

- 1. Dr. Uzma Yunus**
Associate Professor
Ph: 051-9057755
- 2. Dr. Moazzam H. Bhatti**
Associate Professor
Ph: 051-9057262
- 3. Dr. Muhammad Sher**
Associate Professor
Ph: 051-9057198
- 4. Dr. Nasima Arshad**
Associate Professor
Ph: 051-9057756
- 5. Dr. Muhammad Zaman Ashraf**
Assistant Professor
Ph: 051-9057182
- 6. Dr. Mehwash Zia**
Lecturer
Ph: 051-9057252
- 7. Dr. Farzana Shaheen**
Lecturer
Ph: 051-9057198
- 8. Dr. Iqbal Ahmed**
Assistant Professor
Ph: 051-9057874
- 9. Dr. Erum Jabeen**
Lecturer
Ph: 051-9057414

DEPARTMENT OF COMPUTER SCIENCE

Introduction:

The Department of Computer Science was established in the year 2000. The Department has received recognition nationwide due to its quality education. The department had developed curricula of the academic programmes at various levels to meet the national and international standards as defined by Higher Education Commission. The curricula include PhD (computer Science), MS (Computer Science), BS (Computer Science) and Postgraduate Diploma (PGD) in Computer Science.

The department is equipped with latest computers and services including a digital class room and multimedia courseware development lab. The department has its own library in addition to central library of the university. The department practices the multi-method teaching methodology i.e. face-to-face regular classes for BS (Computer Science) and MS (Computer Science). *The online methodology is practiced for PGD (Computer Science) AND Foreign Language (French). The facilities of Video/Teleconferencing are also in use for lectures/consultations in research oriented degree of MS/PhD (Computer Science).* In addition, the department also has a flavor of distance teaching in selected courses of BS (Computer Science) programme like English, Pakistan Studies, and Islamic Studies etc.

Besides graduate and undergraduate teaching, the department is actively involved in research and development. For this purpose Multimedia Centre and Open Learning Institute of Virtual Education (OLIVE) have been established at AIOU. In addition to research activities in the area of software engineering communication, networking, and multimedia, the department focuses on the e-learning research in instruction design, communication, course management, e-assessment, and other related areas of e-learning.

BS (Computer Science) Programme

a) Introduction:

BS (Computer Science) programme provides a good mix of courses in computer science, social science, basic sciences, management, and humanities. The BS (Computer Science) courses are aimed at core computer science field and include theoretical foundation and skills in computing and programming. The BS (CS) graduates will be eligible to apply for admission in postgraduate studies in many international universities, since the BS (CS) curriculum meets the requirements of IEEE/ACM Curriculum Recommendations Committee. They will also be eligible to get admission in the MS (CS) Programme of AIOU.

The BS (CS) is 140 credit hours programme and may be completed in minimum four years (eight semesters). Two semesters are offered in a year as Spring and Autumn. The duration of each semester is 18 weeks.

Note:

The maximum time limit to complete the BS (CS) Programme is Seven Years from the date of first registration of the student in this programme.

b) Objectives:-

- To develop the professionals in the field of Computer Science.
- To provide high quality education at low cost.
- To provide knowledge to individuals seeking computer skills to increase their job opportunities in their current careers or to pursue new careers.
- To learn in-depth knowledge of computer languages, Software Engineering, computer architecture, large-scale system software and multimedia in the design.
- To provide outreach for rural areas.
- To provide sufficient conceptual and skill based know how so that successful graduates could initiate IT career in industry and academia.

c) Eligibility

The minimum requirements for admission in a Bachelor degree program in Computer Science is at least 50% marks in Intermediate (HSSC) examination with mathematics or equivalent qualification with mathematics certified by IBCC.

d) Offering of BS (CS)

The Department of Computer Science is offering BS (CS) Program at Main Campus, Islamabad.

e) Applying/Admission Procedure

- Visit AIOU Website <https://online.aiou.edu.pk>
- Click on “Merit Based Admissions (BS/Masters/MS/MPhil/PhD)”
- Click ‘Register’ & fill details
- Upon successful registration please click on login
- Fill login details and login to the portal
- After login click on Step-1 and complete your profile. Note: All four tabs should be filled before applying for admissions.
- After completion of Step-1, click on Step-2 then click on “Download Challan” against program (s) you wish to apply.
- Visit any authorized bank branches to submit registration fee in the NEXT WORKING DAY.
- After successful registration fee submission, please go to Step-2 and click on “Apply” and fill fee details.

Selection Criteria

- Selected candidates will be contacted via SMS after short listing for payment of first Semester Fee.
- You can also check the status at: <https://online.aiou.edu.pk> by going to “Admission Status” section.
- Selected candidates shall download the Challan Form of First Semester Fee from his/her portal and submit it in authorized bank branches.
- Finally, he/she shall be required to **visit the Department of Computer Science (Block # 24, Sector H-8, AIOU,** to verify the original documents and submit admission from along with fee receipt and related documents.

f) Scheme of Study

Semester 1

	Code	Title	Credit Hours	Fee (Rs.)
1.	9407	Compulsory English-I+ (ODL)	3(3+0)	600/-
2.	9402	Pakistan Studies+ (ODL)	3(3+0)	600/-
3.	9401/ 418	Islamiyat /Ethics+(ODL) (For Non-Muslims)	3(3+0)	600/-
4.	9421	Introduction to ICT	3(2+1)	6000/-
5.	9423	Mathematics for Computing-I	3(3+0)	6000/-
6.	9422	Basic Electronics	3(2+1)	6000/-

Semester 2

	Code	Title	Credit Hours	Fee (Rs.)
1.	9413/ 9414	Foreign Language (Arabic+) / (French*)	3(3+0)	Rs.600/- with Arabic and Rs.3770/- with French Online
2.	3403	Mathematics for Computing-II	4(3+1)	8000/-
3.	3407	Programming Language-I	4(3+1)	8000/-
4.	3409	Digital Logic Design	4(3+1)	8000/-
5.	3454	Linear Algebra	3(3+0)	6000/-

Semester 3

	Code	Title	Credit Hours	Fee (Rs.)
1.	3406	Discrete Mathematics	4(4+0)	8000/-
2.	3411	Programming Language-II	4(3+1)	8000/-

3.	3438	Computer Communications & Networks	4(3+1)	8000/-
4.	3453	Computer Organization & Assembly	3(2+1)	6000/-
5.	3456	Business Communication	3(3+0)	6000/-

