

**PROSPECTUS**  
**OF**  
**Certificate/Diploma/BS/MSc/  
MSc Hons/MS/MPhil/PhD Programmes**  
**FOR**  
**SEMESTER: SPRING 2021**



**Allama Iqbal Open University**  
**Islamabad**

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

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

\*&\*\* As per AIOU rules.

## Vice-Chancellor's Message

**Dear Student,**

السلام عليكم

Welcome to Allama Iqbal Open University, the first distance education university in South Asia that provides cost effective education to 1.3 million students not only in Pakistan but also in Middle East. This university has the unique privilege of blurring temporal and spatial boundaries by providing education at the thresholds of the students. The university offers a diverse range of educational facilities, starting from basic literacy Programmes to the PhD level. The courses are regularly revised to bring them at par with international standards. The university offers maximum number of specializations at postgraduate level through four faculties, i.e. Faculty of Arabic and Islamic Studies, Faculty of Education, Faculty of Sciences, and Faculty of Social Sciences and Humanities. The university has a huge network of faculty members, tutors, resource persons, specialists and experts who strive hard to ensure that the Programmes offered by the university enable the students to become independent learners and critical thinkers. The university takes special measures to establish and strengthen research culture and prepare those individuals who can play an instrumental role in the process of progress and development of the country.



I welcome you to the postgraduate studies at AIOU and wish you a challenging yet successful journey ahead.

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

## **ALLAMA IQBAL OPEN UNIVERSITY**

Allama Iqbal Open University, a Mega university was established in 1974 under an Act of Parliament. The main campus of the university is situated in sector H-8, Islamabad. It was the second open university of the world and the first of its kind in Asia and Africa. The aim of establishing AIOU was to provide affordable and accessible education through distance learning at the door-steps to those people who could not continue their education journey through formal system of education. The University (AIOU) operates on semester system and admits students in Autumn and Spring semesters. Under graduate admissions are offered in both the semesters where-as post graduates are offered once a year. The enrolled students are given course books specially prepared by the university on self-instructional principles. However, at post graduate level reprints of foreign books, allied material with 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 comprises of four faculties. The university has established study centres across the country, where distance education students are provided necessary guidance by their respective tutors. Moreover, the university has established full time study centres, wherein the students of MCom, MBA (IT), MBA (Banking and Finance), BS (CS), etc. are being provided instruction, guidance and counselling through face-to-face education. AIOU is offering four year 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 research scholars, a science complex has been built where they use the latest equipment of international standard for experiments and research. To meet the present day challenges internet facility is also available in the student's hostel and the Central Library where computers have been provided to enable students to access latest information available through open source databases.

## **FACULTY OF SCIENCES**

Faculty of Sciences forms an important and integral part of the university. Since its establishment in 1982 with five teaching departments, it has undergone major development changes. It now comprises nine teaching and research departments which are offering courses at the undergraduate and postgraduate levels to more than ten 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 programmes and educational facilities. This principle has necessitated some structural changes in the non- formal mode, particularly at the postgraduate level, in the offering of theory courses and practical lab work. This conceptual adjustment has been quite successful and many in- service students are benefiting from the postgraduate study programmes. Improvement in qualifications for a better life is a right of everyone and the Faculty’s programmes meet this challenge by offering opportunities to all. In particular, a significant number of beneficiaries are those who cannot afford education in formal institutions due to a variety of reasons.

Realizing the importance of science education and growing needs of the Faculty of Sciences, the University has completed a building, the Research Complex, at a cost of Rs 35 million. The Research Complex now accommodates departments of Agricultural Sciences, Biology, Chemistry, Environmental Sciences, Home & Health Sciences, Mathematics & Statistics and Physics. These departments are running a variety of postgraduate technical, scientific and professional programmes successfully.

The Research Complex also has a Computer Lab with Internet and On-line Library Facility for literature survey, Seminar Room, Lecture Hall and Library. In addition, there are many labs for practical work, teaching and research, and instrumentation labs for analysis. The University is developing these labs through its own resources. The Faculty of Sciences is fortunate to have Prof. Dr. Zia-ul-Qayyum as the University's Vice-chancellor, who has given personal attention to the development of the Faculty of Sciences by providing generous amount of funds and valuable guidance.

Two Model labs have been developed in the Research Complex with the assistance of the Higher Education Commission to meet the training needs of science teachers. This development is significant for training of teachers since under the new educational policy four-year BS programme has started in undergraduate educational institutions.

More than fifty highly qualified full-time faculty members are on the roll of the Faculty of Sciences. Their role in the planning, designing and development of courses to meet students' needs is vital. Faculty members also engage in teaching and research

so that high standards are maintained. In addition, highly qualified and experienced professors are also engaged on contractual basis or as part time instructors for postgraduate study programmes. The Faculty is also offering academic positions under the tenure-track system to attract the best minds in scientific and technological fields.

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

For MS and MPhil degree, 24 credit hours of Coursework and a minimum of one year of research work in a specialized area of the disciplines is required. A candidate for the 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 BS programme in Chemistry and Microbiology from semester Spring 2009. The four-year BS programme is structured according to the recent policies of the Higher Education Commission for the improvement of the standard of education so as to bring it at par with the international standards.

## DEPARTMENT OF STATISTICS

### **Introduction:**

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

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

### **Academic Programmes**

Department of Statistics offers the following degree programs. All these programmes are approved by Higher Education Commission, Islamabad.

- PhD Statistics
- MPhil Statistics
- MSc Statistics
- BS (4 Years) Statistics

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

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

### **PhD Statistics**

#### **a) Introduction:**

To meet the challenging requirements of today's fast growing world, we are in desperate need of experts in the field of Statistics. By realizing the shortage of experts in Statistics, the Department of Statistics has planned to offer PhD in Statistics. The expert statisticians are not only needed in the area of education, but also in industry and research. The curriculum of the Programme is designed in such a way that both the coursework and the research components are covered thoroughly.

