Admission Spring 2023

AIOU

BS Programmes

(Face to Face) 4-Years & 2.5 Years

- **Agricultural Technology (4-Years)**
- **Botany (4-Years)**
- **Bio-Chemistry (4-Years)**
- **Micro Biology (4-Years)**
- **Chemistry (4-Years & 2.5 Years)**
- **Environmental Sciences (4-Years)**
- **Mathematics (4-Years & 2.5 Years)**
- **Statistics (4-Years)**
- **Physics (4-Years & 2.5 Years)**

Allama Iqbal Open University, Islamabad

www.aiou.edu.pk

Help Line: (051) 111-112-468

PROSPECTUS

OF

BS (Face to Face) Programmes

For

SEMESTER: Spring, 2023

Allama Iqbal Open University, Islamabad

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Vice-Chancellor's Message

Dear Student,

السلام علیکم

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 repute. The university made a landmark progress by ensuring access to quality education for rural areas under-privileged students and the people of all ages particularly the females can now select and join the programs of their choice, while sitting at their residence and simultaneously with continuing their jobs. After assessing the success of many degree programs in Pakistan, AIOU is now going to offer a variety of range programs for the students residing worldwide. 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 postgraduate programs at rural and remote areas providing an unparalleled opportunity to all the poor and deprived segments 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 discipline of educational programmes using their Learning Management system (LMS) portal support online.

Committed to your bright future

Prof. Dr. Nasir Mahmood
Vice Chancellor

MINIMUM AND MAXIMUM DURATION/SEMESTERS FOR FACE TO FACE PROGRAMMES

Sr. No.	Degree Level	Minimum Duration	Maximum Duration
1	Ph.D	3 years / 5 semesters	8 years *
2	MS/M.Phil/M.Sc (Hons)/MBA/COL MBA/MPA	2 years / 4 Semesters	4 Years **
3	M.A/M.Sc (2-Year)	2 Years / 4 Semesters	4 Years
4	BS (4-Year)	4 years / 8 Semesters	6 Years
5	Postgraduate Diploma (1-Year)	1 Year / 2 Semesters	2 Years
6	Certificate (6-Months)	6 Months / 1 Semester	1 Years

***…** As per AIOU rules**

Revised Policy: Reappear and again Reappear

The policy of Re-appear and again Re-appear is being discontinued and the concerned students will have to re-register/enroll or re-admit in the failed course(s).

COMPLETE PROCEDURE TO ENROLL IN AIOU PROGRAMMES AND SUBMISSION OF FORM IN AIOU ISLAMABAD

All fresh and continue students can submit their admission using online system.

Follow these instructions to apply:

APPLY ONLINE (FRESH STUDENTS)

1. Visit website: **https://aiou.edu.pk/oas-fresh-admission**
2. Press link "**Application for New Admission ⟹ Click here**"
3. Get register by entering your email or mobile phone number
4. Login into your registered account
5. Fill all the requisite fields of admission form
6. After filling the admission form, print out your "Challan Form".
7. Using printed challan form and submit your fee in any branch of FWBL, ABL, MCB or UBL.
8. **You can also deposit fee through Upaisa, Jazzcash & Easypaisa.**

APPLY ONLINE (CONTINUE STUDENTS):

1. Visit website: **https://aiou.edu.pk/cms-continuing-students**
2. Press link "**CMS for Continuing Students**"; **(https://enrollment.aiou.edu.pk)**
3. Enter your "User ID & Password
4. Select courses and print challan form.
5. Using printed challan form, submit your fee in any branch of FWBL, UBL, MCB or ABL. Keep save copy of your challan form after submission of fee. **You need not to send challan to the University,** but University can ask for copy of challan form any time, if required.
6. You can also deposit fee through Upaisa, Jazzcash & Easypaisa.

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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 doorsteps to those people who could not continue their educational journey through formal system of education. The University (AIOU) operates on semester system and admits students in Autumn and Spring semesters, Undergraduate admissions are being offered in both the semesters, whereas postgraduates are being 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 four faculties. The university has established study centres across the country where distance education students are provided necessary guidance by their respective tutors. AIOU is also offering four years under-graduate 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 constructed, 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 the latest information available through open source databases.

FACULTY OF SCIENCES

Faculty of Sciences form an 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 thousand 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 programs 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 in-service students are benefiting from postgraduate study programs. Improvement in qualification for a better life is a right of everyone and the faculty’s programs meet this challenge by offering opportunities to all. In particular, a significant number of beneficiaries are those who cannot afford education in formal institution due to a variety of reasons.

All the departments (Agricultural Sciences, Biology, Chemistry, Environmental Sciences, Environmental Design, Health and Nutritional Sciences, Computer Science, Physics, Mathematics, Statistics & Engineering & Technology of Faculty of Sciences are running a variety of postgraduate technical, scientific and professional programs successfully. The departments are equipped with computer lab, internet, on-line library, seminar room, lecture hall and a library. In addition, there are many labs for practical work, teaching, research and instrumentation labs for analysis. The University is developing these labs through its own resources. The Faculty of Sciences is thankful to the Vice-Chancellor, for giving personal attention to the development of the Faculty of Sciences by allocating generous amount of funds and valuable guidance.

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

Around 80 highly qualified full-time faculty members are on the role of the Faculty of Sciences. Their role in the planning, designing and development of different courses, to meet students' needs is vital. Faculty members also being engaged in imparting and supervision so that high standards are maintained. In addition, highly qualified and experienced Professors are also being engaged on contract or as part time instructors, for postgraduate study programs. The university faculty is also offering academic positions under tenure track system to attract the best minds in scientific and technological fields, as a full time employee of the University.

Research is an integral part of postgraduate study programs leading to MSc, MPhil, and PhD degrees in Agricultural Sciences, Chemistry, Computer Science, Environmental Design, Health and Nutritional Sciences, Mathematics, Statistics and Physics. Rules and regulations for governing the postgraduate study programs are those approved by the Higher Education Commissions (HEC).

For MS and MPhil degree, 24 credit hours of course work and a minimum of one year of research work in a specialized area of the disciplines is required. A candidate for PhD degree has to take additional 18 credit hours of specialized courses in the field of research. The dissertation will comprise original research on a topic in the discipline and shall be evaluated by three foreign referees, who are expert in the field. At least one publication in international journal is also necessary before the degree is awarded.

The faculty has launched four years BS Program in Sciences in various disciplines comprising 124-140 credits. This four-year BS program is structured according to the recent policies of the Higher Education Commission for the improvement of standard of education to bring it at par with the international standards.

Under the dynamic and visionary leadership of the Vice Chancellor, the faculty has already initiated many new PhD, MPhil, MSc and BS Programs. Research is the basic emphasis of the new leadership and the faculty has been strengthened by the induction of new faculty members and providing truly academic atmosphere at campus. Moreover, Matric-tech. program has been initiated for the benefit of the masses.

DEPARTMENT OF AGRICULTURAL SCIENCES

Department of Agricultural Sciences (DAS) was established in 1975. Previously, the DAS was focusing to strengthen the agriculture sector and rural communities through teaching & bridging social gaps. Now DAS is trying to transform the conventional agriculture to most resilient and sustainable farming in the country. To achieve the set goals, DAS has already functioned with full capacity in providing bioproducts (biofertilizers & biopesticides), advisory services to grow vegetables and crops with resource efficient means, and shifted core degree courses from ODL mode to F2F mode.

State of the art labs equipped with latest tools have been established in order to promote cutting edge technologies among farming communities after successful evaluation & verification. The DAS aims to impart skills and build capacity in agri. graduate to explore opportunity in private public entrepreneurship. The DAS has redefined his mission & vision in changing world scenarios. State of the art knowledge and trained manpower are dire need of the hour to bring resilience in food systems & feed the population with safe and quality foods.

Currently, DAS is offering following programs;

i. BS Agricultural Technology
ii. MPhil Agricultural Technology
iii. M. Sc. (Hons.) Agricultural Extension
iv. M. Sc. (Hons.) Livestock Management
v. M. Sc. (Hons.) Rural Development
vi. PhD Agricultural Extension

BS AGRICULTURAL TECHNOLOGY

1. Introduction

The BS Agricultural Technology (4-year programme) will provide a solid foundation to the students in agricultural business practices, and expanding their career options in agro-based industries. It could be a first core initiative in securing a advanced level degree in the field of Agri-Tech.

The degree program of BS Agricultural Technology will acquire popularity for two reasons. First, the challenges to current agriculture production system can be eliminated by adopting the new and advanced farm technologies and innovative post-harvest strategies, and this degree program will develop required capacity in students. Second, the food sovereignty in the country needs skillful manpower that can apply the decision tools in developing site-specific production technology of different crops, managing stressful environment effectively and promoting climate smart approaches in the country.

Department of Agricultural Sciences is very confident that graduates produced under the curriculum of BS Agricultural Technology will become competitive professionals to run their own agro-based industries, provide technical skills to the progressive and small holdings farmers, generate awareness among common farmers regarding the value addition in agricultural produces. At completion of this degree program, the students will have enough knowledge and skills that will help them to develop site-specific production technologies for the farmers by using ICT-based crop models and softwares. This program will develop the capacity of students to work out

for on-farm climate smart practices which will ensure agricultural resilience and higher farm productivity.

2. Objectives

The main objectives of BS Agricultural Technology are:

i. To generate, integrate, and apply knowledge to individuals for promoting sound agricultural technologies in order to empower farmer and other clientele imbed with increased knowledge and productivity
ii. To enable graduates in understanding and applying the concepts of agricultural productivity and sustainability in the conduct of national, regional and global developments
iii. To skill development of students for practices that will enhance productivity and environmental sustainability
iv. To prepare for a career in technical management, biotechnology and agricultural industries through the study of agricultural and biological sciences, engineering systems and business.

3. Eligibility Criteria

The candidates having both FSc pre-medical & pre-engineering or equivalent with at least second division (45.0% marks) from national and international recognized institutions will be eligible to apply. Foreign certificate/degree holders will need to provide an equivalence certificate from IBCC to seeking admission in BS Agricultural Technology. Any change in rules and regulations of AIOU will be applicable as per policy.

4. Duration of Programme

The minimum duration of degree program in BS Agricultural Technology will be four years, while the maximum time limit will be six years from the date of first registration of the student in the program.

5. Scheme of Studies

(Semester wise breakup of courses with code & credit hour (C.H.)

Semester 1		
Course Code	**Course title**	**C.H.**
6950	Basic Agriculture	3(2+1)
6951	Introduction to Animal Husbandry	3(2+1)
5451	English-I: English Composition & Comprehension	3(3+0)
5465	Pakistan Studies	2(2+0)
5469	Introduction to Sociology	3(3+0)
5468	Introduction to Computers	3(3+0)
	Total	**17**
Semester 2		
Course Code	**Course title**	**C.H.**
6952	Agro-Technology of Field Crops	3(2+1)
6953	Plant Protection	3(2+1)
6954	Field Crop Physiology	3(2+1)
3644	Basics of Food Sciences	4(3+1)
5454	English-II: Technical and Business Writing	3(3+0)
5466/5467	Islamic Studies / Ethics (For Non-Muslim Students Only)	2(2+0)
	Total	**18**

Semester 3		
Course Code	**Course title**	**C.H.**
6955	Climate Change and Crop Productivity	3(2+1)
6956	Introduction to Agri. Business Management	3(3+0)
4434	Introductory Statistics	3(3+0)
5458	English-III: Communication Skills	3(3+0)
5471	Mass Communication	3(3+0)
9467	Pre-calculus	3(3+0)
	Total	**18**
Semester 4		
Code	**Course title**	**C.H.**
6957	Sustainable Agriculture	3(3+0)
6958	Horticultural Crop Production	3(2+1)
6959	Food Security and Agricultural Extension	3(3+0)
6960	Sustainable Rural Livelihood	3(3+0)
7405	Plant Ecology-I	3(2+1)
7407	Plant Biochemistry	3(3+0)
	Total	**18**
Semester 5		
Course Code	**Course title**	**C.H.**
6961	Cropping System Modeling	3(2+1)
6962	Protected Horticulture	3(2+1)
6963	Soil Biology and Ecology	3(3+0)
6964	Gender and Rural Development	3(3+0)
6965	Modern Trends in Fruit Production	3(2+1)
6966	Advances in Farm Mechanization	3(3+0)
	Total	**18**

Semester 6		
Course Code	**Course title**	**C.H.**
6967	Seed Production Technology	3(2+1)
6968	Municipal and Agro Waste Management	3(3+0)
6969	Plant Resource Utilization	3(2+1)
6970	Animal Feed Technology	3(2+1)
6971	Agriculture Biotechnology	3(2+1)
6972	Climate Smart Agriculture in Pakistan	3(3+0)
	Total	**18**
Semester 7		
Course Code	**Course title**	**C.H.**
6973	Plant Nutrition and Bioproduct Development	3(2+1)
6974	Dairy Technology	3(2+1)
6975	Meat Technology	3(2+1)
6976	Food Processing and Preservation	3(2+1)
6977	Agricultural Information Management Systems	3(3+0)
6978	Agricultural Technology Transfer	3(2+1)
	Total	**18**
Semester 8		
Course Code	**Course title**	**C.H.**
6979	Internship	6 (0+6)

Total C.H.: 17+18+18+18+18+18+18+6 = **131**

6. Fee Tariff for 1st Semester

Items	Charges (PKR)
Registration Fee (at the time of 1st admission)	500/-
Admission Fee (at the time of 1st admission)	1,000/-
Technology Fee (per semester)	500/-
Lab Fee (per semester)	2500/-
Fee of 1st semester (Rs. 2000 per credit hour)	34,000/-
Total	**38,500**/-

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

7. Mode of Study

i. **Medium of Instructions:**
The medium of instructions & examinations will be in English.

ii. **Study Material:** Class lectures and other reading materials will be provided by the course instructor. In addition, the student will be advised to consult other reference books for further readings.

iii. **Mode of Teaching**

a) University will provide face to face teaching to the students

b) The schedule of classes and dates of submission of assignments will be announced by the department

iv. **Assessments and Evaluation:** Students will be assessed through criteria given in below-table for each discipline specific face to face course.