Semester 4

1.	3408	Data Structure	3(2+1)	6000/-
2.	3415	Programming Languages-III	3(2+1)	6000/-
3.	3416	Computer Architecture	3(3+0)	6000/-
4.	3447	Statistics & Probability	3(3+0)	6000/-
5.	3457	Management Theory & Practice	3(3+0)	6000/-
6.	3496	Ordinary Differential Equations	3(3+0)	6000/-

Semester 5

1.	3410	Database-1	4(3+1)	8000/-
2.	3414	Software Engineering-1	4(4+0)	8000/-
3.	3439	Operating System	4(4+0)	8000/-
4.	3452	Theory of Automata	3(3+0)	6000/-
5.	3466	Analysis & Design of Algorithms	3(3+0)	6000/-
6.	4470	**BS Internship Seminar	0	0

Semester 6

1.	3412	Research Methods	3(3+0)	6000/-
2.	3449	Human Computer Interaction	3(2+1)	6000/-
3.	3451	Artificial Intelligence	3(3+0)	6000/-
4.	3461	Management Information System	3(3+0)	6000/-

5.	3468	Compiler Construction	3(3+0)	6000/-
6.	3497	Information Security	3(3+0)	6000/-

Semester 7

	Code	Title	Credit Hours	Fee (Rs.)
1.	3498	Software House Practices	3(3+0)	6000/-
2.	3499	Mobile Application Development	3(2+1)	6000/-
3.	-	CS Major-I	-	
4.	-	CS Major-II	-	
5.	-	CS Major-III	-	

Semester 8

1.	-	CS Major-IV	-	
2.	-	CS Major-V	-	
3.	-	CS Major-VI	-	
4.	3475	Project	6(0+6)	12000/-

* The course is offered in online mode in collaboration with Government of France.

+ These courses are offered in distance learning mode.

**BS Internship Seminar: The student will be assigned an internship task that he/she should complete in 4-6 weeks and give a seminar.

Note: 3 (3 + 0) means 3 hours lecture per week,
 3 (2 + 1) means 2 hours lecture and 3 hours lab per week,
 4 (3 + 1) means 3 hours lecture and 3 hours lab per week,
 4 (4 + 0) means 4 hours lecture per week.

The 3475 project course (6 credit hours) is compulsory. In addition the student may take 20 credit hours from the Computer

Science Major list. University may add major area or may add courses to a major area.

Major Areas of Specialization (BS (CS) Electives)
Software Engineering

Code	Title	Cr. Hrs.
3465	Software Engineering–II	3(3+0)
3467	Database-II	3(3+0)
3464	Object-Oriented Analysis & Design	3(3+0)
3481	Design Patterns	3(3+0)
3482	Software Architecture	4(4+0)
3483	Software Quality & Testing	4(4+0)
3475	Project	6(0+6)

Information Technology

3442	IT Marketing Concepts	3(3+0)
3445	Database Administration	3(2+1)
3444	Network & System Administration	4(3+1)
3471	Introduction to E-Business	4(3+1)
3472	IT Services Management	3(3+0)
3473	Computer Law	3(3+0)
3475	Project	6(0+6)

Networking

3476	Networking Strategy	3(3+0)
3444	Network & System Administration	4(3+1)
3484	Data & Network Security	3(3+0)
3485	Distributed Computing	4(4+0)
3486	Wireless Networks	3(3+0)
3487	Network Programming	3(2+1)
3475	Project	6(0+6)

Multimedia

Code	Title	Credit Hours
3446	Web Design Tools	4(3+1)
3478	Multimedia Script Writing	3(2+1)
3462	Multimedia Systems	3(3+0)
3479	Multimedia Design	3(2+1)
3480	Audio & Video Production	3(2+1)
3469	Computer Graphics	4(4+0)
3475	Project	6(0+6)

General

3465	Software Engineering–II	3(3+0)
3467	Database-II	3(3+0)
3464	Object-Oriented Analysis & Design	3(3+0)
3481	Design Patterns	3(3+0)
3482	Software Architecture	4(4+0)
3483	Software Quality & Testing	4(4+0)
3442	IT Marketing Concepts	3(3+0)
3445	Database Administration	3(2+1)
3444	Network & System Administration	4(3+1)
3471	Introduction to E-business	4(3+1)
3472	IT Services Management	3(3+0)
3473	Computer Law	3(3+0)
3476	Networking Strategy	3(3+0)
3484	Data & Network Security	3(3+0)
3485	Distributed Computing	4(4+0)
3486	Wireless Networks	3(3+0)
3487	Network Programming	3(2+1)

3446	Web Design Tools	4(3+1)
3478	Multimedia Script Writing	3(2+1)
3462	Multimedia Systems	3(3+0)
3479	Multimedia Design	3(2+1)
3480	Audio & Video Production	3(2+1)
3469	Computer Graphics	4(4+0)
3404	Physics	4(4+0)
3402	Programming Concepts	4(3+1)
3413	Data Communication	4(4+0)
3477	Design Fundamentals	3(3+0)
3418	Networking Design	3(3+0)
3417	Numerical Analysis	3(2+1)
3475	Project	6(0+6)

The Department of Computer Science reserves the right to offer or may not offer listed specialization area or a particular course depending upon the available faculty/laboratory resources and viable student's enrollment. The department may add other specialized areas or may add elective courses to any specialized defined area.

g) Assessment

Course Work: The following assessment criteria are applied to BS (Computer Science) programme:

ASSESSMENT TYPE		COURSE TYPE							
		Face to Face		Distance Learning		French Online		Project	
		Qty	Wt (%)	Qty	Wt (%)	Qty	Wt (%)	Qty	Wt (%)
Continuous	Assignments	2	10	2	30	2	10	-	-
	Midterm Test or Lab	1	20	-	-	1	20	-	-
	Presentation	-	-	-	-	-	-	4	30
Final	Written Paper	1	70	1	70	1	70	-	-
	Viva Voce	-	-	-	-	-	-	1	70
Total Marks (%)		100		100		100		100	

The passing of a course requires aggregate scoring in continuous assessment and final examination as per AIOU rules. There is laboratory test for laboratory oriented courses and written midterm test for courses without laboratory work.