**b) Objectives:**

The main objectives of PhD Statistics Programme are:

1. To enhance the qualification of those who could not continue their education after MPhil Statistics.
2. To provide opportunity for in-service persons to improve their qualification and get promotion in their respective departments.
3. To prepare quality teachers/researchers of Statistics at all levels or in equivalent positions in industry or government.

**c) Eligibility:**

The candidates must have MS/MPhil Statistics Degree with minimum 3.0 CGPA (in semester system) or First Division (in annual system). Departmental Admission Committee will finalize the admissions after conducting the test and interview as per AIOU rules.

**d) Duration:**

The minimum duration of PhD Statistics Programme is 3 years (6 semesters). Student has to complete 30 credit hours for the award of PhD Degree.

**e) Scheme of Studies:**

Code	Title	Credit Hours
<b>1<sup>st</sup> Semester</b>		
4769	Advanced Topics in Regression and Econometrics	3(3+0)
-	Elective-I	3(3+0)
-	Elective-II	3(3+0)

**2<sup>nd</sup> Semester**

Code	Title	Credit Hours
4770	Advanced Topics in Statistical Inference	3(3+0)
-	Elective-III	3(3+0)
-	Elective-IV	3(3+0)

**3<sup>rd</sup> Semester**

Code	Title	Cr. Hrs
4768	Research Thesis	12(12+0)

**4<sup>th</sup> Semester**

Code	Title	Cr. Hrs
4768	Research Thesis	12(12+0)

**5<sup>th</sup> Semester**

Code	Title	Cr. Hrs
4768	Research Thesis	12(12+0)

**6<sup>th</sup> Semester**

Code	Title	Cr. Hrs
4768	Research Thesis	12(12+0)

**Elective Courses:**

Following is the list of elective courses for PhD Statistics program:

Sr. No.	Course Code	Course Title	Credit Hours
1	4761	Survival Analysis	3(3+0)
2	4762	Bayesian Inferential Statistics	3(3+0)
3	4763	Stochastic Processes	3(3+0)
4	4765	Measure Theory	3(3+0)
5	4766	Response Surface Design	3(3+0)

6	4767	Recent Developments in Statistics	3(3+0)
7	9751	Actuarial Statistics	3(3+0)
8	9752	Statistical Theory for Extreme Events	3(3+0)
9	9753	Mixture Distributions	3(3+0)
10	9754	Applied Time Series Econometrics	3(3+0)
11	9755	Spatial Data Analysis	3(3+0)
12	9756	Generalized Logistic Regression	3(3+0)
13	9757	Repeated Measure Analysis	3(3+0)
14	9758	Multilevel Modeling	3(3+0)
15	9759	Mathematical Demography	3(3+0)

The Department of Statistics will offer elective courses from the above list depending upon the availability of faculty.

**f) Fee Tariff:**

Admission fee (At the time of first admission)	Rs.2500/-
Per 3 credit hours (9000 x 3) = 27,000/-	Rs.27,000/-
Registration fee (At the time of 1st admission only)	Rs.2500/-
Technology fee (per student per semester)	Rs.500/-
<b>First Semester Total Fee</b>	<b>Rs.32,500/-</b>

**g) Instructional Methodology:**

**Face to Face teaching (Tutorials):**

For each course, 45 hours face to face teaching support will be provided through workshops/weekend classes. The final schedule of the lectures will be distributed to the students in consultation with the teachers (resource persons). The classes

will be supplemented by the computers where required. 70% attendance in face to face teaching would be compulsory.

**Continuous Assessment:**

- Two home-assignments for each course will be given to the students.
- Two sessional exams/presentations for each course will be conducted and 50% marks in sessional exams/ presentations is mandatory to appear/qualify for final examination.
- 30% weightage will be given to the assignments/sessional tests/presentations.
- A student who fails in continuous assessment component is not eligible to appear in final exam but will be allowed to re-register for the same course at the next offering by the university, if eligible.

**Final Examination:**

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

**Passing Marks:**

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

**Comprehensive Examination:**

The students completing the PhD coursework shall be allowed to appear in Comprehensive Examination arranged and conducted by the Department as per rules of the Higher Education Commission (HEC). Only those candidates who pass the comprehensive examination will be allowed to continue with their PhD research work and attend the two-week synopsis workshop after depositing the required fee.

**Thesis:**

The student will be required to submit a research proposal (synopsis) to the department during the Synopsis Orientation Workshop. One month before the specified date for final submission of thesis for external evaluation, the student has to present his/her research work to the departmental committee.

**Viva Voce:**

After approval of the thesis by the external examiners, the student has to appear before a viva-voce committee to defend his/her thesis.

**Note: Please send your admission form complete in all respect on the following address:**

*Chairman,  
Department of Statistics,  
Basement, Science Block, AIOU  
Sector H-8, Islamabad  
Ph. No. 051-9057266, 9250062  
Email: [statistics@aiou.edu.pk](mailto:statistics@aiou.edu.pk)*

For further clarification/guidance, please feel free to contact on the following contents.

**FACULTY MEMBERS**

1. **Prof. Dr. Irshad Ahmad Arshad**  
Chairman  
Ph: 051-9057163, 9250062  
Email: [irshad.ahmad@aiou.edu.pk](mailto:irshad.ahmad@aiou.edu.pk)

2. **Dr. Muhammad Zakria**  
Associate Professor  
Ph: 051-9057372,  
Email: [zakria@aiou.edu.pk](mailto:zakria@aiou.edu.pk)
3. **Dr. Zahid Iqbal**  
Associate Professor  
Ph: 051-9057446  
Email: [zahid.iqbal@aiou.edu.pk](mailto:zahid.iqbal@aiou.edu.pk)
4. **Dr. Tauqir Ahmed Mughal**  
Assistant Professor  
Ph: 051-9057209  
Email: [tauqirahmed1@outlook.com](mailto:tauqirahmed1@outlook.com)
5. **Dr. Muhammad Yameen Danish**  
Lecturer  
Ph: 051-9250062  
Email: [yameen.danish@aiou.edu.pk](mailto:yameen.danish@aiou.edu.pk)
6. **Mr. Sajid Amir Shah**  
Research Associate  
Ph: 051-907209  
Email: [sajid.shah@aiou.edu.pk](mailto:sajid.shah@aiou.edu.pk)
7. **Ms. Lubna Naz**  
Statistical Assistant  
Ph: 051-9057287  
Email: [lubna.naz@aiou.edu.pk](mailto:lubna.naz@aiou.edu.pk)
- **Staff Phone:**  
Ph: 051-9057266

## DEPARTMENT OF CHEMISTRY

The department of chemistry was established in March 1998. Its faculty consists of one Professor, four Associate Professors, one Assistant Professor, four Lecturers and two Research Associates. The department has most modern equipments/ instrumentation in its teaching and research labs in the Science Block at AIOU main campus. These equipments/ instrumentation include CHNS Analyzer, Thermal Analyzer, UV-Visible, Fluorescence and FTIR Spectrophotometers, GC-MS, HPLC, Atomic Absorption spectrometer and Electrochemical System etc.