Assessment Type		Face to Face			Internship / Project		
		Qty	Total Marks	Wt (%)	Qty	Total Marks	Wt (%)
Continuous	Assignments	2	20	10	--	--	--
	Mid-term/ Lab work/ Practical exam	1	50	20	--	--	--
Final	Report & presentation	--	--	--	1	100	30
	Evaluation	--	--	--	1	100	20
	Final /written Exam	1	100	70	1	50	25
	Viva Voce	--	--	--	1	50	25
Total		--	170	100	--	300	100

***Note**: Minimum 70% attendance is mandatory as per AIOU rules. A student must secure minimum 50% marks in each component to pass out a particular subject.*

8. Guideline for Online Application (see page-v)

Students can apply for BS Agricultural Technology by follow the below steps;

i. Visit: www.aiou.edu.pk

ii. Click on OAS (Online Admission System) for Fresh Admission

iii. Click 'Register'& fill details

iv. Upon successful registration please click on login

v. Fill login details and login to the portal

vi. After login click on Step-1 and complete your profile. Note: All tabs should be filled before applying for admissions.

vii. After completion of Step-1, click on Step-2 then click on "Download Challan" against program (s) you wish to apply.

viii. Pay the *admission form fee* as per AIOU prescribed criteria through selected bank branches or online payment methods.

ix. After admission fee confirmation, you will be called on through SMS to visit the department for the verification of your credentials.

x. After the verification, you will be informed whether you are eligible for the admission in BS Program or not.

9. For Further Queries Contact:

Chairman

Department of Agricultural Sciences
Block # 06, 1st Floor, AIOU, H-8, Islamabad, Pakistan
Tel: 051-9575450:
Email: sher.muhammad@aiou.edu.pk

Coordinator BS Agricultural Technology
Department of Agricultural Sciences
Block # 06, 1st Floor, AIOU, H-8, Islamabad, Pakistan
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Faculty Members

1. **Prof. Dr. Sher Muhammad**
   Chairman
   Phone # 051-9575450
2. **Dr. Shafique Qadir Memon**
   Assistant Professor
   Phone # 051-9575475
3. **Dr. Farhat Ullah Khan**
   Assistant Professor
   Phone # 051-9575473
4. **Dr. Muhammad Tarique Tunio**
   Assistant Professor
   Phone # 051-9575474
5. **Dr. Sabir Hussain Shah**
   Assistant Professor
   Phone # 051-9575476
6. **Dr. Muhammad Yasin**
   Assistant Professor
7. **Dr. Mahwish Siraj**
   Lecturer
   Phone # 051-9575482
8. **Dr. Zaid Mustafa**
   Lecturer
   Phone # 051-9575481
9. **Dr. Muhammad Shaukat**
   Lecturer
   Phone # 051-9575483

DEPARTMENT OF BIOLOGY

The approval for the establishment of the Department of Biology Science was granted by the Executive Council in February 1998. The objective of its establishment is to provide human resources/skilled personnel in various areas of Biology. Furthermore, the purpose is to educate future generation and improvement in quality of life and welfare of human being through research for the environmentally sustainable and socially equitable use of the natural resources. The Department is imparting face-to-face education in Pakistan in different disciplines of Biological Sciences.

The mission of Department of Biology is to educate students in various disciplines of Life Sciences including those who could not continue their education due to economic or job constraints. The purpose of its establishment is to educate future generation and improvement in quality of life and welfare of human being through research and self-sufficiency.

The Department is striving to uplift the teaching standards and provide a congenial environment for research in the field of Biology. The Department always seeks to introduce more disciplines at graduate and postgraduate levels as per demand of the society, so as to keep the undergraduate and postgraduate scholars well informed with the recent advances in the field. This will help produce well-trained manpower to serve science both at national and International levels.
The Department is offering following programmes:

i. BS Botany
ii. BS Biochemistry
iii. BS Microbiology

The department is enriched with highly qualified regular faculty to fulfill teaching and research requirements. Well equipped labs and Biology are available to cater practical and research requirements.

BS BOTANY

1. Introduction

The study of plants is vital because they underpin almost all life forms on the Earth by generating a large proportion of oxygen and food that allow humans and other organisms to subsist. Plants are one of the major groups of organisms that carry out photosynthesis, a process that absorbs carbon dioxide, a greenhouse gas that is a small but important variable that influences global climate. Plants are crucial to the future of human society as they provide food, oxygen, medicine, and products for people, as well as creating and preserving soil.

This programme has an interdisciplinary and multidisciplinary scope enabling students to understand the significance and concepts of Botany. It covers a wide range of scientific disciplines including the study of plant structure, growth, reproduction, metabolism, development, diseases, chemical properties, evolutionary relationships and plant taxonomy. Graduates with Botany can work in national and international organization in public and private sectors as Biodiversity Researchers, Environmental Scientists, Nature Reserve Managers, Wildlife Management Advisors, Ecological

Consultants and Conservation Officers, Quality Control Officers, Salesperson etc.

2. Objectives

On accomplishing the course, the students will be able to:

i. Demonstrate comprehensive understanding of Botany as an interdisciplinary and multidisciplinary subject.
ii. Achieve awareness about the evolutionary trends and plants systematics in pursuit of nature conservation.
iii. Understand the relationship between economic growth and importance of indigenous plant resource

3. Eligibility/ Criteria

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

4. Duration of Programme

In order to be eligible for the award of BS in Botany, the student will have to earn a total of 132 credit hours including six credit hours for research within a minimum period of 04 years (08 semesters) failing which, a student can be given an extension of 02 Years in maximum, after completion of initial period.

5. Scheme of Studies

Semester 1		
Course Code	**Course**	**CH**
4441	Introduction to Environmental Sci.	4(3+1)
4421	Inorganic Chemistry	4(3+1)
9467	Pre-Calculus	3
5451	English I: Composition and Comprehension	3
4401	Cell Biology, Genetics and Evolution	4(3+1)
	Total Credits	**18**

Semester-2		
Course Code	**Course Title**	**CH**
4402	Diversity of Plants	4(3+1)
4422	Organic Chemistry	4(3+1)
4432	Calculus-I	3
5454	English II: Technical and Business Writing	3
4446	Environmental Biology	4(3+1)
	Total Credits	**18**

Semester-3		
Course Code	**Course Title**	**CH**
4469	Diversity of Animals	4(3+1)
4403	Fundamentals of Microbiology	4(3+1)
5469	Introduction to Sociology	3
5465	Pakistan Studies	2
5458	English III: Communication Skills	3
	Total Credits	**16**

Semester-4		
Course Code	**Course Title**	**CH**
4412	Biotechnology	4(3+1)
7416	Plant Systematic Anatomy and Development	4(3+1)
5468	Introduction to Computer	3(3+0)

5466/ 5467	Islamic Studies / Ethics	2
9468	Public Relations	3
	Total Credits	**16**

Semester-5		
Course Code	**Course Title**	**CH**
7401	Diversity of Vascular Plants	3(2+1)
7402	Plant Anatomy	3(2+1)
4481	Introductory Biochemistry	4(3+1)
7403	Phycology and Bryology	3(3+0)
4452	Biodiversity and Conservation	4(3+1)
	Total Credits	**17**

Semester-6		
Course Code	**Course Title**	**CH**
7405	Plant Ecology -I	3(2+1)
7406	Plant Physiology – I	3(2+1)
4419	Molecular Biology	4(3+1)
7407	Plant Biochemistry	3(3+0)
7408	Mycology and Plant Pathology	3 (2+1)
	Total Credits	**16**

Semester-7		
Course Code	**Course Title**	**CH**
7409	Plant Ecology -II	3(2+1)
7411	Plant Physiology – II	3 (2+1)
7412	Genetics – I	3(3+0)
7413	Scientific Research	4(3+1)
4482	Biostatistics	3(3+0)
	Total Credits	**16**

Semester-8		
Code	**Course**	**CH**
4418	Research Project	6
7414	Genetics - II	3(3+0)
4439	Ethnobotany	3(3+0)
7410	Plant Systematics	3(2+1)
	Total Credits	**15**

Total Credits= 18+18+16+16+17+16+16+15=132

6. Fee Tariff for 1st Semester

Item	**Rates**
Registration Fee (Once at time of admission)	Rs.500/-
Admission Fee (Once at time of admission)	Rs.1000/-
Technology Fee	Rs.500/-
Per 4 Credit hours course fee: Rs. 8000	Rs. 24000
Per 3 Credit hours course fee: Rs. 6000	Rs.12000/-
LAB CHARGES	Rs.3000/-
Total	Rs. 41000/-

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

7. Mode of Study

i. Medium of Instruction

The Medium of Instructions for BS Botany will be English.

ii. Study Material

Lecture handouts will be provided by the department. The students are also advised to consult other reference books recommended by the department.

iii. Mode of Teaching

a) University will provide face to face teaching to the students.

b) The schedule of classes and dates of submission of assignments will be announced by the department.

iv. Assessment and Evaluation

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

a) Continuous Assessment

i. Continuous assessment of practical courses will be based on assignments/class tests of 200 marks and practical of 100 marks. Student has to obtain 50% marks in theory and practical individually to pass this component.

ii. For non-practical courses, student has to obtain 50% marks assignments/class test in theory component only. The weightage of internal assessment in final result will be 30%.

b) Final Examination

Final written examination of 100 marks will be conducted. Pass percentage in final examination will be 50%.

The weightage of final exam will be 70% in final result.

If a student fails to pass in any assessment component of a course, he/she will have to re- enroll in that course.

10. Guidelines for Online Application (see page-v)

i. Visit AIOU Website: www.aiou.edu.pk
ii. Click OAS (Online Admission System) for Fresh Admission
iii. Click 'Register'& fill details
iv. Upon successful registration please click on login
v. Fill login details and login to the portal
vi. After login click on Step-1 and complete your profile.
    a. **Note**: All tabs should be filled before applying for admissions.
vii. After completion of Step-1, click on Step-2 then click on "Download Challan" against program (s) you wish to apply.
viii. Pay the *admission form fee* as per AIOU prescribed criteria through selected bank branches or online payment methods.
ix. After admission fee confirmation, you will be called through SMS to visit the department for verification of your credentials.
x. After document verification, you will be informed whether you are eligible for the admission in BS Program or not.

In case a selected candidate fails to submit fee in time, the department may reserve the right to invite a candidate in waiting list for admission against vacant seat.

For Further Queries Contact:

Coordinator BS Botany
Department of Biology
Research Complex, 1st Floor, AIOU, H-8, Islamabad
Tel: 051 9057185; Email: biology@aiou.edu.pk

BS Biochemistry

1. Introduction

Biochemistry can be considered as *chemistry of life* and is central to all areas of the biological or 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 human biochemical aspects pertaining to the wellbeing and in the pathological state.

BS Biochemistry has an interdisciplinary and multidisciplinary approach enabling students to understand the core principles and experimental basis 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.

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

2. Objectives

Objectives of this programme are

i. To equip students with the in-depth knowledge and skills necessary for understanding basic as well as advanced and recent trends in Biochemistry and Molecular Biology

ii. To impart skills to carry out independent scientific and technical research in key areas of Biochemistry

iii. To equip students with laboratory procedures and techniques necessary to understand the life processes and enable them to serve in diagnostics and research labs

iv. To inculcate confidence among students to pursue higher education in their specialized areas of interest

3. Eligibility Criteria

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.

4. Duration of the Programme

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 Research six credit hours for research within a minimum period of 4 years (8 semesters) failing which, a student can be given an extension of upto 2 years in maximum, after completion of initial period.