1. The detail about the project is available at the Study Centers.

h) Fee Structure

Also keeping in line with the tradition of low cost educational

services, the fees of BS (CS) programme courses is affordable. The details of the fee payable are given below:

First Semester Fee for BS (CS) Programme

Item	Rate	Total
Registration Fee: (at the time of 1 st admission)	Rs.500/-	Rs.500/-
Admission Fee: (at the time of 1 st admission)	Rs.1000/-	Rs.1000/-
Tuition Fee: Distance Courses: per course	Rs.600/-	3×600/- = Rs.1800/-
Face to Face Course Fee: Per Course	Rs.6000/-	3×6000/- = Rs.18000/-
Technology Fee (each semester)	Rs.500/-	Rs.500/-
Lab Fee	Rs.5000	Rs.5000/-
Total Fee for First Semester		Rs.26800/-

All students are required to pay full fees as prescribed at the beginning of each semester. The university reserves the right to revise the fee structure as deemed or to add any fee considered appropriate at any time during the study period. All such changes will be applicable to all students.

i) Programme Coordinator:

For further information, please feel free to contact:

Chaudhary Muhammad Shahbaz Anjum

Email: dcs@aiou.edu.pk

Phone No: 051-9057780, 051-9057809

Faculty Members

Prof. Dr. Irshad Ahmad Arshad

Dean, Faculty of Sciences

Contact: 051-9057729

1. Dr. Moiz Uddin Ahmed

In-Charge, DCS/

Assistant Professor, DCS, AIOU

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2. Mohammad Qasim Khan

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Email: qasim@aiou.edu.pk

Contact #: 051- 9057260

3. Dr. Muhammad Arshad Awan

Assistant Professor, DCS, AIOU

Contact #: 051-9057790

4. Chaudhary Muhammad Shahbaz Anjum

Lecturer, DCS, AIOU

Contact #: 9057780

5. Ms. Sana Naseem Karam

Lecturer, DCS, AIOU

Contact #: 9057158

6. Mr. Tahir Javed

Lecturer, DCS, AIOU

Contact #: 051-9057440

7. Dr. Muhammad Babar

Assistant Professor, DCS, AIOU

Email: Muhammad.babar@aiou.edu.pk

Contact #: 051-9057801

DEPARTMENT OF MATHEMATICS

Introduction:

The Department of Mathematics has been established in June 2014. In June 2014, the Department of Mathematics & Statistics has been bifurcated as two independent departments. Presently the Department is offering courses of Mathematics at Secondary School Certificate (SSC), Higher Secondary School Certificate (HSSC) and Bachelor levels. The Department is offering the following programmes:

- MSc Mathematics
- MPhil Mathematics
- BS Mathematics

In future the Department intends to start PhD Mathematics programme. BS Mathematics has been designed after consulting syllabi of national and international universities. BS Mathematics programmes will strengthen the mathematical concepts of the candidates and will enhance their logical thinking. These programmes cater the needs of information Technology and other sciences disciplines.

BS Mathematics Programme

a) Introduction:

To meet the challenging requirements of today's fast growing world, the Department of Mathematics has planned to launch

BS Mathematics Programme. The BS degree is deemed equivalent to MSc Mathematics. BS degree holders are being preferred throughout the world as their knowledge is more focused on Mathematics. Our BS Mathematics programme will produce well trained, highly numerate and computer literate graduates.

b) Objectives:

- To enhance the qualification of those who could not continue their education after FSc through formal universities.
- To provide an opportunity to in service persons to improve their qualification and get promotion in their respective departments.
- To provide in-depth understanding of Mathematics and apply them in real life projects.
- To produce quality teacher/researchers of Mathematics at all levels.

Summary of the Programme:

Duration: 8 semesters (4 years)
Total Credit Hours: 134.

c) Eligibility:

Candidates having HSSC (Math as major subject) or equivalent with minimum 2nd division.

Merit Criteria:

After scrutinize the eligible candidates, the department will call the eligible applicants for interview and admission committee

will recommend the suitable candidates for BS Mathematics on merit basis.

Payment of Fee:

Only selected candidates should deposit the fee after receiving the admission letter from the Department of Math, AIOU, Islamabad.

Hostel Facility:

The hostel facility is available for both male and female students of AIOU. Separate fee has to be paid for attaining the hostel facility and this facility is subject to availability.

d) Scheme of Studies:

Semester-1

Sr. No.	Course Code	Course Title	Credit Hours
1	9407	English-I (ODL)	3(3+0)
2	4432	Calculus-I	3(3+0)
3	9402	Pakistan Studies (ODL)	3(3+0)
4	3400	Fundamentals of Computer	4(3+1)
5	4434	Introductory Statistics	3(3+0)
6	4471	Set Theory and Logic	3(3+0)

Semester-2

1	9408	English-II (ODL)	3(3+0)
2	4433	Calculus-II	3(3+0)
3	9403	Pakistani Adab-I (ODL)	3(3+0)
4	1549	Discrete Mathematics-I	3(3+0)
5	4441	Introduction to Environmental Sciences	4(3+1)

6	9410	Introduction to Sociology: Culture and Society (ODL)	3(3+0)
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Semester-3

1	9409	English-III (ODL)	3(3+0)
2	9401	Islamiyat (ODL)	3(3+0)
3	5459	Waves & Oscillations	3(3+0)
4	4472	Algebra-I	3(3+0)
5	4473	Analytical Geometry	3(3+0)
6	4474	Vector and Tensor Analysis	3(3+0)

Semester-4

Sr. No.	Course Code	Course Title	Credit Hours
1	4489	Probability Theory & Statistics	3(3+0)
2	5461	Heat & Thermodynamics	3(3+0)
3	4475	Algebra-II	3(3+0)
4	4476	Mathematical Methods	3(3+0)
5	9413/ 9414	Language Arabic / French (ODL)	3(3+0)
6	4477	Computing Tools	3(2+1)

Semester-5

1	1520	Computer and Scientific Application C++	3(3+0)
2	1521	Topology	3(3+0)
3	1522	Linear Algebra	3(3+0)
4	1523	Real Analysis-I	3(3+0)
5	1525	Ordinary Differential Equations	3(3+0)

Semester-6

1	1524	Differential Geometry	3(3+0)
2	1527	Complex Analysis	3(3+0)
3	1528	Group Theory	3(3+0)
4	1529	Analytical Mechanics	3(3+0)
5	1530	Real Analysis-II	3(3+0)

Semester-7

1	1531	Numerical Methods	3(3+0)
2	1532	Partial Differential Equations	3(3+0)
3	1533	Functional Analysis	3(3+0)
4	1534	Theory of Rings	3(3+0)
5	1538	Mathematical Statistics-I	3(3+0)