The department has developed all the courses for undergraduate, graduate, postgraduate and PhD level in accordance with the guideline provided by the Higher Education Commission (HEC). These courses are reviewed from time to time through Committee of Courses to incorporate emerging modern trends in the subject. The Committee of Courses of the department has distinguished Professors and Scientists of the country as members besides departmental faculty. Department has also signed MOU with university of Rostock, Germany. By this MOU, our PhD students get opportunity to do research work in Germany. Moreover, department has also signed MOU with University of Kebangsaan Malaysia. This collaboration will be very useful for our MPhil and PhD students.

**At present, department of chemistry is offering and coordinating the following programmes:**

1. Chemistry Courses for FSc Students
2. BS Chemistry  
(Organic, Inorganic and Physical Chemistry Specialization)
3. MSc Chemistry  
(Organic, Inorganic and Physical Chemistry Specialization)

4. MPhil Chemistry
5. PhD Chemistry

**From Spring 2021 Semester, Department is offering PhD Chemistry Programme besides BS & MSc Level programmes.**

### PhD Chemistry

#### 1. Introduction

The Department of Chemistry is offering PhD programme. Currently specialization is being offered in the field of Organic Chemistry. Later on, the specializations in other branches of Chemistry will be offered.

#### 2. Objectives

The aim of this programme is to provide an opportunity to the in-service personnels to get specialized in the field of chemistry and to improve the qualification of those who could not continue their education through formal system. Maintaining the high standards of teaching and research, the department also wants to attract fresh students. The main objective is to uplift the standard of education and research specially in the field of chemistry in the country.

#### 3. Target Groups

PhD Chemistry programme is particularly designed for the following:

- i. College teachers who want to improve their qualification.
- ii. Scientists working in different laboratories and research organizations desirous of improving their knowledge and qualification.
- iii. Fresh students having special aptitude for research.

#### 4. Eligibility

Candidates holding MS/MPhil or equivalent degrees in Chemistry with CGPA 3.0 in semester system and 1<sup>st</sup> division in annual system are eligible to apply for PhD Programme.

The Department will conduct written test and interview for admission.

#### 5. Admission Procedure

- i. Submit your application online and provide hard copy of form alongwith the attested copies of required documents be sent to Chairperson, Department of Chemistry.
- ii. Test and interview of the eligible candidates will be conducted by the Departmental Admission Committee and the merit will be determined on the basis of qualification, research, professional experience, test and interview, etc.
- iii. Selected candidates will be informed by the Directorate of Admission with the directions to deposit fee according to the schedule.

Since admission in PhD programme is strictly on merit, only selected candidates will be informed and asked to deposit the prescribed fee. **The fee should NOT be submitted before the confirmation of your admission.** In case of admission, if a candidate fails to deposit fee within prescribed period, it would be assumed that the student is not interested in getting admission. The department may invite a candidate in waiting list for admission against the vacant seat.

For clarification about academic matters please contact on the phone numbers given below:

051-9057754, 051-9250081

**Note: Admission form complete in all respect must be sent on the following address:**

**The Chairperson**

Department of Chemistry

Science Block, AIOU, Islamabad.

Tel: 051-9057754, 051-9057818, 051-950081

#### Scheme of Studies for PhD Chemistry

- i. Initially, the student is required to complete 18 credit hours of PhD course work. After this period, he/she has to pass comprehensive Examination.
- ii. Besides completion of PhD coursework and other requirements, a candidate has to complete research work and thesis as per AIOU rules.
- iii. For PhD, the student has to complete all other formalities, prescribed by the Higher Education Commission.

#### Description of PhD Chemistry Theory Courses

##### Semesters: I & II

Course Code	Course Title	Credit Hours
1756	Organic Photochemistry	3(3+0)
1757	Pericyclic Chemistry	3(3+0)
1758	Reaction Mechanism	3(3+0)
1762	Quantum Organic Chemistry	3(3+0)
1765	Advanced Nuclear Magnetic Resonance (NMR) Spectroscopy	3(3+0)
1766	Special Topics in Chemistry	3(3+0)
1767	Mass Spectrometry	3(3+0)
1768	Special Techniques in Organic Synthesis	3(3+0)
1769	Theoretical Aspects of Spectroscopy	3(3+0)
1789	Literature Review and Seminar	3(3+0)
1799	Instrumental Methods of Analysis	3(3+0)

**Note:** Any three courses out of the above mentioned theory courses will be offered in I semester. In II semester any three courses from the remaining list will be offered, subject to the availability of expertise.

#### Description of PhD Chemistry Research Work & Thesis

Semester	Course Code	Course Title	Credit Hours
III	1764	Research Work and Thesis	12(0+12)
IV	1764	Research Work and Thesis	12(0+12)
V	1764	Research Work and Thesis	12(0+12)
VI	1764	Research Work and Thesis	12(0+12)

#### 7. Offering

At present this programme is being offered at the university main campus in Islamabad.

#### 8. Assessment

##### Continuous Assessment

Continuous assessment will be based on assignments and class tests. The pass percentage in assignments and class tests will be 50%. The weightage of this component in the final result will be 30%.

##### Final Examination

Final examination of 100 marks for each three credit 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 70%.