5. Scheme of Studies

Semester 1		
Course Code	**Course**	**CH**
4481	Introductory Biochemistry	4(3+1)
4421	Inorganic Chemistry	4(3+1)
9467	Pre-Calculus	3 (3+0)
5451	English I: Composition and Comprehension	3(3+0)
4401	Cell Biology, Genetics and Evolution	4(3+1)
	Total Credits	**18**

Semester-2		
Course Code	**Course Title**	**CH**
4402	Diversity of Plants	4(3+1)
4422	Organic Chemistry	4(3+1)
4432	Calculus-I	3(3+0)
5454	English II: Technical and Business Writing	3(3+0)
7407	Plant Biochemistry	3(3+0)
	Total Credits	**17**

Semester-3		
Course Code	**Course Title**	**CH**
4469	Diversity of Animals	4(3+1)
4403	Fundamentals of Microbiology	4(3+1)
5465	Pakistan Studies	2(2+0)
5458	English III: Communication Skills	3(3+0)
4443	Environmental Chemistry	4(3+1)
	Total Credits	**17**

Semester-4		
Course Code	**Course Title**	**CH**
4409	Human Physiology	4(3+1)
4412	Biotechnology	4(3+1)
5468	Introduction to Computer	3(3+0)
5466/ 5467	Islamic Studies / Ethics	2(2+0)
9468	Public Relations	3(3+0)
	Total Credits	**16**

Semester-5		
Course Code	**Course Title**	**CH**
7481	Nutritional Biochemistry	4(3+1)
4482	Biostatistics	3(3+0)
7412	Genetics-1	3(3+0)
4415	Immunology	4(3+1)
TBI	Metabolism	3(2+1)
	Total Credits	**17**

Semester 6		
Course Code	**Course Title**	**CH**
7483	Genomics	4(3+1)
7484	Protein Biochemistry	4(3+1)
4419	Molecular Biology	4(3+1)
7413	Scientific Researchs	4(3+1)
	Total Credits	**16**

Semester-7		
Course Code	**Course Title**	**CH**
7485	Enzymology	4(3+1)

4413	Medical Microbiology	4(3+1)
4407	Microbial Genetics	4(3+1)
7486	Clinical Biochemistry	4(3+1)
	Total Credits	**16**

Semester-8		
Course Code	**Course Title**	**CH**
4418	Research Project	6
4414	Genetic Engineering	4(3+1)
7487	Bioinformatics	3(2+1)
7482	Bio-Membranes and cell signaling	3(3+0)
	Total Credits	**16**

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

6. Fee Tariff for 1st Semester

Item	Rates
Registration Fee (Once at time of admission)	Rs.500/-
Admission Fee (Once at time of admission)	Rs.1000/-
Technology Fee	Rs.500/-
Per 4 Credit hours course fee: Rs. 8000	Rs. 24000
Per 3 Credit hours course fee: Rs. 6000	Rs.12000/-
LAB CHARGES	Rs.3000/-
Total	Rs. 41000/-

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

7. Mode of Study

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

i. Medium of Instruction

The Medium of Instructions for BS Biochemistry will be English.

ii. Study Material

Lecture handouts will be provided by the department. The students are also advised to consult other reference books recommended by the department.

iii. Mode of Teaching

a) University will provide face to face teaching to the students.

b) The schedule of classes and dates of submission of assignments will be announced by the department.

iv. Assessment and Evaluation

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

a) Continuous Assessment

i. Continuous assessment of practical courses will be based on assignments/class tests of 200 marks and practical of 100 marks. Student has to obtain 50% marks in theory and practical individually to pass this component.

ii. For non-practical courses, student has to obtain 50% marks assignments/class test
in theory component only. The weightage of internal assessment in final result will be 30%.

b) Final Examination

Final written examination of 100 marks will be conducted. Pass percentage in final examination will be 50%.

The weightage of final exam will be 70% in final result. If a student fails to pass in any assessment component of a course, he/she will have to re- enroll in that course.

a) **Final Examinations**

Written examination will be conducted for each course with 50% passing marks.

Note: If a student fails to pass in any of assessment component of a particular course, he / she will have to re-enroll in that course

11. Guidelines for Online Application (see page-v)

i. Visit AIOU Website: www.aiou.edu.pk
ii. Click on OAS (Online Admission System) for Fresh Admission
iii. Click 'Register'& fill details
iv. Upon successful registration please click on login
v. Fill login details and login to the portal
vi. After login click on Step-1 and complete your profile.

Note: All tabs should be filled before applying for admissions.

vii. After completion of Step-1, click on Step-2 then click on "Download Challan" against programme (s) you wish to apply.
viii. Pay the *admission form fee* as per AIOU prescribed criteria through selected bank branches or online payment methods.
ix. After admission fee confirmation, you will be called on through SMS to visit the department for the verification of your credentials.
x. After the verification, you will be informed whether you are eligible for the admission in BS Programme (s) or not.

For Further Queries Contact

i. Coordinator BS-Biochemistry
Department of Biology
Research Complex, 1st Floor, AIOU, H-8, Islamabad
Tel: 051 9057293; Email: biology@aiou.edu.pk

BS MICROBIOLOGY

1. Introduction

The Department of Biology is well aware of the fact that this is an 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 in view, the Department of Biology has launched four years BS Programme in Microbiology from the semester Spring, 2009.

This programme is designed to:

i. Provide skilled laboratory personnel for catering general public needs.
ii. Provide research atmosphere for the support of laboratory facilities.

2. Objectives

After completing this programme, students will acquire the necessary knowledge based in the area of Bio-medical sciences, which is very important to diagnose the infectious diseases as well as epidemics.

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

i. To provide human resources/skilled Microbiologist for catering the needs of medical laboratories in hospitals and research institutes.
ii. To provide foundation for higher studies in Microbiology.
iii. To create awareness about application of Microbiology for public benefit.

3. Eligibility Criteria

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

4. Duration of Programme

In order to be eligible for the award of BS in Microbiology, 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 2 years (4 semesters) in maximum, after completion of initial period.

5. Scheme of Studies:

Semester 1		
Course Code	**Course Title**	**CH**
4401	Cell Biology, Genetics and Evolution	4(3+1)
4421	Inorganic Chemistry	4(3+1)
4403	Fundamentals of Microbiology	4(3+1)
9467	Pre-Calculus	3(3+0)
5451	English I: Composition and Comprehension	3(3+0)
	Total Credits	18

Semester 2		
Course Code	**Course Title**	**CH**
4445	Environmental Microbiology	4(3+1)
4402	Diversity of Plants	4(3+1)
4422	Organic Chemistry	4(3+1)
4432	Calculus-I	3(3+0)
5454	English II: Technical and Business Writing	3(3+0)
	Total credits	18

Semester 3		
Course Code	**Course Title**	**CH**
4469	Diversity of Animals	4(3+1)
4441	Introduction to Environmental Science	4(3+1)
5465	Pakistan Studies	2(2+0)
5458	English III: Communication Skills	3(3+0)
5469	Introduction to Sociology	3(3+0)
	Total Credits	16

Semester 4		
Course Code	**Course Title**	**CH**
4412	Biotechnology	4(3+1)
4409	Human Physiology	4(3+1)
9468	Public Relations	3(3+0)
5466/5467	Islamic Studies/Ethics	2(2+0)
5468	Introduction to Computer	3(3+0)
	Total Credits	16

Semester 5		
Course Code	**Course Title**	**CH**
4481	Introductory Biochemistry	4(3+1)
4482	Biostatistics	3(3+0)
4407	Microbial Genetics	4(3+1)
4408	Virology	4(3+1)
	Total credits	15

Semester 6		
Course Code	**Course Title**	**CH**
4419	Molecular Biology	4(3+1)
4416	Molecular Mechanism of Antimicrobial Drugs	4(3+1)
4411	Food and Dairy Microbiology	4(3+1)
4405	Microbial Anatomy and Physiology	4(3+1)
7413	Scientific Research	4(3+1)
	Total credits	20

Semester 7		
Course Code	**Course Title**	**CH**
4415	Immunology	4(3+1)
4413	Medical Microbiology	4(3+1)
4420	Industrial Microbiology	4(3+1)
4410	Soil Microbiology	4(3+1)
	Total credits	16

Semester 8		
Course Code	**Course Title**	**CH**
4417	Epidemiology	4(3+1)
4418	Research Project	6
4414	Genetic Engineering	4(3+1)
	Total credits	14

Total Credits =18+18+16+16+15+20+16+14= 133

6. Fee Tariff For 1st Semester

Item	Rates
Registration Fee (Once at time of admission)	Rs.500/-
Admission Fee (Once at time of admission)	Rs.1000/-
Technology Fee	Rs.500/-
Per 4 Credit hours course fee: Rs. 8000	Rs. 24000
Per 3 Credit hours course fee: Rs. 6000	Rs.12000/-
LAB CHARGES	Rs.3000/-
Total	Rs. 41000/-

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

7. Mode of Study:

i. Medium of Instruction

The Medium of Instructions for BS Microbiology will be English.

ii. Study Material

Lecture handouts will be provided by the department. The students are also advised to consult other reference books recommended by the department.

iii. Mode of Teaching

a) University will provide face to face teaching to the students.

b) The schedule of classes and dates of submission of assignments will be announced by the department.

iv. Assessment and Evaluation

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

a) Continuous Assessment

i. Continuous assessment of practical courses will be based on assignments/class tests of 200 marks and practical of 100 marks. Student has to obtain 50% marks in theory and practical individually to pass this component.

ii. For non-practical courses, student has to obtain 50% marks assignments/class test in theory component only. The weightage of internal assessment in final result will be 30%.

b) Final Examination

Final written examination of 100 marks will be conducted. Pass percentage in final examination will be 50%.

The weightage of final exam will be 70% in final result.

If a student fails to pass in any assessment component of a course, he/she will have to re- enroll in that course.

12. Guidelines for Online Application (see page-v)

i. Visit AIOU Website: www.aiou.edu.pk
ii. Click on OAS (Online Admission System) for Fresh Admission
iii. Click 'Register'& fill details
iv. Upon successful registration please click on login
v. Fill login details and login to the portal
vi. After login click on Step-1 and complete your profile. Note: All tabs should be filled before applying for admissions.
vii. After completion of Step-1, click on Step-2 then click on "Download Challan" against programme (s) you wish to apply.
i. Pay the *admission form fee* as per AIOU prescribed criteria through selected bank branches or online payment methods.
ii. After admission fee confirmation, you will be called on through SMS to visit the department for the verification of your credentials.
iii. After the verification, you will be informed whether you are eligible for the admission in BS Programme or not.

8. For Further Queries Contact:

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Department of Biology
Research Complex, 1st Floor, AIOU, H-8, Islamabad
Tel: 051-9057726; Email: biology@aiou.edu.pk

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Faculty Members

1. **Dr. Hina Fatimah**
   Incharge, Department of Biology,
   Ph. 051-9575271
2. **Dr. Muhammad Waseem**
   Assistant Professor
   Ph. 051-9575274
3. **Dr. Rizwana Kousar**
   Assistant Professor
   Ph. 051-9575273
4. **Dr. Sobia Kanwal**
   Assistant Professor
   Ph. 051-9575275
5. **Dr. Saba Farooq**
   Lecturer
   Ph. 051-9575284
6. **Ms. Samar Naseer**
   Lecturer (On study leave)
   Ph. 051-9057185
7. **Ms. Zainab Syed**
   Lecturer
   Ph. 051-9575283
8. **Dr. Sadia Latif**
   Research Associate
   Ph. 051-9575286

DEPARTMENT OF CHEMISTRY

Department of Chemistry is a major department of the Faculty of Sciences. It was established in 1998 to offer postgraduate programmes in Chemistry. In the beginning only MSc programme was started, which was later on extended to include MPhil and PhD programmes. The faculty of the department comprises one Professor, three Associate Professors, four Assistant Professor and three Lecturers. In addition, the department also hire the services of experienced professors as visiting faculty members.

The department is situated in Science Block 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 made from time to time 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 work stations. 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 firmly believes in the promotion of chemistry as a science and in maintaining the highest standards. The department is in mission to promote chemistry as a science and provide opportunities of professional growth and updating knowledge to chemistry graduates.

BS Chemistry

1) 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.

2) Objectives

The objectives of this programme are:

i) To provide a nurturing environment that facilitates and stimulate the active and explorative learning of Chemistry for the students.
ii) To provide chemical knowledge and laboratory skills required for professional chemist.
iii) To contribute to national effort in human resource development.

3) Eligibility Criteria

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

4) Duration of Prgramme

The minimum duration of BS Chemistry Programme is **four years (8 Semesters)** and maximum duration to complete BS Chemistry Programme is **six Years (12 Semesters).**

5) Scheme of Studies

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, Inorganic, Organic and Analytical Chemistry will be offered as core courses. The specialized courses will be dealt in the 7th and 8th semester with specialization in Organic, Inorganic/Analytical and Physical Chemistry.