Semester-8

1	1537	Optional-I, Operation Research	3(3+0)
2	1539	Optional-II, Combinatorics	3(3+0)
3	1546	Optional-III, Mathematical Modeling	3(3+0)
4	1544	Optional-IV, Optimization	3(3+0)
5	4478	Optional-V, Mathematical Finance-I	3(3+0)

Optional Courses

Sr. No.	Course Code	Course Title	Credit Hours
1	4478	Mathematical Finance-I	3(3+0)
2	4479	Theory of Racks and Quandles	3(3+0)
3	4480	Research Project	3(0+3)
4	1535	Fluid Mechanics	3(3+0)

5	1540	Applied Number Theory	3(3+0)
6	1542	Mathematical Statistics-II	3(3+0)
7	1544	Optimization	3(3+0)
8	1545	Analytical Dynamics	3(3+0)
9	1546	Mathematical Modeling	3(3+0)
10	1547	Graph Theory	3(3+0)
11	1550	Research Report	3(3+0)
12	1537	Operation Research	3(3+0)
13	1539	Combinatorics	3(3+0)
14	1541	Galois Theory	3(3+0)
15	1548	Algebraic Topology	3(3+0)
16	1536	Relativistic Mechanics	3(3+0)
17	9415	History of Mathematics	3(3+0)

e) Fee Structure:

Registration Fee:	Rs.500/-
Admission Fee:	Rs.1000/-
Technology Fee (per semester)	Rs.500/-
Course Code (Lab)	Fee
3400	Rs.8000/-
4432	Rs.6000/-
4434	Rs.6000/-
4471	Rs.6000/-
9402	Rs.600/-
9407	Rs.600/-
Lab fee (per semester)	Rs.750/-
First Semester Fee	Rs.29,950/-

e) Applying for Admission Procedure:

Please send prescribed admission forms (duly filled in) along with the attested copies of testimonials/marks sheet before or on the closing date to:

**Department of Mathematics
Block # 07, Allama Iqbal Open University
Sector H-8, Islamabad**

Instructional Methodology:

Study material:

Books (soft copies) will be provided to the students, along with the list of recommended books for further readings. Two assignments for each course will be given.

Mode of Teaching:

For each course, 45 hours face to face teaching at main campus Islamabad will be required. In this regard, classes will be arranged by the Department at AIOU main campus Islamabad. The schedule of the lectures will be distributed to students at the start of classes during each semester at AIOU, Islamabad. Minimum 70% attendance is necessary in all subjects as per AIOU rules.

Assignment/Test:

Two assignments for each course will be given in a semester for practice only, having no weightage. 30% weightage of the aggregate marks will be given to the sessional tests.

Final Examination:

Final Examination will be held at Main Campus, AIOU, Islamabad at the end of each semester. 70% weightage of the aggregate marks will be given to the final exam.

Minimum Passing Marks:

Assignments/Class test(s)	50%
Final Examination	50%
Aggregate	50%

Note: The student has to qualify each component of a course separately.

FACULTY MEMBERS

- 1. Dr. Nasir Rehman**
Associate Professor/Chairman Ph: 051-9057191, 9250056
 - 2. Dr. Naqeeb-ur-Rehman**
Assistant Professor
Ph: 051-9057339
 - 3. Mr. M. Faisal Iqbal** (M.Sc Coordinator)
Lecturer
Ph: 051-9057380
 - 4. Dr. Irfan Mustafa**
Lecturer, (M.Phil Math Coordinator)
Ph: 051-9057155
 - 5. Dr. M. Nazam**
Lecturer
Ph: 051-9057734
 - 6. Dr. Bismah Jamil**
Lecturer, (BS Math coordinator)
Ph: 051-9057191
 - 7. Ms. Fouzia Rehman**
Research Associate
Ph: 051-9057393
- **Staff:**
Department of Mathematics
Ph: 051-9057334

DEPARTMENT OF PHYSICS

Introduction:

Realizing the need of technology and scientific education in Pakistan Department of Physics at AIOU began in 1998 with technological needs in areas like Energy, Energy Efficiency, Climate, Energy for Sustainable Development, Renewable Energy, Hydrogen Energy, Environment, Astronomy, Nanotechnology, Materials Science, Plasma Physics, Medical Physics, Cosmology, Geo Physics, Density Functional Theory (DFT), and Nuclear fields. A major emphasis of current research activities is on promotion in renewable energy and related areas in which the Department has led to innovations.

The Department is presently running BS, MSc, MPhil and PhD degree programme with specialization in various disciplines. New fields of specialization and programme of studies are approved and be operational from the next academic year. Apart from capacity development, activities Department of Physics has been involved in several international, national and regional research projects. Physics Department has developed research linkage with other National and International Universities and research organizations of repute to ensure two-way flow of knowledge.

Vision:

The Department of Physics carries out wide range of teaching and research programmes that will contribute significantly to the development of human capacity, science

and technology in Pakistan. Our vision is to see our graduates and postgraduates to be equipped with the fundamental knowledge of Physics, problem solving and communication skills. This will be achieved by reviewing and developing relevant academic programmes and research projects to address Pakistan technological needs in areas like Energy, Renewable Energy, Hydrogen Energy, Environment, Astronomy, Nanotechnology, Materials Science, Plasma, Medical Physics, Cosmology, Geo Physics, Density Functional Theory (DFT), and Nuclear Physics. Our vision is to be a locally and internationally recognized Physics Department that exposes its successes in public awareness campaign and through established knowledge dissemination channels.

Mission:

The Department of Physics at AIOU becomes a nationally and internationally recognized research and educational unit. Our faculty strives to push the boundaries of our understanding in a wide variety of fundamental and applied Physics areas while providing the best research opportunities for our majors. The blending of classroom learning with training in XXI Century front-edge research facilities allows our graduates and postgraduates to become successful researchers, teachers and applied scientists in nowadays-competitive marketplace. At the same time, we are fully committed, as the physics department of the major research university in our border region, to contribute to the general public appreciation and respect for the scientific work and knowledge.

Core Values:

To perform to the highest levels of competence and professionalism in research and training, acting with utmost honesty and integrity while instituting measures that meet the need of all stake holders advance knowledge and technologies, Generate, preserve and disseminate knowledge and be involved in the development of innovative products, Cherish academic freedom, nurture and reward talent. The Department aspires to be an effective agent of change and a model for the other Department in the field of research so as to meet the grooming demands of the new millennium.