The student will have to pass in each component independently to be declared successful in the course.

##### Assessment of Research Thesis

After the completion of coursework, the candidate will undertake a research thesis under the guidance of a supervisor. Both the

research project and name of supervisor will be approved by the Board of Advanced Studies and Research (BASR), AIOU. PhD thesis will be evaluated by foreign professors. The research report must be supported by at least one publication in International Journal as per HEC rules.

#### 9. Attendance

These programmes are based on face to face teaching and research work. At least 70 % attendance is compulsory to qualify for appearing in final examination.

##### \*PhD Fee Structure

Item	Rates
Tuition Fee Per 3 credit hours Rs.9000 (9000 x 3) = 27,000/-	Rs.27000/- per semester
Admission Fee	Rs.2500/-
Registration Fee (if not already)	Rs.2500/-
Library Fee	Rs.700/- per semester
Laboratory / Computer charges	Rs.2000/- per semester
Technology Fee	Rs.500/-
Student ID Card Fee	Rs.100/-
Library security	Rs. Rs.2500/- refundable
Caution money	Rs. Rs.2000/- refundable
<b>Total Fee (First Semester)</b>	<b>Rs.39,800/-</b>

**Research Fee Rs.36000/- (per semester)**

\*Only applicable after confirmation of admission in PhD, by the university.

Thesis evaluation fee and any other charges will be as per AIOU rules.

The University reserves the right to change the fee tariff in the coming semesters. This can be done without any prior notice as deemed fit for the expected expenditure which is to be incurred on the semester based academic and operational activities of the programme.

**Important Addresses and Telephone Numbers  
CONTACT ADDRESSES (ACADEMICS)**

<b>Name</b>	<b>E-mail &amp; Phone</b>
Prof. Dr. Naghmana Rashid Chairperson	Tel: 051-9057818 051-9250081
Dr. Uzma Yunus Associate Professor	uzma_yunus@yahoo.com Tel: 051-9057755
Dr. Moazzam Hussain Bhatti Associate Professor	moazzamhussain_b@yahoo.com Tel: 051-9057262
Dr. Nasima Arshad Associate Professor	nasimaa2006@yahoo.com Tel: 051-9057756
Dr. Muhammad Sher Associate Professor	shergau@yahoo.com Tel: 051-9057198
Dr. Muhammad Zaman Ashraf, Assistant Professor	mzchem@yahoo.com Tel: 051-9057182
Ms. Mehwash Zia Lecturer	m.ehzia@hotmail.com Tel:051-9057252
Dr. Farzana Shaheen Lecturer	Farzanaqau2013@gmail.com Tel: 051-9057198
Dr. Iqbal Ahmed Lecturer	Iqbal.ahmad@aiou.edu.pk Tel: 051-9057874
Dr. Erum Jabeen Lecturer	erumjabeen123@yahoo.com Tel: 051-9057225

**DEPARTMENT OF  
AGRICULTURAL SCIENCES (DAS)**

**Introduction:**

The Department of Agricultural Sciences (DAS) is making earnest efforts aiming at supplementing, supporting and re-enforcing extension services and offering agriculture related programmes at different levels.

Agriculture progress in most developing countries has mainly involved an increase in the production of staple crops, the introduction of industrial crops and development of livestock production.

At present, higher education in agriculture is imparted by four formal agricultural universities in Pakistan, which are not catering in-service personnel. AIOU conducted a survey to get an idea about the higher education in Agricultural Extension, Livestock Management, Forestry Extension & Rural Development and received a positive response from candidates who could not improve their qualification from formal Agricultural Universities for one or other reason and are now working in different governmental departments and NGOs.

**Programmes:**

The DAS offers the following programmes /courses at different level.

### **Programmes at Postgraduate Level**

1. PhD Agricultural Extension
2. MSc (Hons) Agricultural Extension
3. MSc (Hons) Livestock Management
4. MSc (Hons) Rural Development
5. MSc Forestry Extension

Besides Postgraduate programmes the department also offers Higher Secondary School Certificate (HSSC), Secondary School Certificate (SSC) and STEP courses.

### **PhD Agricultural Extension**

#### **a) Introduction**

Education is a continuous life long process. It is the most effective tool of creating a high productive manpower. Agricultural Education in Pakistan needs to integrate the goals of improving human, social and ethical attributes in the students, with specific requirements to produce graduate who can perform various tasks in the agricultural economy of the country, both in the public and private sectors.

For agricultural development in the country, strong linkages amongst institution, human resource development and technology transfer are very important. The technology transfer, being a continuous process, can be done in a well-organized way through an efficient agricultural extension system where integrated roles of the scientists, the extension agents and the farmers are all importantly interlinked. The scientist on their part develops better yielding varieties and breeds of crop and

animals and the extension agent, on his part convince the farmers of the products utilitarian importance. The farmer when convinced will certainly adopt innovations for his own economic betterment.

Allama Iqbal Open University being concerned with the education part of the Agricultural Extension system has launched PhD degree level programme in Agricultural Extension to prepare scholars who have grasp of the discipline in general and a command over the area of specialization in particular.

#### **b) Objectives:**

PhD Programme in Agricultural Extension is designed to:-

- Prepare scholars who have grasp of the discipline in general and a command over the area of specialization in particular.
- Establish a cadre of specialists and professionals in the field of Agricultural Extension who can provide effective leadership in guiding and conducting quality research in Agricultural Extension.
- Provide opportunities of professional growth and development of scholars in general and in-service personnel in particular.

#### **c) Admission Requirements**

1. The minimum entry requirement for admission to PhD in Agricultural Extension shall be M.Sc (Hons) Agricultural Extension with first division or 3.0 CGPA.

**OR**

MSc (Hons) Agriculture degree with first division or 3.0 CGPA with deficiency courses. The deficiency courses will be given by PhD admission committee to those candidates whose basic eligible degree is other than Agricultural Extension specialization from approved courses of MSc (Hons) Agricultural Extension Program.

2. Admission will be made as per HEC criteria.
3. All rules of BASR/AIOU/HEC regarding PhD will apply to PhD Agricultural Extension Program.