SEMESTER WISE COURSE OFFERING
(Total Credit Hours – 132)

Semester 1

Course Code	Course Title	Credit Hours
5465	Pakistan Studies	2(2+0)
5451	English-1: Composition and Comprehension	3(3+0)
4401	Cell biology, Genetics, and Evolution	4(3+1)
9467	Pre-Calculus	3(3+0)
4421	Inorganic Chemistry	4(3+1)
	Total Credits	16

Semester 2

Course Code	Course Title	Credit Hours
5466/5467	Islamic Studies/Ethics	2(2+0)
5454	English-II: Technical and Business writing	3(3+0)
4402	Diversity of Plants	4(3+1)

4432	Calculus-I	3(3+0)
4422	Organic Chemistry	4(3+1)
5468	Introduction to Computers	3(2+1)
	Total Credits	**19**

Semester 3

Course Code	Course Title	Credit Hours
5458	English-III: Communication and skill	3(3+0)
4425	Basic Biochemistry	4(3+1)
4443	Environmental Chemistry	4(3+1)
4423	Physical Chemistry	4(3+1)
	Total Credits	**15**

Semester 4

Course Code	Course Title	Credit Hours
4426	Statistics for Chemist	4(3+1)
4442	Environmental Pollution	4(3+1)
4424	General Chemistry	4(3+1)
9430	Analytical Chemistry	3(2+1)
9480	Public Relations	3(3+0)
	Total Credits	18

Semester 5

Course Code	Course Title	Credit Hours
2573	Analytical Chemistry-1	3(3+0)
2575	Physical Chemistry-1	3(3+0)
2576	Organic Chemistry -1	3(3+0)
2577	Inorganic Chemistry-1	3(3+0)
2594	Mathematics for Chemists	2(2+0)
2595	Chemistry Lab-I	4(0+4)
	Total Credits	**18**

Semester 6

Course Code	Course Title	Credit Hours
2574	Analytical Chemistry-1I	3(3+0)
2580	Physical Chemistry-1I	3(3+0)
2581	Organic Chemistry-1I	3(3+0)
2582	Inorganic Chemistry-1I	3(3+0)
2596	Chemistry Lab-II	4(0+4)
	Total Credits	**16**

Specialization (Organic Chemistry)

Semester 7

Course Code	Course Title	Credit Hours
2585	Heterocyclic Chemistry	3(3+0)
2586	Stereochemistry of Organic Compounds	3(3+0)
2589	Spectroscopic Methods in Organic Chemistry	3(3+0)
2597	Advanced Organic Chemistry Lab-I	3(0+3)
2598	Advanced Organic Chemistry Lab-II	3(0+3)
	Total Credits	**15**

Semester 8

Course Code	Course Title	Credit Hours
2587	Chemistry of Natural Products	3(3+0)
2590	Special Organic Reactions	3(3+0)
2591	Organic Synthesis	3(3+0)
2537	Advanced Organic Chemistry Lab-III	3(0+3)
2538	Advanced Organic Chemistry Lab-IV	3(0+3)
	Total Credits	**15**

Specialization (Inorganic Chemistry / Analytical Chemistry)

Semester 7

Course Code	Course Title	Credit Hours
2539	Coordination Chemistry	3(3+0)
2540	Non-Spectroscopic Instrumental Methods of Analysis	3(3+0)
2541	Basic Instrumental Methods of Analysis	3(3+0)
2542	Advanced Inorganic Chemistry Lab-I	3(0+3)
2543	Advanced Inorganic Chemistry Lab-II	3(0+3)
	Total Credits	**15**

Semester 8

Course Code	Course Title	Credit Hours
2544	Organometallic Chemistry	3(3+0)
2545	Group Theory for Chemist and Its Applications	3(3+0)
2547	Advanced Environmental Chemistry	3(3+0)
3561	Advanced Inorganic Chemistry Lab-III	3(0+3)
3562	Advanced Inorganic Chemistry Lab-IV	3(0+3)
	Total Credits	**15**

Specialization (Physical Chemistry)

Semester 7

Course Code	Course Title	Credit Hours
2548	Chemical Kinetics	3(3+0)
2549	Quantum Chemistry	3(3+0)
2550	Electrochemistry	3(3+0)
2568	Advanced Physical Chemistry Lab-I	3(0+3)
2569	Advanced Physical Chemistry Lab-II	3(0+3)
	Total Credits	**15**

Semester 8

Course Code	Course Title	Credit Hours
2570	Molecular Spectroscopy	3(3+0)
2571	Chemical Thermodynamics	3(3+0)
2599	Surface Chemistry	3(3+0)
3563	Advanced Physical Chemistry Lab-III	3(0+3)
3564	Advanced Physical Chemistry Lab-IV	3(0+3)
	Total Credits	15

6) Fee Tariff

Registration Fee:	Rs.500/-
Admission Fee:	Rs.1000/-
Technology Fee (per semester)	Rs.500/-
Course Code / Lab	**Fee**
4401	Rs.8000/-
4421	Rs.8000/-
9467	Rs.6000/-
5451	Rs.6000/-
5465	Rs.4000/-
Lab fee (per semester)	Rs.6000/-
First Semester Fee	**Rs.40,000/-**

7) Mode of Study

i) Medium of Instruction

The Medium of Instructions for BS Chemistry will be English.

ii) Study Material

The Class Teacher will provide the study material however the students are advised to consult books from the list of recommended books for further reading.

iii) Mode of Teaching

In this programme, regular classes for all courses / practical work will be conducted at AIOU Main Campus in Face to Face mode. Minimum 70% attendance is required for all subjects as per AIOU rules.

iii) Assessment System

AIOU has adopted GPA/CGPA system from Spring Semester 2009 in all its four years Bachelor Degree programmes.

iv) Method of Assessment for Theory and Laboratory Courses

a) 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 / class test & practical workshop in the final result will be 30%.

b. 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.

c. Method of Assessment for Laboratory Courses

Assessment for all laboratory courses will be totally based on continuous assessment, Lab Quiz and Viva-voce. 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%.

v) 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) and maximum period of six years (12 semesters).

Note: If a student fails to achieve the required aggregate in any of the assessment component of a particular course he/she will have to re-enroll in that course.

13. Guidelines for Online Application(see page-v)

i) Visit AIOU Website: www.aiou.edu.pk
ii) Click on OAS (Online Admission System) for Fresh Admission
iii) Click 'Register'& fill details
iv) Upon successful registration please click on login
v) Fill login details and login to the portal
vi) After login click on Step-1 and complete your profile. Note: All tabs should be filled before applying for admissions.
vii) After completion of Step-1, click on Step-2 then click on "Download Challan" against program (s) you wish to apply.
viii) Pay the *admission form fee* as per AIOU prescribed criteria through selected bank branches or online payment methods.
ix) After admission fee confirmation, you will be called on through SMS to visit the department for the verification of your credentials.
x) After the verification, you will be informed whether you are eligible for the admission in BS Program or not.
xi) Incomplete forms shall not be entertained.
xii) Only selected candidates will be asked to deposit semester after verification of original documents.
xiii) The fee should not be submitted before the confirmation of admission.
xiv) The deposited fee will not be refundable or adjustable for future admission.

B.Sc based BS Chemistry Programme

i) Introduction

The Department of Chemistry is going to offer B.Sc based BS Chemistry programme from Spring 2023 semester. The selected students will first go through the bridging semester of 18 credit hours and after successful completion they can join the 5th semester of BS Chemistry programme and will

complete the required credit hours for the completion of degree.

ii) Eligibility Criteria (for B.Sc Degree holders)

A person holding B.Sc (at least 2nd division with 45 % marks) with Chemistry as one of the major subject is eligible to apply for admission, however as seats are limited, admission will be on merit. Admission process will be same as given for regular BS progromm at section 8.

iii) Duration of Programme

The minimum duration of the B.Sc based BS Chemistry programmme is 2.5 years (one Bridiging semester and four regular semesters) and the maximum duration is 4 years (8 semesters).

iv) Scheme of Study

The B.Sc based BS Chemistry programme is divided into five semesters including bridging semester. After successfully completion of bridging semester, core courses of Physical, Inorganic, Organic and Analytical Chemistry will be offered in 2nd and 3rd semesters. The specialized courses will be dealt in the 4th and 5th semester with specialization in Organic, Inorganic/Analytical and Physical Chemistry. The semester wise course offering is given below.

SEMESTER WISE COURSE OFFERING

Semester-I (Bridging Semester)

Course Code	Course Title	Credit Hours
4421	Inorganic Chemistry	4(3+1)
4422	Organic Chemistry	4(3+1)
4423	Physical Chemistry	4(3+1)
9430	Analytical Chemistry	3(2+1)
9467	Pre-Calculus	3(3+0)
	Total Credits	18

Semester-II

Course Code	Course Title	Credit Hours
2573	Analytical Chemistry-1	3(3+0)
2575	Physical Chemistry-1	3(3+0)
2576	Organic Chemistry -1	3(3+0)
2577	Inorganic Chemistry-1	3(3+0)
2594	Mathematics for Chemists	2(2+0)
2595	Chemistry Lab-I	4(0+4)
	Total Credits	18

Semester-III

Course Code	Course Title	Credit Hours
2574	Analytical Chemistry-1I	3(3+0)
2580	Physical Chemistry-1I	3(3+0)
2581	Organic Chemistry-1I	3(3+0)
2582	Inorganic Chemistry-1I	3(3+0)
2596	Chemistry Lab-II	4(0+4)
	Total Credits	16

Specialization (Organic Chemistry)

Semester-IV

Course Code	Course Title	Credit Hours
2585	Heterocyclic Chemistry	3(3+0)
2586	Stereochemistry of Organic Compounds	3(3+0)
2589	Spectroscopic Methods in Organic Chemistry	3(3+0)
2597	Advanced Organic Chemistry Lab-I	3(3+0)
2598	Advanced Organic Chemistry Lab-II	3(3+0)
	Total Credits	15

Semester- V

Course Code	Course Title	Credit Hours
2587	Chemistry of Natural Products	3(3+0)
2590	Special Organic Reactions	3(3+0)
2591	Organic Synthesis	3(3+0)
2537	Advanced Organic Chemistry Lab-III	3(3+0)
2538	Advanced Organic Chemistry Lab-IV	3(3+0)
	Total Credits	15

Specialization (Inorganic Chemistry / Analytical Chemistry)

Semester- IV

Course Code	Course Title	Credit Hours
2539	Coordination Chemistry	3(3+0)
2540	Non-Spectroscopic Instrumental Methods of Analysis	3(3+0)
2541	Basic Instrumental Methods of Analysis	3(3+0)
2542	Advanced Inorganic Chemistry Lab-I	3(3+0)
2543	Advanced Inorganic Chemistry Lab-II	3(3+0)
	Total Credits	15

Semester-V

Course Code	Course Title	Credit Hours
2544	Organometallic Chemistry	3(3+0)
2545	Group Theory for Chemist and Its Applications	3(3+0)
2547	Advanced Environmental Chemistry	3(3+0)
3561	Advanced Inorganic Chemistry Lab-III	3(3+0)
3562	Advanced Inorganic Chemistry Lab-IV	3(3+0)
	Total Credits	15

Specialization (Physical Chemistry)

Semester-IV

Course Code	Course Title	Credit Hours
2548	Chemical Kinetics	3(3+0)
2549	Quantum Chemistry	3(3+0)
2550	Electrochemistry	3(3+0)
2568	Advanced Physical Chemistry Lab-I	3(3+0)
2569	Advanced Physical Chemistry Lab-II	3(3+0)
	Total Credits	15

Semester-V

Course Code	Course Title	Credit Hours
2570	Molecular Spectroscopy	3(3+0)
2571	Chemical Thermodynamics	3(3+0)
2599	Surface Chemistry	3(3+0)
3563	Advanced Physical Chemistry Lab-III	3(3+0)
3564	Advanced Physical Chemistry Lab-IV	3(3+0)
	Total Credits	15

Fee Tariff

Registration Fee:	**Rs.500/-**
Admission Fee:	**Rs.1000/-**
Technology Fee (per semester)	**Rs.500/-**
4421	**Rs.8000/-**
4422	**Rs.8000/-**
4423	**Rs.8000/-**
9430	**Rs.6000/-**
9467	**Rs.6000/-**
Lab fee (per semester)	**Rs.6000/-**
First Semester Fee	**Rs.44,000/-**

v) Mode of Study

a) Medium of Instruction

The Medium of Instructions for B.Sc based BS Chemistry programme will be English.

b) Study Material

The Class Teacher will provide the study material however the students are advised to consult books from the list of recommended books for further reading.

c) Mode of Teaching

In this programme, regular classes for all courses / practical work will be conducted at AIOU Main Campus in Face to Face mode. Minimum 70% attendance is required for all subjects as per AIOU rules.

d) Assessment System

AIOU has adopted GPA/CGPA system from Spring Semester 2009 in all its four years Bachelor Degree programmes.

e) Method of Assessment for Theory and Laboratory Courses

Continuous Assessment for theory courses

Continuous assessment for theory courses will be based on assignments and class tests. The pass percentage in assignment(s)/test(s) will be 50%. The weight age of assignment / class test 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 weight age 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, Lab Quiz and Viva-voce. Each experiment will be assessed separately, and attendance in these labs will be compulsory for every student. Minimum required marks to pass each laboratory course will be 50%.

f) Degree Requirements

In order to become eligible for the award of degree of B.Sc based BS Chemistry programme, the student will have to successfully complete all the courses within a minimum period of 2.5 years (5 semesters) and maximum period of 4 years (8 semesters).