Excellence in Research Undergraduate, Postgraduate Education Training

The department of Physics was established in March 1998. We are proud to be one of the largest and most prestigious physics departments in the Pakistan with an outstanding reputation for excellence in research, undergraduate and post graduate education. The department offers undergraduate degree programmes, Master level programmes and Doctoral programmes. We have a vibrant research programmes that a broad-based coverage of fundamental and applied Physics. The department of Physics is offering these programmes in collaborations with other institutions actively foster development of new research fields. We have recently established the training programmes for engineers, researchers, scientists and faculty members of public and private universities of industrial partners. We are committed to providing a positive environment that encourages everyone to explore this potential.

Due to the flexibility and advantage of the distance learning system, AIOU has retained the best of the professionals already teaching at post graduate level in different teaching institutions in the country. There is a minimum of 45 hours of face-to-face teaching for each three credit hour course. The students spend 70 to 75 hours in the laboratories for each two credit hour laboratory course.

The courses are designed and developed by well-known experts in the field of physics. The latest available teaching material is written/ compiled in the form of textbooks/ CDs to facilitate the students. Every effort has been made to make these programmes skill oriented and thus job oriented. The degree awarded by AIOU in this discipline is accredited and at par with the other universities.

Aims and Objectives:

1. To promote Physics and to provide opportunity to those who could not educate themselves in formal system of education for one reason or another.
2. To meet the acute shortage of highly qualified manpower in the field of physics by producing skilled teachers and research scientists.
3. To introduce new research areas in Physics.

BS Physics**Objectives of the Programme:**

The main educational objectives of BS (4-year) degree programme are:

1. To impart students with a conceptual understanding of the fundamental principles of Physics, natural laws and their interpretation, as well as mathematical formulation of the physical phenomena in nature.
2. To develop critical skills necessary for solving unknown problems from our physical surroundings.
3. To develop the capability of analyzing, addressing and posing solutions to problems of natural importance and to instill a deep appreciation of the need for optimum utilization of natural resources and environment.
4. To instill in students the habit of independent thinking, deep inquiry, and motivation for self-education.
5. To sharpen our students' mathematical prowess making them capable of modeling, analyzing and predicting the behaviour of physical processes.
6. To enhance our students skills in scientific communication and the ability to clearly present physics and science in simple and clear language.
7. To introduce to students the spirit of working in interactive groups with the necessary requirements of scientific and professional ethics.
8. To develop hands-on experience in different laboratory techniques, modern instrumentation.
9. To enhance student competence in the design and conduct of experiments and analysis and presentation of experimental data and results.
10. To provide an in-depth understanding of some specialized area of Physics through the option of elective courses.

11. To equip students with the necessary skill set for pursuing careers in Physics education, research and industry in government or private organizations.

Eligibility Requirements:

- i) FSc / I.Cs (Physics, Mathematics combination) / DAE with 45% marks or 2nd division.
Admissions will be merit based and on number of seats available.
Interview will be conducted in the Department for selection of students.
- ii) **Access to B.Sc. students in BS 4-years Physics Program (5th Semester)**
The bridging semester will be offered for B.Sc. students, so that they may be allowed to continue with students of BS Physics 4-years program in 5th semester.
Deficiency courses for bridging Semester for B.Sc. students for admission in BS Physics Program
 - Introduction to Computers (5468)
 - Technical & Business Writing (5454)
 - Sociology (5469)
 - Communication Skills (5458)
 - Mass Communication (5471)
 - Fundamental of Environmental Sciences (5474)

Note: The admission and eligibility criteria will be changed accordingly (as per AIOU rules) but the final assessment will be as same as for BS Physics Program.

Eligibility (for B.Sc./BSEd Students only):

- A candidate possessing at least 2nd division B.Sc/B.S.Ed degree with Physics & Mathematics combination is eligible to apply for admission.
- Admissions will be strictly on merit and on number of seats available.
- Interview will be conducted in the Department.

Fee Structure:

Per credit hour course fee will be Rs. 2000/-

Remaining charges will be applied as per AIOU rules.

iii. **Entry of Students in BS (4-year) having B.Sc. or AD Degree:**

- If a student is not eligible to get his required GPA in BS programme, he/she will be offered Associate Degree condition to the fulfillment of all AD requirements.
- Student enrolled in BS (4-years) can opt Associate Degree during his first four semesters.
- A student may be allowed to get admission in BS 5th semester after completion of Associate Degree.
- Students having Associate Degree (AD) in respective disciplines will be offered admission in BS 5th semester directly as per merit and rules.
- Degree nomenclature will be dealt according HEC guidelines and AIOU policy.

SCHEME OF STUDIES: (BS Physics)**Semester Wise Course Offering****Semester-1**

S. No.	Code	Course Title	Credit Hours
1.	5451	English Composition & Comprehension	3(3+0)
2.	5465	Pak Studies	2(2+0)
3.	5475	Basic Calculus -I	3(3+0)
4.	5468	Introduction to Computers	3(3+0)
5.	5452	Mechanics	4(3+1)
6.	5453	Laboratory for Mechanics & Fluids	1(1+0)
7.	5469	Sociology	3(3+0)

Semester-2

S. No.	Code	Course Title	Credit Hours
1.	5454	Technical & Business Writing	3(3+0)
2.	5466 5467	Islamic Studies or Ethics (for non-Muslim students only)	2(2+0)
3.	5476	Basic Calculus-II	3(3+0)
4.	5455	Electricity & Magnetism	4(3+1)
5.	5456	Laboratory for Electricity & Magnetism	1(1+0)
6.	5459	Waves & Oscillations	3(3+0)
7.	754	Laboratory Techniques and Error Propagation	3(3+0)

Semester-3

S. No.	Code	Course Title	Credit Hours
1.	5458	Communication Skills	3(3+0)
2.	5477	Algebra in Physics	3(3+0)
3.	5461	Heat & Thermodynamics	3(3+0)
4.	5460	Laboratory for Thermodynamics	1(1+0)
5.	5470	Fundamentals of Statistics	3(3+0)
6.	5471	Mass Communication	3(3+0)

Semester-4

S. No.	Code	Course Title	Credit Hours
1.	5457	Modern Physics	3(3+0)
2.	5472	Differential Equations	3(3+0)
3.	5473	Probability & Statistics	3(3+0)
4.	5462	Optics	3(3+0)
5.	5463	Laboratory for Optics & Spectroscopy	1(1+0)
6.	5474	Fundamentals of Environmental Sciences	3(3+0)