**d) Courses of PhD Agricultural Extension**

The following courses will be taught in PhD Agricultural Extension programme and the total credit hours are 18, according to the HEC criteria.

S. No.	Code	Courses	Credit Hours
1.	1742	Application of Extension Methods	3(3+0)
2.	2527	Communication Strategies in Agricultural Extension	3(3+0)
3.	2524	Agricultural Extension in Developing Countries	3(3+0)
4.	2505	Diffusion of Innovation	3(3+0)
5.	1743	Community Development and Gender Issues	3(3+0)
6.	1744	Special Topics	3(3+0)

**e) Semester Wise Break Up of the Courses**

**1<sup>st</sup> Semester**

1. Application of Extension Methods (1742)
2. Communication Strategies in Agricultural Extension (2527)
3. Agricultural Extension in Developing Countries (2524)

**2<sup>nd</sup> Semester**

1. Diffusion of Innovation (2505)
2. Community Development and Gender Issues (1743)
3. Special Topics (1744)

**3<sup>rd</sup> Semester**

Comprehensive examination written & oral/synopsis and research work. Research in the remaining semesters as per AIOU rules.

**Important Note:**

Rules regulations framed, enhanced and changed from time to time by the authorities/bodies of the University will be applicable to all students. The students will have to abide by all such rules and regulations.

**f) Fee Tariff:**

Admission fee (At the time of first admission)	Rs.2500/-
Registration fee (At the time of 1st admission only)	Rs.2500/-
Technology fee (per student per semester)	Rs.500/-
Per 3 credit hours Rs.9000 (9000 x 3) = 27,000/-	Rs.27,000/-
<b>First Semester Total Fee</b>	<b>Rs.32,500/-</b>

## **MSc (Hons) Agricultural Extension**

### **a) Introduction:**

Agriculture is the principal occupation and source of livelihood of great majority of rural population of the country and it is the basic and largest component of our economy in terms of production, employment and export earnings. For agricultural development in a country like Pakistan, strong linkages amongst institution human resource development and technology transfer are very important. The technology transfer being a continuous process cannot possibly take place in a vacuum. It needs to be done in a well-organized system of agricultural extension where role of the scientist, the extension agent, and the farmer are all too important. The scientist must develop better yielding varieties and breeds of crops and animals, the extension agent must, on his part, equip himself with better and effective methods to convince the farmer about the product's utilitarian importance. Once convinced, the farmer will certainly adopt innovations for his own economic betterment.

Allama Iqbal Open University being concerned with the educational part of the Agricultural Extension system has therefore decided to initiate master level courses in Agricultural Extension for enhancing the knowledge and skill of the extension agents/workers already working in the field.

MSc (Hons) Agricultural Extension Programme is designed for those Agriculture Graduates who are unable to continue their studies after completing BSc (Hons) Agriculture, BSc Agriculture Engineering, BSc Animal Husbandry, D.V.M. from formal Agricultural Universities and are now working in

different departments, organizations, and agencies who cannot enhance their education through formal system could benefit from AIOU offer.

### **b) Objectives:**

Main objectives of the programme are:

1. To improve the level of knowledge and skills of the prospective students.
2. To provide skills for improving diffusion and adoption of innovations among the farming community.
3. To improve the ability and self-confidence of students of Agriculture Extension to critically analyze the Agriculture Extension service and technology transfer system with a view to identify difficulties, problems and issues in promoting applied research in farming systems research and extension.
4. To promote human resource development in agricultural extension and help to meet training needs of extension field staff and rural communities.

### **c) Eligibility:**

Candidates possessing BSc (Hons) Agricultural Extension degree with 2<sup>nd</sup> division.

**OR**

Other related discipline like BSc (Hons) Agriculture, Rural Sociology, Animal Husbandry, DVM, BSc Agricultural Engineering Degree in second division are also eligible for admission in MSc (Hons) Agricultural Extension, but the Admission Committee may define deficiency courses for them, if necessary.

**d) Admission Procedure:**

- (i) Candidates must have to qualify subject test being conducted by the Department.
- (ii) Selection of the candidates will be made strictly on the basis of merit, which will be determined by the departmental admission committee after scrutinizing the application of the students as per AIOU MPhil admission rules.
- (iii) There will be a departmental admission committee responsible to finalize the admission.
- (iv) For clarification about academic matters please contact on the following address:

**CHAIRPERSON**

Department of Agricultural Sciences  
Allama Iqbal Open University  
Sector H-8, Islamabad.

**Note: Admission form complete in all respect must be sent on the above address:**

**e) Scheme of Studies: Agricultural Extension Courses**

**1<sup>st</sup> Semester**

Sr. No.	Code	Title of Course	Credit Hours
1	795	Agriculture Extension Education	3(3+0)
2	796	Extension Programme Development	3(3+0)
3	2525	Evaluation Research	3(3+0)
4	2526	Agricultural Extension Systems	3(3+0)

**2<sup>nd</sup> Semester**

Sr. #	Code	Title of Course	Credit Hours
1	2518	Scientific & Technical Writing in Agriculture Extension	3(3+0)
2	799	Adult Learning & Rural Development	3(3+0)
3	2533	The Process & Strategies of Communication in Agriculture Extension	3(3+0)
4	1793	Human Resource Development	3(3+0)

**3<sup>rd</sup> and 4<sup>th</sup> Semester**

2536	Thesis	24
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**Total 48 Credit Hours**

**f) Fee Tariff:**

Sr. #	Item	Rates
1.	Registration fee (Once at the time of first admission)	Rs.1000/-
2.	Admission fee (Once at the time of first admission)	Rs.1500/-
3.	Each Course Fee One credit hour fee Rs.2400/- Rs.7200/- per 3 credit hour 7200 x 4=	Rs.28,800/-
4.	Thesis fee (12+12 Credit Hour course)	Rs.57600/-
5.	Thesis evaluation fee (at the time of submission of the thesis)	Rs.4830/-
6.	Technology fee (per semester)	Rs.500/-
	<b>Total Fee for 1<sup>st</sup> Semester =</b>	<b>Rs.31,800/-</b>

**Note: Only selected candidate will deposit the fee after receiving the intimation letter from the admission department.**

### **g) Instructional Methodology:**

#### ***Duration of programme***

The minimum duration of MSc (Hons) Agricultural Extension Programmes shall be 4 semesters (two years) and maximum duration shall be 8 semesters (four years).