10) Contact Details

For further detail about Online admission please visit the University Website at www.aiou.edu.pk

OR

Chairperson
Department of Chemistry,
Science Block
Allama Iqbal Open University, H-8, Islamabad.
Contact Ph: 051-9575200

BS Programme Coordinator
Department of Chemistry,
Science Block
Allama Iqbal Open University, H-8, Islamabad.
Contact Ph: 051-9575217

FACULTY MEMBERS

1. **Dr. Uzma Yunus**
   Associate Professor/Chairperson
   Ph: 051–9575200
2. **Dr. Moazzam H. Bhatti**
   Professor
   Ph: 051–9575217
3. **Dr. Nasima Arshad**
   Associate Professor
   Ph: 051–9575218
4. **Dr. Muhammad Sher**
   Associate Professor
   Ph: 051-9575219
5. **Dr. Muhammad Zaman Ashraf**
   Assistant Professor
   Ph: 051-957 5224
6. **Dr. Iqbal Ahmed**
   Assistant Professor
   Ph: 051-9575223
7. **Dr. Muhammad Naeem Khan**
   Assistant Professor
   Ph: 051-9575225
8. **Dr. Muhammad Saleem**
   Assistant Professor
   Ph: 051-9575226
9. **Dr. Mehwash Zia**
   Lecturer
   Ph: 051-9575231
10. **Dr. Farzana Shaheen**
    Lecturer
    Ph: 051-9575232
11. **Dr. Erum Jabeen**
    Lecturer
    Ph: 051-9575234

DEPARTMENT OF ENVIRONMENTAL SCIENCE

The approval for the establishment of the Department of Environmental Science was granted by the Executive Council in February 1998. The department was initiated with the aim of creating awareness and understanding of knowledge and skills required for sustainable environmental management. The purpose of its establishment is to educate future generation and improvement of quality of life and welfare of human being through research for the environmentally sustainable and socially equitable use of the natural resources. The department is determined to provide quality educations to its wards through scientific and project-based learning curriculum. The Department was developed in 2005 with addition of two foreign professors.

The Department of Environmental Science committed to educate its students for sustainable development of society, ensuring economic stability with eco-centric approach of development. The students from different fields can opt environmental sciences not only as a degree of substantial market values but also for their personal development on important moral values of environmental stewardship, so they can contribute significantly in achievement of better and sustainable society.

The Department is continuously growing and flourishing both on quality teaching and research facilities to facilitate its students in better learning. Undoubtedly the current era is modern new world of environmental challenges that questions the safety and stability of life on earth. Through its developing labs and faculty the Department of Environmental Science promises to develop holistic educational approach for the students to deal with challenges of the modern era.

The Department is offering undergraduate programme:

i. BS Environmental Science 4- Years

The Department has well established lab facilities to foster the developing research ideas of the enrolled students, with competent faculty to guide them.

BS ENVIRONMENTAL SCIENCE 4 YEARS

1. Introduction

The increasing environmental degradation due to urbanization has highlighted the need of Environmental Sciences. It is an integrated discipline designed to provide a comprehensive knowledge of the fundamentals of biological and natural sciences in solving environmental problems. The Environmental Sciences department is currently running BS and MSc Environmental Sciences Programmes under the Faculty of Sciences at AIOU. Where currently offers undergraduate programme of BS Environmental Science. The courses being offered in the department are designed considering the multidisciplinary nature of the discipline and focus on understanding of the fundamental processes that contribute to environmental pollution and natural resource degradation with the aim to train students to combat pollution and ensure sustainable development in the country.

Graduates from the Department of Environmental Science can find potential opportunities and career in a national and international organization working for sustainable development.

2. Objectives:

The 4 years' degree programme will enable the students to apply interdisciplinary skills, systems approaches and perspectives to understand and analyze environmental issues and policies of global and local concerns. It aims at producing dynamic young environmentalists by developing academic foundation, technical skills, communication abilities and professionalism enabling them to compete in both the governmental and non- governmental sectors.

On accomplishing the course, the students will be able to:

i. Deal with local and global environmental challenges, both academically and practically
ii. Contribute in informed decision making, strategic planning and leadership in the society through interdisciplinary understanding and problem-solving abilities

3. Eligibility Criteria

i. F.Sc (premedical or pre-engineering) / DAE or equivalent qualification with minimum second division (at least 45% marks) is the pre-requisite for admission in BS Environmental Science.
ii. Foreign certificate/degree holders will need to produce equivalence certificate from IBCC.

4. Duration of Programme

To be eligible for the award of BS in Environmental Science, the student will have to complete 130 credit hours including six credit hours for research project, within a minimum period of 4 years (8 semesters) failing which, a student can be given an extension of 2 years (4 semesters) in maximum, after completion of initial period.

Scheme of Studies:

Semester 1		
Course Code	**Course Title**	**CH**
4401	Cell Biology, Genetics and Evolution	4(3+1)
4421	Inorganic Chemistry	4(3+1)
4441	Introduction to Environmental Science	4(3+1)
9467	Pre-Calculus	3(3+0)
5451	English I: Composition and Comprehension	3(3+0)
	Total Credits	**18**
Semester 2		
Course Code	**Course Title**	**CH**
4402	Diversity of Plants	4(3+1)
4422	Organic Chemistry	4(3+1)
4442	Environmental Pollution	4(3+1)
4432	Calculus-I	3(3+0)
5454	English II: Technical and Business Writing	3(3+0)
	Total credits	**18**
Semester 3		
Course Code	**Course Title**	**CH**
4469	Diversity of Animals	4(3+1)
4403	Fundamentals of Microbiology	4(3+1)
5465	Pakistan Studies	2
5458	English III: Communication Skills	3(3+0)
5469	Introduction to Sociology	3(3+0)
	Total Credits	**16**

Semester 4		
Course Code	**Course Title**	**CH**
4412	Biotechnology	4(3+1)
4445	Environmental Microbiology	4(3+1)
5468	Introduction to Computer	3(3+0)
9468	Public Relations	3(3+0)
5466/5467	Islamic Studies / Ethics*	2
	Total credits	**16**

Semester 5		
Course Code	**Course Title**	**CH**
4467	Physics of the Environment	4(3+1)
4443	Environmental Chemistry	4(3+1)
4482	Biostatistics	3(3+0)
4458	Environmental Policies and Regulations	3(3+0)
	Total credits	**14**

Semester 6		
Course Code	**Course Title**	**CH**
4446	Environmental Biology	4(3+1)
4448	Energy and Environment	3(3+0)
4444	Intro of EnvironmentalEconomics	3(3+0)
4438	Natural Resource Management	3(3+0)
7413	Scientific Research	4(3+ 1)
	Total credits	**17**

Semester 7		
Course Code	**Course Title**	**CH**
4452	Biodiversity and Conservation	4(3+1)
4455	Health, Safety & Environmental Management Systems	4(3+1)
4450	Environmental Impact Assessment	4(3+1)
4453	Sustainable Development	3(3+0)
4456	Environmental Toxicology	3(3+0)
	Total credits	**18**
Semester 8		
Course Code	**Course Title**	**CH**
4418	Research Project	6
4460	Project Management	3(3+0)
4483	GIS and Remote Sensing	4(3+1)
4440	Disaster: Risk and Management	3
	Total Credits	16

Total Credits =18+18+13+16+14+17+18+13= 130

5. Fee Tariff For 1st Semester

Item	Rates
Registration Fee (Once at time of admission)	Rs.500/-
Admission Fee (Once at time of admission)	Rs.1000/-
Technology Fee	Rs.500/-
Per 4 Credit hours course fee: Rs. 8000	Rs. 24000
Per 3 Credit hours course fee: Rs. 6000	Rs.12000/-
LAB CHARGES	Rs.3000/-
Total	Rs. 41000/-

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

6. Mode of Study:

i. Medium of Instruction

The Medium of Instructions for BS Environmental Science will be English.

ii. Study Material

iii. Lecture handouts will be provided by the department. The students are also advised to consult other reference books recommended by the department.

iv. Mode of Teaching

a) University will provide face to face teaching to the students.

b) The schedule of classes and dates of submission of assignments will be announced by the department.

v. Assessment and Evaluation

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

c) Continuous Assessment

i. Continuous assessment of practical courses will be based on assignments/class tests of 200 marks and practical of 100 marks. Student has to obtain 50% marks in theory and practical individually to pass this component.

ii. For non-practical courses, student has to obtain 50% marks assignments/class test in theory component only. The weightage of internal assessment in final result will be 30%.

d) Final Examination

Final written examination of 100 marks will be conducted. Pass percentage in final examination will be 50%.

The weightage of final exam will be 70% in final result.

If a student fails to pass in any assessment component of a course, he/she will have to re- enroll in that course.

14. Guidelines for Online Application (see page-v)

i. Visit AIOU Website: www.aiou.edu.pk

ii. Click on OAS (Online Admission System) for Fresh Admission

iii. Click 'Register'& fill details

iv. Upon successful registration please click on login

v. Fill login details and login to the portal

vi. After login click on Step-1 and complete your profile. Note: All tabs should be filled before applying for admissions.

vii. After completion of Step-1, click on Step-2 then click on "Download Challan" against programme (s) you wish to apply.

viii. Pay the *admission form fee* as per AIOU prescribed criteria through selected bank branches or online payment methods.

ix. After admission fee confirmation, you will be called on through SMS to visit the department for the verification of your credentials.

x. After the verification, you will be informed whether you are eligible for the admission in BS Programme or not.

7. Contact Details

For further information, contact:

Chairperson,

Department of Environmental Science

Faculty of Sciences, Research Complex (First Floor), Allama Iqbal Open University

Phone: 051 9057185

Office

Department of Environmental Science Faculty of Sciences, Research Complex (First Floor), Allama Iqbal Open University Phone: 051-9057726

Faculty Members

1. Dr. Sofia Khalid,

Associate Professor/Chairperson

Ph: 051 9575650

2. Dr. Zahid Ullah

Assistant Professor

Ph. 051-9575675

3. Dr. Samia Qadeer

Assistant Professor

Ph. 051-9575674

DEPARTMENT OF MATHEMATICS

Our vision is to be among the leading Mathematics departments of the country, which provides quality education in Mathematics and is the center of active and innovative research. The department aspires to promote understanding of Mathematics through teaching and research and inculcate in students the attributes of logical and critical thinking. 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.

Mathematical life at AIOU is very active. It comprises original investigations, discussions, lectures and teaching at many levels. We are deeply committed to superior research in mathematics and the scientific excellence of our faculty is well recognized in the mathematical community.

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

i. PhD Mathematics
ii. MPhil Mathematics
iii. BS Mathematics

Presently, these degree programmes are being offered at main campus only. However, in near future, the Department intends to offer these degree programmes at main regional headquarters. Also, it intends to start PhD Mathematics programme.

The department provides instructional support to all the faculties of the University in the teaching of courses related to Mathematical sciences. Presently, the Department is offering courses of Mathematics at Secondary School Certificate (SSC), Higher Secondary School Certificate (HSSC) and Bachelor levels. The graduate and undergraduate programs are carefully designed with a thoughtful selection of courses from applied, pure, financial and computational domains of mathematics in the light of guidelines provided by the HEC.

The Department offers programmes in various specializations which include Pure, Applied, Computational and Financial Mathematics. Academia and students frequently participate in national, regional and international conferences. The research interests of the Department of Mathematical Sciences range from abstract to applied aspects of the discipline. Building on our current strength, our goal is to strengthen areas related to Pure and Applied Mathematics. We believe that it will help students keep pace with the latest trends in mathematics on the one hand and contribute to society at large on the other. A clearer idea of the exact areas engaging the Department's current interest can be formed from the list of the faculty and their individual areas of research.

BS MATHEMATICS

1. Introduction

BS Mathematics has been designed after consulting syllabi of national and international universities. BS Mathematics programme will strengthen the mathematical concepts of the candidate and will enhance their logical thinking. This programme cater the needs of information technology and other sciences disciplines.

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.

2. Objectives:

After completing this programme, students will acquire the necessary knowledge based in the area of Mathematics. The overall objective of this programme is

i. To enhance the qualification of those who could not continue their education after F. Sc. through formal universities.

ii. To provide an opportunity to in service persons to improve their qualification and get promotion in their respective departments.

iii. To provide in-depth understanding of Mathematics and apply them in real life projects.

iv. To produce quality teacher/researchers of Mathematics at all levels.

3. Eligibility Criteria for BS Mathematics (04 years)

FSc with (Mathematics as major subject) with 45% marks or 2nd division.

4. Duration of Programme

The minimum duration of BS Mathematics Programme is **four years (8 Semesters)** and maximum duration to complete BS Mathematics Programme is **six years (12 Semesters).**

5. Access to B.Sc. students in BS 4 years Mathematics Program (5th Semester)

The bridging semester will be offered for B.Sc (14 years of education) students, so that they may be allowed to continue with students of BS Mathematics 4 years program in 5th semester after completing a bridging semester comprising (18 credit hours) of foundation courses.