Semester-5

S. No.	Code	Course Title	Credit Hours
1.	751	Mathematical Methods in Physics-1	3(3+0)
2.	752	Classical Mechanics & Relativity	3(3+0)
3.	2564	Electronics	3(3+0)
4.	2551	Atomic & Molecular Physics	3(3+0)
5.	766	Laboratory for General & Nuclear Physics	2(2+0)

Semester-6

S. No.	Code	Course Title	Credit Hours
1.	755	Mathematical Methods in Physics-II	3(3+0)
2.	756	Quantum Mechanics-I	3(3+0)
3.	765	Electromagnetic Theory – I	3(3+0)
4.	2566	Thermal & Statistical Physics	3(3+0)
5.	769	Computational Physics	3(3+0)
6.	762	Laboratory for Electronics	2(2+0)

Semester-7

S. No.	Code	Course Title	Credit Hours
1.	2565	Electromagnetic Theory – II	3(3+0)
2.	759	Quantum Mechanics-II	3(3+0)
3.	761	Solid State Physics-I	3(3+0)
4.	758	Lasers & Optics	3(3+0)
5.	2553	Digital & Compute Hardware Electronic	3(3+0)
6.	2556	Laboratory for Digital & Computer Hardware Electronics	3(3+0)

Semester-8

S. No.	Code	Course Title	Credit Hours
1.	5464	Research Techniques	3(3+0)
2.	760	Nuclear Physics	3(3+0)
3.	2560	Advanced Digital & Computer Hardware Electronics	3(3+0)
4.	2561	Laboratory for Advanced Digital & Computer Hardware Electronics	4(4+0)
5.	2559	Electronic Communication System	3(3+0)

Total Credit Hours: 135

Degree Requirement:

For the award of BS (Physics) degree, the students will have to complete the courses offered equivalent to 135 credit hours within a minimum period of eight semesters.

Fee Structure

Registration fee:	Rs. 500/-
Admission fee:	Rs.1000/-
Technology fee: (per semester)	Rs.500/-
Course Code (Lab)	Fee
5451	Rs.6000/-
5452	Rs.8000/-
5453	Rs.2000/-
5465	Rs.4000/-
5468	Rs.6000/-
5469	Rs.6000/-
5475	Rs.6000/-
First Semester Fee	Rs.40,000

Note: Only selected candidates will be informed individually to deposit the prescribed fee in the AIOU main campus branches on same date.

Instructional Methodology:

Allama Iqbal Open University employs media mix as methodology of instruction in which printed material, audiovisual support, and face-to-face tutorial support are mixed in accordance with the requirement of the discipline and the level of course. In view of special requirements of post-graduate studies in physics the following methodology of instruction will be followed:

i) Study Material:

The University will provide reprinted and compiled course books.

ii) Tutorial Support and Workshops:

Face to Face lectures will be a support for this programme by resource persons in the lecture sessions. A minimum, 48 hours of face to face teaching for each 03 credit hour course, will be provided in these sessions. Attendance in these sessions is compulsory. Students failing to attain 70% attendance in theory courses will not be eligible to appear in the final examination. Laboratory course and its practical work will be supervised and assessed by the laboratory course supervisors. 80% attendance is compulsory for all the students in the laboratory course. AIOU will not bear any cost regarding TA/DA or boarding/lodging facilities during the classes.

iii) Schedule of classes:

The schedule of the classes will be communicated to the students through mail and message. During any workshop AIOU reserves the right to change/alter the schedule at any time.

iv) Assessment:

Student performance is evaluated / assessed as under:

Class assignment through quiz/sessional test/assignment
weightage = 20%

Theory Course with 70% compulsory attendance & Laboratory
course with 80% compulsory attendance = 10%

Final Paper = 70%

Aggregate = 50%

At the end of each semester, the university will arrange final examination. The Roll number slips and other relevant

information related to examination centers will be provided to the students before the examination. The students who fail in the final examination will be allowed two more chances to reappear in immediate subsequent semester examinations on payment of examination fee.

Admission Procedure:

Only the prescribed admission forms will be entertained. Admission forms (duly filled in) along with the required documents/testimonials/marks sheets should be sent to:

BS Physics Programme Coordinator
Department of Physics,
(New Building) Research Complex / Science Block,
Ground floor, Allama Iqbal Open University,
Sector H-8, Islamabad.

Admission will be finalized after interview.

**FACULTY MEMBERS:
Department of Physics**

1. **Prof. Dr. Syed Zafar Ilyas,**
Chairman
Department of Physics,
Phone # 051-9057728
2. **Mr. Ather Hassan**
Assistant Professor
Phone # 051-9057214

3. **Dr. Surayya Mukhtar**
Assistant Professor
Phone # 051-9057184
4. **Dr. M. Tariq Jan**
Assistant Professor,
Phone# 051-9057214
5. **Ms. Hareem Mufti**
Lecturer,
Phone # 051-9057727
6. **Mr. Abdul Jalil**
Assistant Professor
Phone # 051-9057214
7. **Ms. Uzma Nosheen**
Lecturer
Phone # 051-9057727
8. **Ms. Tayyba Aftab**
Lecturer
Phone # 051-9057728
9. **Mr. Hussain Ahmed**
Research Associate,
Phone # 051-9057214
- **Ms. Zeba Sultana**
UDC, Phone # 051-9057728
- **Muhammad Aman**
Laboratory Assistant
Phone # 051-9057728
- **Mr. Saeed Murtaza**
Lab. Assistant
Phone # 051-9057728

DEPARTMENT OF STATISTICS

Introduction:

The Department of Statistics was established in 1988 in the faculty of Sciences, Allama Iqbal Open University. Since then, the faculty and students have shared a common goal of maturing the Department with sheer hard work and constant struggle. Statistical sciences have significant impact on our lives and are a key to discoveries and innovation. Over the time, with concerted efforts, the Department has grown to its full potential and is vigorously involved in participating towards global efforts of driving a new era of growth, development and productivity. Since, our world is becoming more quantitative and data-focused, job opportunities in statistics are plentiful and projected to increase worldwide. Therefore, the alumni of the department of statistics have been working in various government departments and private sector.