The minimum period of the 24 credit hours coursework for MSc (Hons) Agricultural Extension shall be two semesters (One Year).

In case the student fails to complete the course/research work within the prescribed maximum period, she/he has to take a fresh admission in the programme.

#### ***Workshop:***

The student will have a total of two chances to attend and pass the workshop of the course concerned. Passing the workshop will be pre-requisite for appearing in the final examination of the course. In exceptional circumstances a special chance may be allowed by the Vice-Chancellor on the recommendation of the Chairman.

#### ***Thesis:***

At the beginning of the third semester, a student will be required to submit research proposal (synopsis) to the Department. The synopsis will be prepared in accordance with the guidelines approved by the Board of Advanced Studies and Research (BASR). The Department will provide guidelines for developing of synopsis in the synopsis orientation workshop.

#### ***Viva Voce:***

If the thesis is approved by the external evaluators, student has to appear before viva voce committee to defend his/her thesis.

### **Important Note:**

Rules, regulations framed, enhanced and changed from time to time by the authorities/bodies of the University will be applicable to all the students. The students will have to abide by all such rules and the regulations.

## **MSc (Hons) Rural Development**

### **(a) Introduction:**

Despite the existence of large urban centers, Pakistan is still predominantly a rural society with approximately 70 percent of the population living in the rural areas. Rural development implies comprehensive and sustainable development for people and places in rural areas. It depends on several interrelated components including development appropriate production technology, dissemination of modern technology to the farming community, formulation of suitable policies for growth in the farm and rural non-farm economies, conservation and sustainable use of natural resources, and provision of infrastructure and social services. All countries in the world are subject to continual social and economic change, and the rural sectors of developing countries and countries in transition are pivotal in this process. It is recognized that in a context of increasing globalization and understanding of the underlying driving forces of this process and its consequences is critical.

Achieving rural development and responding to these global challenges will require trained professionals with a wide range of relevant expertise. These are needed to work in government agencies, non-governmental organization (NGOs) and in the private sector. Professionals are needed who can formulate

appropriate policies, plans, design and implement development projects, disseminate appropriate technology and information to farmers and small-scale entrepreneurs and manage business and the efficient delivery of services in rural areas. Recognizing the growing needs and requirements for trained professionals in rural development AIOU has decided to initiate a Masters level programme in Rural Development. This programme provides graduates with an interdisciplinary base from which to approach the diverse issue involved in rural change. It is designed for students interested in pursuing careers that are interactive with the potential and problems associated with the rural sector. The programme is multidisciplinary in its course contents, and will provide an opportunity for in depth study of the key elements of rural development and relevant professional practice.

**b) Objectives:**

The programme gives students the opportunities to develop:

- A critical awareness of the social, economic and management issues underlying socio-economic change.
- Conceptual and analytical skills relevant to the social and economic dimensions of agriculture and related industries.
- A set of potential skills pertinent to working in the public private or NGO domains.
- The ability to change with, and influence, rational debates concerning the optimal direction of rural sector change.
- Sufficient knowledge and understanding of the major problems socio-cultural and economic conditions of rural areas in Pakistan.

**c) Eligibility:**

BSc (Hons) Agriculture/D.V.M./Animal Husbandry/ Agriculture Engineering degree in 2<sup>nd</sup> division or MA/MSc in Social Work/ Sociology/Rural Sociology/Anthropology/ Forestry/ Forestry Extension/ Developmental Studies/ Environmental Sciences/ Economics/HRD/NRM/Business Management degree with second division/ 2.5 CGPA.

**d) Scheme of Studies:**

**1<sup>st</sup> Semester**

Sr. No.	Code	Title of course	Credit Hours
1.	1790	Sustainable Rural Development	3(3+0)
2.	1791	Regenerating Agriculture	3(3+0)
3.	1792	Rural Poverty Alleviation	3(3+0)
4.	1793	Human Resource Development	3(3+0)

**2<sup>nd</sup> Semester**

1.	1794	NGO Management	3(3+0)
2.	1795	Research for Development	3(3+0)
3.	1796	Natural Resources Management	3(3+0)
4.	1797	Managing Projects in Rural Development	3(3+0)

**Thesis in 3<sup>rd</sup> and 4<sup>th</sup> Semesters**

1798	Managing Projects in Rural Development	12
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**e) Admission**

- i. Selection of the candidates will be made strictly on the basis of merit, which will be determined by the departmental admission committee after scrutinizing the application of the students as per AIOU M. Phil admission rules.
- ii. Rules, regulations final, enhanced and changed from time to time by the authorities/bodies of the University will be applicable to all the students. The students will have to abide by all such rules and the regulations.
- iii. For clarification about academic matters please contact on the following address:

**CHAIRPERSON**

Department of Agricultural Sciences  
AIOU, H-8, Islamabad. Ph: 051-9250064

**Note: Admission form complete in all respect must be sent on the above address.**

**f) Fee Tariff: MSc (Hons) Rural Development**

Sr.#	Item	Rates
1.	Registration fee (Once at the time of first admission)	Rs.1000/-
2.	Admission fee (Once at the time of first admission)	Rs.1500/-
3.	Each Course fee (One credit hour fee Rs.2400) Rs.7200/- per 3 credit hour 7200 x 4=	Rs.28,800/-
4.	Thesis fee (12+12 Credit Hour course)	Rs.57,600/-
5.	Thesis evaluation fee (at the time of submission of the thesis)	Rs.4830/-
6.	Technology fee (per semester)	Rs.500/-
	<b>Total Fee for 1<sup>st</sup> Semester =</b>	<b>Rs.31,800/-</b>

*Note: Only selected candidate will deposit the fee after securing the intimation letter from the admission department).*

**g) Instructional Methodology:**

**Workshop:**

The student will have a total of two chances to attend and pass the workshop of the course concerned. Passing the workshop will be pre-requisite for appearing in the final examination of the course. In exceptional circumstances a special chance may be allowed by the Vice-Chancellor on the recommendation of the Chairman.