6. Eligibility Criteria for BS Mathematics (BSc-Based)

B.Sc (Mathematics as major subject) with 45% marks or 2nd division.

7. Duration of Programme for BS Mathematics (B.Sc-Based)

In order to be eligible for the award of BS in Mathematics, the student will have to earn a total of 130 credit hours within a

minimum period of 4 years (8 semesters). Failing which, a student can be given an extension of 2 years (4 semesters) in maximum, after completion of initial period.

8. Scheme of Studies:

Semester 1		
Course Code	**Course Title**	**CH**
5451	English-I: Composition and Comprehension	3(3+0)
4432	Calculus-I	3(3+0)
5465	Pakistan Studies	2(2+0)
5468	Introduction to Computer	3(3+0)
4434	Introductory Statistics	3(3+0)
4471	Set Theory and Logic	3(3+0)
	Total Credits	**17**

Semester 2		
Course Code	**Course Title**	**CH**
5454	English-II: Technical and Business Writing	3(3+0)
4433	Calculus-II	3(3+0)
5466/5467	Islamic Studies/Ethics	2(2+0)
1549	Discrete Mathematics-I	3(3+0)
5474	Fundamentals of Environmental Sciences	3(3+0)
5469	Introduction to Sociology	3(3+0)
	Total credits	**17**

Semester 3		
Course Code	**Course Title**	**CH**
5458	English-III: Communication Skills	3(3+0)
5459	Waves and Oscillations	3(3+0)
4472	Algebra-I	3(3+0)
4473	Analytical Geometry	3(3+0)
4474	Vector and Tensor Analysis	3(3+0)
9466	Pakistani Adab-I	3(3+0)
	Total Credits	**18**

Semester 4		
Course Code	**Course Title**	**CH**
4489	Introduction to Probability and Probability Distributions	3(3+0)
5461	Heat and Thermodynamics	3(3+0)
4476	Mathematical Methods	3(3+0)
9473/9474	Language Arabic/French Level -I	3(3+0)
4477	Computing Tools	3(2+1)
	Total Credits	**15**

Semester 5		
Course Code	**Course Title**	**CH**
1520	Computer and Scientific Applications C++	3(2+1)
1521	Topology	3(3+0)
1522	Linear Algebra	3(3+0)
1523	Real Analysis-I	3(3+0)
1525	Ordinary Differential Equations	3(3+0)
	Total credits	**15**

Semester 6		
Course Code	**Course Title**	**CH**
1524	Differential Geometry	3(3+0)
1527	Complex Analysis	3(3+0)
1528	Group Theory	3(3+0)
1529	Analytical Mechanics	3(3+0)
1530	Real Analysis-II	3(3+0)
4475	Algebra-II	3(3+0)
	Total credits	**18**

Semester 7		
Course Code	**Course Title**	**CH**
1531	Numerical Methods	3(2+1)
1532	Partial Differential Equations	3(3+0)
1533	Functional Analysis	3(3+0)
1534	Theory of Rings	3(3+0)
1538	Mathematical Statistics-I	3(3+0)
	Total credits	**15**

Semester 8		
Course Code	**Course Title**	**CH**
	Optional-I	3(3+0)
	Optional-II	3(3+0)
	Optional-III	3(3+0)
	Optional-IV	3(3+0)
	Optional-V	3(3+0)
	Total credits	**15**

Total Credits ==17+17+18+15+15+18+15+15=130

The list of elective courses for BS Mathematics programme:

Sr. No.	Title of the Course	Code	CH
1.	Mathematical Finance-I	4478	3(3+0)
2.	Theory of Racks and Quandles	4479	3(3+0)
3.	Research Project	4480	3(0+3)
4.	Fluid Mechanics	1535	3(3+0)
5.	Applied Number Theory	1540	3(3+0)
6.	Mathematical Statistics-II	1542	3(3+0)
7.	Optimization	1544	3(3+0)
8.	Analytical Dynamics	1545	3(3+0)
9.	Mathematical Modeling	1546	3(3+0)
10.	Graph Theory	1547	3(3+0)
11.	Research Report	1550	3(3+0)
12.	Operation Research	1537	3(3+0)
13.	Combinatorics	1539	3(3+0)
14.	Galois Theory	1541	3(3+0)
15.	Algebraic Topology	1548	3(3+0)
16.	Relativistic Mechanics	1536	3(3+0)
17.	History of Mathematics	9415	3(3+0)

9. Bridging semester for BS Mathematics (BSc-Based)

Semester 1		
Course Code	**Course Title**	**CH**
5468	Introduction to Computers	3(3+0)
4434	Introductory Statistics	3(3+0)

4471	Set Theory and Logic	2(2+0)
1549	Discrete Mathematics-I	3(3+0)
4477	Computing Tools	3(3+0)
5461	Heat and Thermodynamics	3(3+0)
	Total Credits	**18**

Note: After completing bridging semester, students will continue their studies with BS Mathematics 5th semester students.

10. Fee Tariff For BS Mathematics 1st Semester

Item	**Rates**
Registration Fee (Once at time of admission)	Rs.500/-
Admission Fee (Once at time of admission)	Rs.1000/-
Technology Fee	Rs.500/-
Per 3 Credit hours course fee: Rs. 6000	Rs. 30000
Per 2 Credit hours course fee: Rs. 4000	Rs.4000/-
Lab Fee (Per Semester)	Rs.750/-
Total	Rs. 36750/-

11. Fee Tariff for bridging Semester

Item	**Rates**
Registration Fee (Once at time of admission)	Rs.500/-
Admission Fee (Once at time of admission)	Rs.1000/-
Technology Fee	Rs.500/-
Per 3 Credit hours course fee: Rs. 6000×6	Rs. 36000
Lab Fee (Per Semester)	Rs.750/-
Total	Rs. 38750/-

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

The following BS Mathematics Programme which is designed according to the latest guidelines of HEC curriculum of BS Mathematics

12. Mode of Study:

Students have to obtain minimum 50% marks in continuous assessment and 50% marks in final exam for passing each subject.

i. Medium of Instruction

The Medium of Instructions for BS Mathematics will be English.

ii. Study Material

Lecture handouts will be provided by the concerned resource person/department. However, the students are advised to consult other reference books recommended by the department.

iii. Mode of Teaching

c) University will provide face to face teaching to the students.

d) The schedule of classes and dates of submission of assignments will be handed over along with study material.

iv. Assessment and Evaluation

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

a) Continuous Assessment

A student has to obtain a minimum of 50% marks in the two assignments/sessionals collectively in order to pass this component.

b) Final Examinations

Written examination will be conducted for each course with 50% passing marks.

c) Weightage

30% weightage will be given to assignments/sessionals and 70% weightage will be given to final exam.

Note: If a student fails to pass in any of assessment component of a particular course, he / she will have to re-enroll in that course

13. Guidelines for Online Application (see page-v)

i. Visit AIOU Website: www.aiou.edu.pk
ii. Click OAS (Online Admission System) for Fresh Admission
iii. Click 'Register'& fill details
iv. Upon successful registration please click on login
v. Fill login details and login to the portal
vi. After login click on Step-1 and complete your profile.

Note: All tabs should be filled before applying for admissions.

i. After completion of Step-1, click on Step-2 then click on "Download Challan" against programme (s) you wish to apply.
ii. Pay the *admission form fee* as per AIOU prescribed criteria through selected bank branches or online payment methods.
iii. After admission fee confirmation, you will be called through SMS to visit the department for verification of your credentials.
iv. After document verification, you will be informed whether you are eligible for the admission in BS Programme or not.

In case a selected candidate fails to submit fee in time, the department may reserve the right to invite a candidate in waiting list for admission against vacant seat.

For Further Queries Contact:

Coordinator BS Mathematics

Department of Mathematics

Block #7, AIOU, H-8, Islamabad

Tel: 051 9575746; Email: bismah.jamil@aiou.edu.pk

14. Contact Details

For further information, contact:

i. Chairman

Department of Mathematics
Faculty of Sciences, Block # 7,
Allama Iqbal Open University
Phone: 051-9575700

ii. Coordinator BS-Mathematics

Department of Mathematics,
Faculty of Sciences, Block # 7
Allama Iqbal Open University, Phone: 051-9575732

Faculty Members

1. **Dr. Nasir Rehman**
   Associate Professor
   Chairman, Department of Mathematics
   Ph. 051-9575700
2. **Dr. Zahid Iqbal**
   Associate Professor
   Ph. 051-9575712
3. **Dr. Irfan Mustafa**
   Assistant Professor
   Ph. 051-9575723
4. **Dr. Muhammad Nazam**
   Lecturer
   Ph. 051-9575731
5. **Dr. Bismah Jamil**
   Lecturer
   Ph. 051-957 5732
6. **Mr. Muhammad Faisal Iqbal**
   Lecturer
   Ph. 051-9575746

7. **Mr. Rizwan Salim Badar**
   Lecturer
   Ph. 051-9575746
8. **Dr. Irfan Younas**
   Research Associate
   Ph. 051-9575735
9. **Ms. Fouzia Rehman**
   Research Associate
   Ph. 051-9575736

DEPARTMENT OF STATISTICS

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 also 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.

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

i. PhD Statistics

ii. MPhil Statistics
iii. 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 being offered at main campus only. However, in near future, the Department also intends to offer these degree programmes at main regional headquarters.

BS STATISTICS

1. 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.

2. Objectives

i. To enhance and upgradation of qualification of those potential candidates who have/do not have sufficient resources or due to other reasons to continue their studies after intermediate.
ii. To enable the students to get a better insight regarding in depth knowledge of Statistics.
iii. To produce quality teacher/researchers of Statistics at all levels.
iv. To prepare well trained and skilled graduates to cater the future needs in the field of Statistics.
v. To produce young and energetic minds in the field of Statistics in order to promote innovative research and critical thinking.

3. 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).

4. Duration of Programme

For the award of BS Statistics degree, the student will have to qualify the 130 credit hours consisting 44 courses within a minimum period of eight semesters (4 years) and maximum period of 12 semesters (6 years).

5. Scheme of Studies

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

Scheme of Studies BS Statistics, Spring 2023

Semester 1		
Course Code	**Course Title**	**CH**
5451	English-I: Composition and Comprehension	3(3+0)
5465	Pakistan Studies	2(2+0)
5468	Introduction to Computer	3(3+0)
4432	Calculus-I	3(3+0)
4434	Introductory Statistics	3(3+0)
9424	Quantitative Reasoning	3(3+0)
	Total Credits	**17**
Semester 2		
Course Code	**Course Title**	**CH**
5454	English-II: Technical and Business Writing	3(3+0)
5466/5467	Islamic Studies/Ethics (Non-Muslims)	2(2+0)
5469	Introduction to Sociology	3(3+0)
5474	Fundamentals of Environmental Sciences	3(3+0)
4433	Calculus-II	3(3+0)
4486	Introduction to Regression and Time Series Analysis	3(3+0)
	Total Credits	**17**

Semester 3		
Course Code	**Course Title**	**CH**
5458	English-III: Communication Skills	3(3+0)
5471	Mass Communication	3(3+0)
9466	Pakistani Adab-I	3(3+0)
9469	Population Studies	3(3+0)
4472	Algebra-I	3(3+0)
4491	Basic Statistical Inference	3(3+0)
	Total Credits	**18**
Semester 4		
Course Code	**Course Title**	**CH**
4477	Computing Tools	3(3+0)
4489	Introduction to Probability & Probability Distributions.	3(3+0)
4492	Official Statistics	3(3+0)
4493	Basics Design of Experiments	3(3+0)
9471	Human Resource Management	3(3+0)
9473	Arabic Language	3(3+0)
	Total Credits	**18**
Semester 5		
Course Code	**Course Title**	**CH**
1551	Statistical Methods	3(3+0)
1552	Sampling Techniques-I	3(3+0)
1553	Design and Analysis of Experiments-I	3(3+0)
1554	Probability & Probability Distributions-I	3(3+0)
1555	Advanced Calculus	3(3+0)
	Total Credits	**15**

Semester 6		
Course Code	**Course Title**	**CH**
1556	Probability & Probability Distributions-II	3(3+0)
1557	Regression Analysis	3(3+0)
1558	Sampling Techniques-II	3(3+0)
1559	Design and Analysis of Experiments-II	3(3+0)
1513	Non Parametric Methods	3(3+0)
	Total Credits	**15**

Semester 7		
Course Code	**Course Title**	**CH**
1561	Statistical Inference-Estimation	3(3+0)
1562	Econometrics	3(3+0)
1563	Total Quality Management	3(3+0)
1564	Computer Programming (C & C++)	3(3+0)
1514	Mathematical Methods for Statistics	3(3+0)
	Total Credits	**15**

Semester 8		
Course Code	**Course Title**	**CH**
1566	Statistical Inference-Testing of Hypothesis	3(3+0)
1567	Applied Multivariate Analysis	3(3+0)
1569	Data Analysis and Statistical Packages	3(3+0)
	Elective-I	3(3+0)
	Elective-II	3(3+0)
	Total Credits	**15**

The list of elective courses for BS Statistics programme:

Sr. No.	Course Title	Course Code	Credit Hours
1	Reliability Analysis	1571	3(3+0)
2	Data Mining	1572	3(3+0)
3	Bayesian Statistics	1573	3(3+0)
4	Biostatistics	1574	3(3+0)
5	Operations Research	1568	3(3+0)
6	Research Methodology	1570	3(3+0)

6. Fee Tariff for 1st semester

Registration Fee:	Rs.500/-
Admission Fee:	Rs.1000/-
Technology Fee (per semester):	Rs.500/-
Course Code	**Fee**
5468	Rs.6000/-
4432	Rs.6000/-
4434	Rs.6000/-
5465	Rs.4000/-
5451	Rs.6000/-
9242	Rs.6000/-
Lab fee (per semester)	Rs.750/-
Total Semester Fee	Rs.36,750/-

The BS Statistics Programme which is designed according to the latest guidelines of HEC curriculum of BS Statistics 2017-18.