The vision of Department is to impart quality education that focuses on collaborative learning through innovative teaching and research methodologies. It aims to create an environment that enables students to effectively engage in making lasting contributions in diverse fields according to rapidly changing demands of not only the home country but the entire globe. The Department is determined to further develop a state of the art model of learning and research, which will benefit the masses across the board.

Academic Programmes

The following degree programmes are being offered in the Department of Statistics. All these programmes are approved by Higher Education Commission, Islamabad.

1. PhD Statistics
2. MPhil Statistics
3. MSc Statistics
4. BS (4 years) Statistics

All the courses and contents of these programmes are designed to meet the challenging statistical needs in life sciences, information technology, social sciences and other allied disciplines. The course outlines of all level courses have been designed and updated recently after consulting syllabi of national and international universities. It helps to strengthen the statistical concepts and logical thinking among our students.

Presently, these degree programmes are offered at main campus only. However, in near future, the Department also intends to offer these degree programmes at main regional headquarters.

BS Statistics Programme

a) Introduction:

With the passage of time in the new era of globalization, significant changes have been made in almost all walks of life to keep in pace with the growing world. Among many other fields, improvement in existing education system has become the top most priority of many nations across the globe. Therefore, it is the need of time to modify our current education system in order to meet the international

standards. Having a vision of brighter future with compatible educated youth, the Department of Statistics is launching BS Statistics programme from Spring 2017. The BS Statistics would be sixteen years education equivalent to MSc Statistics and fulfilling the international standards of graduate degree.

b) Aims and Objectives:

1. To enhance and upgradation of qualification of those potential candidates who do not have sufficient resources to continue their studies after intermediate.
2. To enable the students to get a better insight into in depth knowledge of Statistics.
3. To produce quality teacher/researchers of Statistics at all levels.
4. To prepare well trained and skilled graduates to cater the needs of future in the field of Statistics.
5. To produce young and energetic minds in the field of Statistics in order to promote innovative research and critical thinking.

c) Eligibility:

Candidate must have at least 2nd division or 45% marks in HSSC or equivalent exams approved/verified by Inter Board Committee of Chairmen (IBCC).

Merit Criteria:

After scrutinize the eligible candidates, the department will call the eligible applicants for interview and admission committee will recommend the suitable candidates for B.S Statistics on merit basis.

Degree Requirements:

For the award of BS Statistics degree, the student will have to qualify the 134 credit hours consisting 44 courses within a minimum period of eight semesters (4 years) and maximum period of 14 semesters (7 years).

Payment of fee:

Only the selected candidates will be asked through SMS/email to deposit the required fee after download challan from AIOU website.

Hostel and Cafeteria Facilities:

The said facilities are available for the students of AIOU only. Separate fee has to be paid subject to the availability of food and space in Hostels.

Library and Internet Facilities:

The Library and internet facilities are also available at main Campus, AIOU. The Central Library is enriched with latest text & recommended books, e-books & free internet facilities.

The library also has an accessible centre for blind students. The Department of Statistics also has its own computer laboratory equipped with latest statistical software.

d) Scheme of Studies:

The full programme of BS Statistics comprises eight semesters. The all courses are compulsory to qualify for the award of BS Statistics degree. The semester wise course offering is as under.

Semester-1

Sr.#	Code	Course Title	Credit Hours
1.	3400	Fundamentals of Computer	4(3+1)
2.	4432	Calculus-I	3(3+0)
3.	4434	Introductory Statistics	3(3+0)
4.	9402	Pakistan Studies (ODL)	3(3+0)
5.	9407	English-I (ODL)	3(3+0)
6.	9412	Business Communications (ODL)	3(3+0)
Sub Total			19

ODL* (Open Distance Learning)**Semester-2**

1.	4433	Calculus-II	3(3+0)
2.	4441	Introduction to Environment Sciences	4(3+1)
3.	4486	Introduction to Regression Analysis and Experimental Designs	3(3+0)
4.	9403	Pakistani Adab-I (ODL)	3(3+0)
5.	9408	English-II (ODL)	3(3+0)
6.	9410	Introduction to Sociology: Culture & Society (ODL)	3(3+0)
Sub Total			19

Semester-3

1.	4472	Algebra-I	3(3+0)
2.	4488	Introduction to Probability and Probability Distributions	3(3+0)
3.	9401/0418	Islamiat/ Ethics (For Non-Muslim	3(3+0)

		Students only) (ODL)	
4.	9405	Principles of Marketing (ODL)	3(3+0)
5.	9409	English-III (ODL)	3(3+0)
6.	9411	Population Studies (ODL)	3(3+0)
Sub Total			18

Semester-4

Sr.#	Code	Course Title	Credit Hours
1.	4477	Computing Tools	3(2+1)
2.	4489	Probability Theory and Statistics	3(3+0)
3.	4491	Basic Statistical Inference	3(3+0)
4.	4492	Official Statistics	3(3+0)
5.	9406	Human Resource Management (ODL)	3(3+0)
6.	9413	Arabic Language (ODL)	3(3+0)
Sub Total			18

Semester-5

Sr.#	Code	Course Title	Credit Hours
1	1551	Statistical Methods	3(3+0)
2	1552	Sampling Techniques-I	3(3+0)
3	1553	Design & Analysis of Experiments-I	3(3+0)
4	1554	Probability & Probability Distributions-I	3(3+0)
5	1555	Advanced Calculus	3(3+0)
Sub Total			15

Semester-6

1	1513	Non Parametric Statistics	3(3+0)
2	1556	Probability & Probability Distributions-II	3(3+0)

3	1557	Regression Analysis	3(3+0)
4	1558	Sampling Techniques-II	3(3+0)
5	1559	Design & Analysis of Experiments-II	3(3+0)
Sub Total			15

Semester-7

1	1514	Mathematical Methods for Statistics	3(3+0)
2	1561	Statistical Inference-Estimation	3(3+0)
3	1562	Econometrics	3(3+0)
4	1563	Total Quality Management	3(3+0)
5	1564	Computer Programming (C & C++)	3(3+0)
Sub Total			15

Semester-8

Sr.#	Code	Course Title	Credit Hours
1	1566	Statistical Inference-Testing of Hypotheses	3(3+0)
2	1567	Applied Multivariate Analysis	3(3+0)
3	1569	Data Analysis and Statistical Packages	3(3+0)
4	1568	Operations Research	3(3+0)
5	1570	Research Report	3(3+0)
Sub Total			15

Total BS Statistics Programme Credit Hours = 134

Note: Elective courses will be offered by the Department as per availability of resource persons.

e) Fee Structure

Registration Fee:	Rs.500/-
Admission Fee:	Rs.1000/-
Technology Fee (per semester)	Rs.500/-
Course Code	Fee
3400	Rs.8000/-
4432	Rs.6000/-
4434	Rs.6000/-
9402	Rs.600/-
9407	Rs.600/-
9412	Rs.600/-
Lab fee (per semester)	Rs.750/-
Total Semester Fee	Rs.24,550/-

Instructional Methodology:

Face to Face teaching (Tutorials):

For each Non ODL course, there would be 48 hours face to face teaching support to the students. Three hour class/week for (3+0) credit hour for a semester of sixteen weeks. The distribution of the lectures will be provided to the students in classes/workshop after consultation with the teachers/resource persons. The classes will be supplemented by the computers where required. Over all 70%, attendance would be compulsory to appear in sessional tests.