**Duration of Programme**

The minimum duration of MSc (Hons) Rural Development shall be two years and maximum duration shall be four years. There will be two semesters in each year.

The minimum period of the 24 credit hours coursework for MSc (Hons) Rural Development shall be two semesters (One Year).

At the beginning of the third semester, a student will be required to submit research proposal (synopsis) to the Department. The synopsis will be prepared in accordance with the guidelines approved by the Board of Advanced Studies and Research (BASR). The Department will provide guidelines for developing the research proposal in the synopsis orientation workshop.

**Viva Voce:**

If the thesis is approved by the external evaluators, student has to appear before viva voce committee to defend his/her thesis.

## **MSc Forestry Extension**

### **a) Introduction:**

Forestry extension is an important vehicle for expansion of forest resources in the country, and a tool for forest resources conservation and development. Planning forestry extension is important for a successful forestry development programme in the country in an efficient, timely and cost-effective way.

The MSc Forestry extension programme offered by Department of Agricultural Sciences looks into issues of resource degradation, impact of decreasing resources on rural communities, biodiversity, global climate, silviculture systems, timber harvesting methodology and technology. It is being recognized by the foresters and other professionals involved in the forestry and environment sectors. At present not a single institution in the country is offering Forestry Extension programme at postgraduate level. Allama Iqbal Open University, Islamabad is therefore, the pioneer in this regard to offer this programme.

### **b) Objectives:**

The general objectives of the MSc Forestry Extension Programme are:

- \* To assist learners to develop and use improved forestry and agricultural technology.
- \* To develop non-formal methods of adult education in forestry practices.
- \* To introduce behavioral changes of the target group to blend tree growing activities along with other farming activities.
- \* To establish linkages between research group and users.

### **c) Eligibility:**

Candidates possessing BSc or MSc Forestry degree with at least second division or BSc (Hons) Agriculture or MSc (Hons) Agriculture with at least 02<sup>nd</sup> division from national or international recognized institutions or BSc or MSc in Botany with at least 02<sup>nd</sup> division with three years' field experience in Forestry are eligible for admission.

**Note: Eligible candidates should send the application forms to Chairman, Department Agricultural Sciences, Allama Iqbal Open University, Islamabad.**

Selection will be based on merit that will be determined by the departmental admission committee as per AIOU postgraduate admission rules. Rules and Regulations changed from time to time by Authorities of the university will be applicable for both new & old students necessary. The students will have to abide by all such rules and regulations framed and changed from time to time.

### **d) Scheme of Studies:**

#### **SEMESTER WISE COURSE OFFERING**

##### **1st Semester**

<b>Sr. No.</b>	<b>Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
1.	2501	Range Land Management in Pakistan	3
2.	2502	Tree Management	3
3.	2500	Principles of Rural Sociology-I	3
4.	2512	Principles of Rural Sociology-II	3

### 2nd Semester

Sr. No.	Code	Course Title	Credit Hours
1.	2511	Soil Conservation & Water Shed Management	3
2.	2504	Research Methods	3
3.	794	Statistics	3
4.	2516	Environment and Forestry	3

### 3rd Semester

1.	2510	Agro-Forestry	3
2.	2505	Diffusion of Innovations	3
3.	2507	Forestry Extension Education	3
4.	2514	Approaches of Rural Development	3

### 4th Semester

1.	2508	Economics of Forestry	3
2.	2503	Participatory Forestry	3
3.	2509	Social and Community Forestry	3
4.	2506	Mass Communication	3

### 5th Semester

1.	798	Thesis	12
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### e) Fee Tariff:

Item	Rate
Registration Fee: (once at the time of 1 <sup>st</sup> admission in University)	Rs.500/-
Admission Fee: (once at the time of 1 <sup>st</sup> admission in Programme)	Rs.1000/-

Technology Fee + Courier Charges (each semester)	Rs.500/-
Per 3 Credit Hours course fee: Rs.6000/- Rs.6000 × 4=Rs.24000/-	Rs.24,000/-
Workshop/Field Visit Fee: Rs.2660/-	Rs.2,660/-
<b>1<sup>st</sup> Semester Fee:</b>	<b>Rs.28,660/-</b>
Thesis Fee:	Rs.18,000/-

### a) Instructional Methodology:

#### Field Activity Based Assignments:

Students are given two written assignments for each half credit course and four written assignments for each full credit course. The assignments in each course will be field activity based.

#### Workshop:

The workshop is a compulsory component of the programme and will provide an opportunity for the students to discuss issues raised in the courses and explore their significance for specific course of study and professional development. Attendance of the students in the workshop will be mandatory.

#### Attainment of Certificate/Degree

On successful completion of the programme the student will have to apply to the Controller of Examination for the issuance of degree.

### FACULTY MEMBERS:

#### 1. Prof. Dr. Sher Muhammad

Chairman, Department of Agricultural Sciences  
Phone: +92-51-9250064, 9057750

2. **Dr. Shafique Qadir Memon**  
Assistant Professor  
Ph: 051-9057626  
Email: shafiq\_qm@yahoo.com
3. **Dr. Farhat Ullah Khan**  
Assistant Professor  
Ph: 051-9057757  
Email: farhatkhan7@yahoo.com
4. **Dr. Muhammad Tarique Tunio**  
Assistant Professor/HEC Approved Supervisor  
Ph: 051-9057286  
Email: tarique-tunio@aiou.edu.pk
5. **Dr. Sabir Hussain Shah**  
Assistant Professor  
Ph: 051-9057752  
Email: sabir.hussain@aiou.edu.pk
6. **Ms. Fouzia Anjum**  
Lecturer  
Ph: 051-9057753  
Email: fauziaanjum184@gmail.com
7. **Ms. Mahwish Siraj**  
Lecturer  
Ph: 051-9057749  
Email: mahwish.siraj@aiou.edu.pk
8. **Dr. Zaid Mustafa**  
Lecturer  
Ph: 051-9057192  
Email: zaid.mustafa@aiou.edu.pk