7. Mode of Study

i. Method of Instruction

For each course, there would be 48 hours face to face teaching support to the students. Three-hour class/week for (3+0) credit hour course for a semester of sixteen weeks. The distribution of the lectures will be provided to the students in classes/workshop by the consultation with the teachers/resource persons. The classes will be supplemented by the computers

where required. Overall 70%, attendance would be compulsory to appear in sessional tests and final examination.

ii. 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.

iii. 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.

iv. **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/Sessionals 50%
Final Examination 50%
Aggregate 50%

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

8. Guidelines for Online Application (see page-v)

i. Visit AIOU Website www.aiou.edu.pk
ii. Click on OAS (Online Admission System) for Fresh Admission
iii. Click 'Register'& fill details
iv. Upon successful registration please click on login
v. Fill login details and login to the portal
vi. After login click on Step-1 and complete your profile.
a. Note: All tabs should be filled before applying for admissions.
vii. After completion of Step-1, click on Step-2 then click on "Download Challan" against programme (s) you wish to apply.
viii. Pay the *admission form fee* as per AIOU prescribed criteria through selected bank branches or online payment methods.
ix. After admission fee confirmation, you will be called on through SMS to visit the department for the verification of your credentials.
x. After the verification, you will be informed whether you are eligible for the admission in BS Programme or not.

8. Contact details

a. Chairman office

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

b. BS Programme Coordinator

Dr. Zahid Iqbal
Associate Professor
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   Staff Phone: Ph: 051-9057266

DEPARTMENT OF PHYSICS

Realizing the need of technology and scientific education in Pakistan, the 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, 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, the Department of Physics has been involved in several international, national and regional research projects. The Physics Department has developed research linkage with other National and International Universities and research organizations of repute to ensure two-way flow of knowledge.

BS Physics

1. Introduction

The Department of Physics offers a four-year BS Physics degree program. The program is designed according to the scheme of studies approved by the Higher Education

Commission (HEC) of Pakistan to meet the national and international standards.

It covers all aspects of Physics ranging from its foundations to modern research. The offered courses have a flexible curriculum that is capable of preparing students for advanced studies in Physics as well as careers in teaching and research institutes. The Department encourages the students to participate in research projects and provides them with possible facilities and guidance. In addition, students could participate in the activities of different university societies, attend departmental seminars, workshops and conferences.

2. Objectives

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

i. 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.
ii. To develop critical skills necessary for solving unknown problems from our physical surroundings.
iii. 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.
iv. To instill in students the habit of independent thinking, deep inquiry, and motivation for self-education.
v. To sharpen our students' mathematical prowess making them capable of modeling, analyzing, and predicting the behavior of physical processes.
vi. To enhance our students' skills in scientific communication and the ability to clearly present Physics and science in simple and clear language.
vii. To introduce students with the spirit of working in interactive groups with the necessary requirements of scientific and professional ethics.
viii. To develop hands-on experience in different laboratory techniques and modern instrumentation.
ix. To enhance students' competence in the design and conduct of experiments as well as analysis and presentation of experimental data and results.
x. To provide an in-depth understanding of some specialized areas of Physics through the option of elective courses.
xi. To equip students with the necessary skill set for pursuing careers in Physics education, research and industry in government or private organizations.

3. Eligibility Criteria for BS Physics (04 years)

FSc (Pre-Engineering/Pre-Medical)/ICS (Physics, Mathematics combination) / DAE with 45% marks or 2nd division.

4. Duration of Programme

The minimum duration of BS Physics Programme is **four years (8 Semesters)** and maximum duration to complete BS Physics Programme is **six years (12 Semesters).**

5. Access to B.Sc students in BS 4 years Physics Program (5^{th} Semester)

The bridging semester will be offered for B.Sc (14 years of education) students, so that they may be allowed to continue with students of BS Physics 4 years program in 5^{th} semester after completing a bridging semester comprising (18 credit hours) of foundation courses.

6. Eligibility Criteria (for BSc Students only)

B.Sc degree (Physics & Mathematics combination) with 45% marks or 2^{nd} division.

7. Scheme of Studies for BS Physics (04 years)

Semester-1		
Code	**Course**	**CH**
5451	English-I: Composition & Comprehension	3(3+0)
5465	Pakistan Studies	2(2+0)
5475	Basic Calculus–I	3(3+0)
5468	Introduction to Computers	3(3+0)
5452	Mechanics	4(3+1)
5453	Laboratory for Mechanics & Fluids	1(0+1)
5469	Introduction to Sociology	3(3+0)
	Total Credits	**19**

Semester-2		
Code	**Course**	**CH**
5476	Basic Calculus–II	3(3+0)
5454	English-II: Technical & Business Writing	3(3+0)
5455	Electricity & Magnetism	4(3+1)
5456	Laboratory for Electricity & Magnetism	1(0+1)
5459	Waves & Oscillations	3(3+0)
5466/ 5467	Islamic Studies or Ethics (for non-Muslim students only)	2(2+0)
754	Laboratory Techniques and Error Propagation	3(3+0)
	Total Credits	**19**

Semester-3		
Code	**Course**	**CH**
5477	Algebra in Physics	3(3+0)
5458	English-III: Communication Skills	3(3+0)
5470	Fundamentals of Statistics	3(3+0)
5461	Heat and Thermodynamics	3(3+0)
5471	Mass Communication Skills	3(3+0)
5460	Laboratory for Thermodynamics	1(0+1)
	Total Credits	**16**

Semester-4		
Code	**Course**	**CH**
5457	Modern Physics	3(3+0)
5472	Differential Equations	3(3+0)
5473	Probability & Statistics	3(3+0)

5462	Optics	3(3+0)
5463	Laboratory for Optics & Spectroscopy	1(0+1)
5474	Fundamentals of Environmental Sciences	3(3+0)
	Total Credits	**16**
	Semester-5	
Code	**Course**	**CH**
751	Mathematical Methods in Physics -1	3(3+0)
752	Classical Mechanics & Relativity	3(3+0)
2564	Electronics	3(3+0)
2551	Atomic & Molecular Physics	3(3+0)
766	Laboratory for General & Nuclear Physics	2(0+2)
	Total Credits	**14**
	Semester-6	
Code	**Course**	**CH**
755	Mathematical Methods in Physics -II	3(3+0)
756	Quantum Mechanics-I	3(3+0)
765	Electromagnetic Theory – I	3(3+0)
2566	Thermal & Statistical Physics	3(3+0)
769	Computational Physics	3(3+0)
762	Laboratory for Electronics	2(0+2)
	Total Credits	**17**
	Semester-7	
Code	**Course**	**CH**
2565	Electromagnetic Theory – II	3(3+0)
759	Quantum Mechanics-II	3(3+0)
761	Solid State Physics -I	3(3+0)
758	Lasers & Optics	3(3+0)
2553	Digital & Computer Hardware Electronics	3(3+0)
2556	Laboratory for Digital & Computer Hardware Electronics	3(0+3)
	Total Credits	**18**
	Semester-8	
Code	**Course**	**CH**
5464	Research Techniques	3(3+0)
760	Nuclear Physics	3(3+0)
2560	Advanced Digital & Computer Hardware Electronics	3(3+0)
2561	Laboratory for Advanced Digital & Computer Hardware Electronics	4(0+4)
2559	Electronic Communication System	3(3+0)
	Total Credits	**16**

Total Credits= 19+19+16+16+14+17+18+16=135

8. Bridging semester for BSc

Bridging Semester		
Code	**Course**	**CH**
5462	Optics	3(3+0)
5457	Modern Physics	3(3+0)
5477	Algebra in Physics	3(3+0)
5472	Differential Equations	3(3+0)
5458	English-III: Communication Skills	3(3+0)
5474	Fundamentals of Environmental Sciences	3(3+0)
	Total Credits	**18**

Note: After completing bridging semester, students will continue their studies with BS Physics 5th semester students.

9. Fee Tariff for 1st Semester BS Physics (04 years)

Item	Rates
Registration Fee (Once at time of admission)	Rs.500/-
Admission Fee (Once at time of admission)	Rs.1000/-
Technology Fee	Rs.500/-
Per 4 Credit hours course fee: Rs. 8000*1	Rs. 8000
Per 3 Credit hours course fee: Rs. 6000*4	Rs.24000/-
Per 2 Credit hours course fee: Rs. 4000*1	Rs.4000/-
Per 1 Credit hours course fee: Rs. 2000*1	Rs.2000/-
Total	Rs. 40000/-

10. Fee Tariff for bridging Semester

Item	Rates
Registration Fee (Once at time of admission)	Rs.500/-
Admission Fee (Once at time of admission)	Rs.1000/-
Technology Fee	Rs.500/-
Per 3 Credit hours course fee: Rs. 6000*6	Rs.36000/-
Total	Rs. 38000/-

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

11. Mode of Study

i. Medium of Instruction

The Medium of Instructions for BS Physics will be English.

ii. Study Material

The Department will provide soft copies of course books and lecture handouts.

iii. Mode of Teaching

a) University will provide face to face teaching to the students.

b) The schedule of classes and dates of submission of assignments/tests/quizzes/presentations will be announced by the department.

iv. Assessment and Evaluation

For each course the student's progress will be assessed on the basis of the following:

a) **Continuous Assessment through written assignments/tests or Workshop or practical activities.**

Student performance is evaluated / assessed as under:
Class assignment through quiz/sessional test/assignment weightage is 20%
The pass percentage in quiz/sessional test/assignment will be 50%.
70% of attendance for all Theory Courses and 80% for laboratory courses is compulsory.
Weightage of attendance for theory courses = 10%

b) **Final Examinations:**

Final Paper weightage = 70%

A written examination will be conducted for each course with 50% passing marks.

Note: If a student fails to pass in any of assessment component of a particular course, he / she will have to re-enroll in that course

12. Guidelines for Online Application (see page-v)

i. Visit AIOU Website: www.aiou.edu.pk
ii. Click OAS (Online Admission System) for Fresh Admission
iii. Click 'Register'& fill details
iv. Upon successful registration please click on login
v. Fill login details and login to the portal
vi. After login click on Step-1 and complete your profile.

Note: All tabs should be filled before applying for admissions.

i. After completion of Step-1, click on Step-2 then click on "Download Challan" against program (s) you wish to apply.
ii. Pay the *admission form fee* as per AIOU prescribed criteria through selected bank branches or online payment methods.
iii. After admission fee confirmation, you will be called through SMS to visit the department for verification of your credentials.
iv. After document verification, you will be informed whether you are eligible for the admission in BS Program or not.
v. In case a selected candidate fails to submit fee in time, the department may reserve the right to invite a candidate in waiting list for admission against vacant seat.

12. Contact Details

For further detail about Online admission please visit the University Website at www.aiou.edu.pk

OR

Chairperson
Department of Physics,
New Science Block
Allama Iqbal Open University, H-8, Islamabad.
Contact Ph: 051-9575400

BS Programme Coordinator
Department of Physics,
New Science Block
Allama Iqbal Open University, H-8, Islamabad.
Contact Ph: 051-9575426

FACULTY MEMBERS

1. **Prof. Dr. Syed Zafar Ilyas**
   Professor / Chairman
   Ph: 051–9575400
2. **Dr. Syed Raza Ali Raza**
   Associate Professor
   Ph: 051–9575418

3. **Dr. Surayya Mukhtar**
   Assistant Professor
   Ph: 051–9575423
4. **Dr. Ather Hassan**
   Assistant Professor
   Ph: 051-9575425
5. **Dr. Muhammad Tariq Jan**
   Assistant Professor
   Ph: 051-9575426
6. **Dr. Abdul Jalil**
   Assistant Professor
   Ph: 051-9575424
7. **Dr. Zulfiqar Ali Shah**
   Assistant Professor
   Ph: 051-9575427
8. **Ms. Hareem Mufti**
   Lecturer
   Ph: 051-9575433
9. **Ms. Uzma Nosheen**
   Lecturer
   Ph: 051-9057225
10. **Dr. Tayyaba Aftab**
    Lecturer
    Ph: 051-9575431

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 changed 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 being 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. On payment of the registration fee, each student will be issued a student ID. This number must be quoted in all the future correspondence along with the Student, course(s), code numbers and semester.

viii. Study material shall be available on university website. University will not provide hard copy of books.

ix. 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.

x. A student who fails in continuous assessment component is not eligible to reappear but will be allowed to re-enroll

for the same course at its next offering semester by the university.

xi. It is the responsibility of the student to remain in touch with the department regarding the selected programme.

xii. 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 withdraw from the previous programme.

xiii. After completion of a programme successfully, a student has to apply to Controller of Examinations for issuance of certificate/degree.

xiv. The university reserves the right to change contents of this prospectus without any prior notice as per university policy.

xv. 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.

xvi. 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.

xvii. If any mistake found in compilation or declaration of result at any stage.

xviii. If any candidate found ineligible for a degree/diploma/certificate during the cross verification process of result and documents at any stage.

xix. If found that candidate submitted forged/fake illegal documents(s) in the University at any stage.