Classes/Workshops Schedule:

The classes/workshops will be arranged at Main Campus, AIOU, Islamabad only. However, the schedule is prepared

according to the availabilities of qualified faculties and convenience of the students.

Continuous Assessment:

- Two home-assignments for each course will be given to the students.
- Two sessional exams assignments (as a continuous assignment component) for each course will be conducted and 50% marks in sessional exams assignment is mandatory to appear in final examination.
- A student having less than 50% marks in continuous assessment component would not be eligible to appear in final exam.
- However, he/she can enroll himself/herself in the same course in the next offering as per AIOU rule.
- 30% weightage of continuous assignment component marks will be added in the final exam marks for final grading given to the assignments/sessional tests.

Final Examination:

Final Examination will be held at the end of each semester. 70% weightage will be given to the final examination.

Passing Percentage:

Assignments/Sessional tests	50%
Final Examination	50%
Aggregate	50%

Note:

- The student will have to pass each component separately to pass a course. However, sessional tests must pass before to appear in the final examination.

- Please do not deposit/hand over any fee to any person along with admission form.

Applying Procedure for admission in BS Statistics

- ❖ **Step-1:** First of all register yourself on AIOU website and remember user name and password for future contact to AIOU.
- ❖ **Step-2:** Select your programme & semester and generate a dully filled admission form and challan form for fee deposit in and mentioned banks.
- ❖ **Step-3:** Post/Submit by hand the stamped Bank fee receipt and admission form on the following address.

Chairman
Department of Statistics,
Lower Ground Floor, Science Block, Sector H-8, AIOU
Islamabad Ph. No. 051-9057266, 9250062
Email: statistics@aiou.edu.pk

FACULTY MEMBERS

- 1. Prof. Dr. Irshad Ahmad Arshad**
Chairman
Ph: 051-9057163, 9250062
Email: irshad.ahmad@aiou.edu.pk
- 2. Dr. Muhammad Zakria**
Associate Professor
Ph: 051-9057372
Email: zakria@aiou.edu.pk

3. **Dr. Zahid Iqbal**
Associate Professor
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GENERAL INFORMATION

- i. The certificates/degrees of AIOU are equivalent to any other recognized Board/University.
- ii. A candidate is required to submit complete admission form and upload scan documents through online system before or on the closing date.
- iii. If an applicant of post-graduate/research level programme does not receive any information regarding admission within three months from submission of application, he/she should presume non-selected.
- iv. A course taken by any student cannot be change during the semester.
- v. The address of a student will not be changed during the semester.
- vi. **Admission to courses for both the Spring and Autumn semesters are generally offered in the months of January and July, respectively, whereas, examinations commenced in November and May respectively. The continuing students will enroll online on AIOU website and deposit fee within due date.**
- vii. Fee cannot be refunded once paid for admission nor can it be adjusted for any other programme
- viii. On payment of the registration fee, each student will be issued a registration number. This number must be quoted in all the future correspondence along with the roll number, course(s), code numbers and semester.
- ix. Study material shall be available on university website.

- x. Rules and regulations framed, enhanced and changed from time to time by the authorities, bodies of the university will be effective as deemed necessary. The student will have to abide by all such rules and regulations from the date of their implementation.
- xi. A student who fails in continuous assessment component is not eligible to reappear but will be allowed to re-register for the same course at its next offering semester by the university.
- xii. It is the responsibility of the student to remain in touch with the department regarding the selected programme.
- xiii. A student already admitted to a programme or a specialization of a programme shall not be allowed to transfer or to get admission to another programme unless he/she formally postpones it till the completion of the new programme or withdraws from the previous programme.
- xiv. After completion of a programme successfully, a student has to apply to Controller of Examinations for issuance of certificate/degree.
- xv. The university reserves the right to change contents of this prospectus without any prior notice as per university policy.
- xvi. In case of discrepancies in the name of student/ Father's name of the student or difference in name mentioned in his/her other educational certificates, the name on the Matric certificate of the student will be considered as correct name. The Examination Department shall also issue certificate/ degree on the said name.
- xvii. In case provision of forged documents for admission, not only the admission will be refused to the applicant but the fee deposited by him/her will also be forfeited. The university may proceed further in the matter.

PROCEDURE FOR DEPOSITING FEE

- Applicants will deposit admission processing fee (Rs.500) in designated banks or through Telcos.
- Eligible candidates for (**Merit Based Programmes**) are required to deposit admission fee in any branch of the following banks:
 1. First Women Bank Limited (FWBL)
 2. Allied Bank Limited (ABL)
 3. Muslim Commercial Bank (MCB)
 4. United Bank Limited (UBL)
- Fee can also be Deposited through Jazz Cash, Easy Paisa and Upaisa Mobile App/USSD String *786#, Retailer Agent, Franchise and Branches of Mobilink, Telenor and Ubank. For more detail please visit university website.
- The Banks/Mobile App/Retailer Agents/Franchise/Branches will provide Transaction ID of deposited fee.

Note: Beware that University has not authorized any person or private institute to collect payment/forms. All the students are instructed to deposit fee by themselves in designated bank branches. In case of any discrepancy in admission fee/admission form the University will not be responsible and the student will have to face the consequences.

IMPORTANT TELEPHONE NUMBERS

Sr.#	Name	Telephone Nos.
1.	Director Admissions	051-9250043 051-9250162 (Fax)
2.	Controller of Examinations	051-9250012
3.	Director Students Affairs	051-9250174
4.	Superintendent (Postgraduate)	051-9057422
Helpline: (051) 111 112 468 Help Desk: support.aiou.edu.pk/		

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