Note: Withdrawal/ Invalid/ Revoke/ Quash of degree/ diploma/ certificate for the reasons listed above (xvii-xix) shall be made any time with no legal restriction of time period. This action shall not be challengeable in the court(s) or at any legal forum.

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.

PROCEDURE OF FEE DEPOSIT THROUGH TELECOS

Easypaisa

Through Easypaisa App

The account may be created after downloading the Easypaisa Mobile App from Playstore. For using this mode, student must have balance equal to his/her payable fee in Easypaisa mobile account. There are **no transactions charges**, if student use this mode to pay his/her fee. Following is the procedure of fee payment through Easypaisa App.

1. Login to Easypaisa App
2. Press "View All"
3. In "Payment" Section, select "Fee Collection"
4. Select "AIOU"
5. Enter "Challan Number"
6. Easypaisa App will show the payable amount & due date
7. Press "Pay Now"
8. Fee will be Paid and student will receive confirmation SMS from 3737
9. Student will write **Transaction ID** and **"Paid via Easypaisa App"** on the challan and admission form. Students are advised to keep the confirmation SMS save in phone until the receipt of intimation of admission confirmation from AIOU.

Through USSD String *786#

The Easypaisa mobile wallet account may be created by dialing *786#. For using this mode, student must have balance equal to his/her payable fee in Easypaisa mobile account. There are **no transactions charges**, if student use this mode to pay his/her fee. Following is the procedure of fee payment through USSD string *786#

1. Dial *786#
2. Select "4" (Payments)
3. Select "7" (Fee Collections)
4. Select "99" (Next)
5. Select "AIOU"
6. Enter Challan No.
7. Screen will show the payable amount & due date
8. Enter Mobile Account PIN
9. Fee will be Paid and student will receive confirmation SMS from 3737
10. Student will write **Transaction ID** and **"Paid via Easypaisa786 String"** on the challan and admission form. Further, students are advised to keep the confirmation SMS save in phone until the receipt of intimation of admission confirmation from AIOU.

Through Easypaisa Retailer (Agent) Shop/Telenor Franchise / Telenor Bank Branches

Fee can also be paid by visiting any Easypaisa Agent shop, Telenor franchise and Telenor Microfinance Bank branch. For using this mode, student has to pay **Rs.15 per transaction** in addition to the payable fee. Following is the fee payment procedure through this mode:

1. Student may visit any nearest Easypaisa Retailer (Agent) Shop, Telenor franchise or Telenor Microfinance Bank branch

2. Student will inform the retailer/franchisee/teller that he/she wish to pay fee of AIOU
3. Retailer/Franchisee/Teller will ask the student to share CNIC number, Mobile Number & Challan Number
4. Retailer/Franchisee/Teller will enter the Challan Number in his Easypaisa Tab/system
5. Tab/System will show the payable amount & due date
6. Student will hand-over the fee amount to retailer/ franchisee/teller
7. Once the fee amount is handed over, the retailer/ franchisee/teller will process the fee transaction
8. Fee will be paid and student will receive confirmation SMS from 3737 on mobile number. Transaction charges will be mentioned in the confirmation SMS
9. Student will write **Transaction ID** and **"Paid via Easypaisa Agent/Franchisee/Teller"** on the challan and admission form. Bank stamp will be embossed only in case the fee is paid through Telenor Microfinance Bank branches. Further students are advised to keep the confirmation SMS save in phone until the receipt of intimation of admission confirmation from AIOU.

Upaisa

Through Upaisa App

The account may be created after downloading the Upaisa Mobile App from Playstore. For using this mode, student must have balance equal to his/her payable fee in Upaisa mobile account. There are **no transactions charges**, if student use this mode to pay his/her fee. Following is the procedure of fee payment through Upaisa App.

1. Login to Upaisa App
2. Please click on "Payments"
3. Click on "AIOU"
4. Enter "Challan Number"
5. Upaisa App will show the payable amount
6. Press "Pay Now"
7. Fee will be Paid and student will receive confirmation SMS
8. Student will write **Transaction ID** and **"Paid via Upaisa App"** on the challan and admission form. Students are advised to keep the confirmation SMS save in phone until the receipt of intimation of admission confirmation from AIOU.

Through USSD String *786#

The Upaisa mobile wallet account may be created by dialing *786#. For using this mode, student must have balance equal to his/her payable fee in Upaisa mobile account. There are **no transactions charges**, if student use this mode to pay his/her fee. Following is the procedure of fee payment through USSD string *786#

1. Dial *786#
2. Select "Payments"
3. Select "AIOU"
4. Enter Challan No.
5. Screen will show the payable amount
6. Student will enter his/her Mobile Number and PIN
7. Fee will be Paid &student will receive confirmation SMS
8. Student will write **Transaction ID** and **"Paid via Upaisa786 String"** on the challan and admission form. Students are advised to keep the confirmation SMS save in phone until the receipt of intimation of admission confirmation from AIOU

Through Upaisa Agent Shop/Ufone Franchise /PTCS OSS/U Microfinance Bank Branches

Fee can also be paid by visiting any Upaisa Agent shop, Ufone franchise, PTCL One stop shop (OSS) and U Microfinance Bank branch. For using this mode, student has to pay **Rs.15 per transaction** in addition to the payable fee. Following is the fee payment procedure through this mode.

1. Student may visit any nearest Upaisa Retailer (Agent) Shop, Ufone Franchise, PTCL OSS or U Microfinance Bank branch
2. Student will inform the retailer/franchisee/teller that he/she wish to pay fee of AIOU
3. Retailer/Franchisee/Teller will ask the student to share CNIC number, Mobile Number & Challan Number
4. Retailer/Franchisee/Teller will enter the Challan Number in his Upaisa Tab/system
5. Tab/System will show the payable amount & due date
6. Student will hand-over the fee amount to retailer/ franchisee/ teller
7. Once the fee amount is handed over, the retailer/ franchisee/teller will process the fee transaction
8. Fee will be paid and student will receive confirmation SMS on mobile number. Transaction charges will be mentioned in the confirmation SMS.
9. Student will write **Transaction ID** and **"Paid via Upaisa Agent/Franchisee/Teller"** on the challan and admission form. Bank stamp will be embossed only in case the fee is paid through U Microfinance Bank branches. Students are advised to keep the confirmation SMS save in phone until the receipt of intimation of admission confirmation from AIOU.

Jazz Cash (Through Jazzcash App)

The account may be created after downloading the Jazzcash Mobile App from Playstore. For using this mode, student must have balance equal to his/her payable fee in Jazzcash mobile account. There are **no transactions charges**, if student use this mode to pay his/her fee. Following is the procedure of fee payment through Jazzcash App.

1. Login to Jazzcash App
2. Please click on "Education Fee"
3. Select "Universities" from the Menu
4. Select "AIOU" from the Sub Menu
5. Enter "Challan Number"
6. Jazzcash App will show the payable amount and due date
7. Enter MPIN
8. Fee will be Paid &student will receive confirmation SMS
9. Student will write **Transaction ID** and **"Paid via Jazzcash App"** on the challan and admission form. Students are advised to keep the confirmation SMS save in phone until the receipt of intimation of admission confirmation from AIOU.

Through USSD String *786#

The Jazzcash mobile wallet account may be created by dialing *786#. For using this mode, student must have balance equal to his/her payable fee in Jazzcash mobile account. There are **no transactions charges**, if student use this mode to pay his/her fee. Following is the procedure of fee payment through USSD string *786#

1. Dial *786#

2. Select “Payments”
3. Select “Education Payments”
4. Select “AIOU”
5. Enter Challan No.
6. Screen will show the payable amount
7. Enter MPIN
8. Fee will be Paid &student will receive confirmation SMS
9. Student will write **Transaction ID** and **“Paid via Jazzcash786 String”** on the challan and admission form. Students are advised to keep the confirmation SMS save in phone until the receipt of intimation of admission confirmation from AIOU.

Through Jazzcash Agent Shop/Jazz Franchise /Mobilink Microfinance Bank Branches

Fee can also be paid by visiting any Jazzcash Agent shop, Jazz franchise and Mobilink Microfinance Bank branch. For using this mode, student has to pay **Rs.20 per transaction** in addition to the payable fee. Following is the fee payment procedure through this mode.

1. Student may visit any nearest Jazzcash Retailer (Agent) Shop, Jazz Franchise or Mobilink Microfinance Bank branch
2. Student will inform the retailer/franchisee/teller that he/she wish to pay fee of AIOU
3. Retailer/Franchisee/Teller will ask the student to share CNIC number, Mobile Number & Challan Number
4. Retailer/Franchisee/Teller will enter the Challan Number in his Jazzcash Tab/system
5. Tab/System will show the payable amount & due date
6. Student will hand-over the fee amount to retailer/ franchisee/teller
7. Once the fee amount is handed over, the retailer/ franchisee/teller will process the fee transaction
8. Fee will be paid and student will receive confirmation SMS on mobile number. Transaction charges will be mentioned in the confirmation SMS
9. Student will write **Transaction ID** and **“Paid via Jazzcash Agent/Franchisee/Teller”** on the challan and admission form. Bank stamp will be embossed only in case the fee is paid through Mobilink Microfinance Bank branches. Students are advised to keep the confirmation SMS save in phone until the receipt of intimation of admission confirmation from AIOU.

Admission form (Original) to be sent to Directorate of Admission and Mailing through Post Office or any other courier service.

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.

REGULATIONS FOR REFUND OF ADMISSION FEE

i. The Applicant/candidate/student who has submitted his/her fee for Admissions but does not wish to continue and applied for refund of fee before the start of his/her study period as per Academic Calendar available on the AIOU website corresponding to his/her respective semester i.e Autumn or Spring, the fees will be refunded after the deduction @ 10% of the total fee.

ii. The Applicant/Candidate who was not eligible but deposited the fee for admission and applied for refund within one year from the date of fee deposit, the fee shall be refunded after deduction @15% of total fee.
iii. The student who has deposited his/her fee in excess of due fee that total excess amount shall be refunded or adjusted as the case may be.
iv. The Treasurer Department shall verify the fee of students and shall send the case to the Audit Department for pre-audit.
v. The cheque will be issued to the candidate by the Campus Payment Section (CPS), Treasurer's Department.
vi. In the case of death, the full fee will be refunded through crossed cheque in favour of the Blood Relative of deceased student, after fulfilling all the codal formalities. The refund case must be submitted within one year of fee deposit.
vii. In case the students who are not allowed/granted admission to a program offered by the University due to less enrollment/non formation of viable group/non offering of courses, full fee will be refunded to them.
viii. If the admission of an Applicant/Candidate is not matured due to any reason beyond the control of the
ix. University or due to unforeseen issues, the whole paid fee, without any deductions shall be refunded to the respective applicant/candidate. The refund case must be submitted within one year of fee deposit.

DISABILITY COORDINATORS:

In compliance with Higher Education Commission (HEC) revised policy i.e., "Policy for students with disabilities at HEIs in Pakistan 2021", the following Officers have been appointed as Disability Coordinators to facilitate the students with disabilities at AIOU.

Sr.#	Name of the Officer	Telephone Nos.
1.	Dr. Hira Ibrahim Medical Officer	051-9571110
2.	Mr. Umair Bin Nadeem, Assistant Director Press & Media, Directorate of Public Relations	051-9571372

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.	Admission (Postgraduate)	051-9571547
Helpline: (051) 111 112 468 **Help Desk: support.aiou.edu.pk**		

ALLAMA IQBAL OPEN UNIVERSITY, REGIONAL NETWORK

FEDERAL AREA ISLAMABAD
Adl. RD, Regional Campus, AIOU,
Block No 27, (Services Block) Sector H-8,
ISLAMABAD. Ph:(051)9250171-92507178. **Email: vd_isb@aiou.edu.pk**

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Email: rd_dgkhan@aiou.edu.pk

RD, Regional Campus, AIOU,
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RD, Regional Campus, AIOU, 10-X Block, Peoples Colony, **GUJRANWALA.**
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