## **FACULTY OF SOCIAL SCIENCES AND HUMANITIES**

First established in 1981 with five departments, the Faculty of Social Sciences and Humanities has, over the years, flourished to become, by far, the largest Faculty of the University. Presently, it consists of seventeen departments offering masters programmes in major areas of Social Sciences and Humanities like, Business Administration, Economics, Mass Communication, Sociology, Gender and Women Studies, Urdu, Library & Information Sciences, History, Pakistan Studies and Teaching of English as a foreign Language (TEFL). Additionally, efforts are afoot to plan and launch post-graduate programmes in Pakistani Languages and Law. The Commonwealth-collaborated masters programmes in the areas of Business and Public Administration, which are specially tailored for the modern day busy executives, were launched in Spring 2002 semester.

In tune with the government's policy of promoting and strengthening a culture of higher education and research in the country, the AIU's Faculty of Social Sciences and Humanities has shown a lot of dynamism over the past few years. It has launched MPhil/PhD programmes in Iqbaliat, Urdu, Mass Communication Economics, History and MS/PhD in Business Administration while preparations are being made to launch PhD Applied Linguistics and Pakistan Studies.

The Faculty of Social Sciences & Humanities also offers several bachelors' level programmes in such professional areas

like Bachelors in Library & Information Sciences (BLIS), BBA (4 years), BS-Commerce and Mass communication. Thousands of students comprising all demographic groups from all over the country, enrol each year in these bachelor's level programmes.

The Faculty has expanded vitally and its programmes have gained a high popularity as is clear from rapidly rising trend of enrolment during the past decade. During the period under report, the Faculty accorded high priority towards quality improvements and to modify its programmes in accordance with the current challenges of 21<sup>st</sup> century.

The Faculty proposed to launch Post-Graduate programmes in the disciplines of Political Science and International Relations, Psychology, Public Administration and Social Work.

## **DEPARTMENT OF BUSINESS ADMINISTRATION**

### **Introduction:**

The Department of Business Administration was established in 1986 with the objective to impart managerial education and skills in the discipline of Business Administration. Since its inception, the Department has made tremendous progress towards achieving its ultimate goal of becoming a centre of excellence in Business Management education and research in Pakistan. The Department has assembled outstanding teaching faculty and developed extensive teaching material for the improvement of education in Pakistan. The department

launched MBA programme in 1986, MBA-IT in 2001 and MBA-Banking & Finance in Spring 2005 semester. Presently, the Department is offering MBA 3½ Years, MBA 2½ years, MBA Rural Management, PGD-HRM, MS (Management Sciences) and PhD programmes with different specializations. The department is also publishing an HEC recognized Research Journal namely "Journal of Contemporary Management Sciences". These programmes contribute significantly to the national goals by developing the professionals equipped with modern business techniques. These programmes are designed to enable the professionals to upgrade their skills and enhance business qualifications. Further, it is hoped that the graduates from this university would have recognition in the human resource market and enjoy a respectable status in public and private sector organizations, operating in Pakistan and abroad. The Department has well qualified faculty members including MPhil/MS and PhDs both from national and foreign universities.

### **Objectives of the Department:**

- i. To strengthen the applied and basic research capabilities of scholars.
- ii. To deepen the theoretical knowledge of different domains of Management Sciences.
- iii. To provide an opportunity to test the theory practically by undertaking rigorous research activities.
- iv. To equip the research scholars to respond to current national and global crisis.

## **PhD Business Administration**

The PhD (Business Administration) programme is offered in two specializations, i.e., Finance and Human Resource Management. However, the department reserves the right to change its offering any time if needed so. The detail of scheme of studies and semester wise offering of courses is as under:

### **a) Scheme of Studies**

#### **First Semester**

<b>S. No.</b>	<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
1.	9561	Advanced Management Thoughts	3(3+0)
2.	9562	International Business	3(3+0)
3.	9563	Research Design-I	3(3+0)

#### **Second Semester**

1.	9564	Public & Business Policy Interface	3(3+0)
2.	9565	Research Design-II	3(3+0)
3.	<i>Students would choose only one course from the following courses according to their specialization:</i>		
	9566	Seminar on Financial Management	3(3+0)
	9567	Seminar on Human Resource Management	3(3+0)
<b>Coursework Credit Hours</b>			<b>18</b>

#### **Third Semester**

1.	9569	Thesis	36
<b>Total Credit hours</b>			<b>54</b>

### **Third Semester**

The coursework for PhD (Business Administration) programme is spread over two (02) semesters covering six courses (18 credit hours) and a thesis (36 credit hours), as per AIOU and HEC guidelines. It will be offered with two specializations: Human Resource Management (HRM) and Finance. The minimum period required for completion of PhD will be three years while maximum period will be eight years.

### **b) Eligibility Criteria and Admission Procedure**

- i. The MS MPhil or equivalent degree in Business Administration or related disciplines from any HEC recognized institution with 3.00/4.00 CGPA or 1st division in the annual system (60% marks) would be eligible to apply.
- ii. The programme would be merit based therefore fee/dues may not be deposited by the student until the offer letter from AIOU Admission Office is received.
- iii. An applicant in relevant field with MBA degree (18 years of education with research thesis) from HEC recognized university) with CGPA 3.00/4.00 or 1<sup>st</sup> division 1<sup>st</sup> class Masters Degree (from a foreign recognized university) having recognized research experience, would be considered for admission.
- iv. In case, a foreign degree the candidate would be required to get equivalence from HEC.
- v. There shall be a Departmental Admission Committee under the Chair of Department of Business Administration to finalize the admissions, as per AIOU rules and regulations.
- vi. Any student, who was rusticated, expelled, or whose entry in any College/University Campus was banned for any

- reason whatsoever at any time during his/her academic career, shall not be admitted to any programme. Only limited seats are available strictly on open merit basis.
- vii. Preliminary selection of the candidates will be made strictly on the basis of criteria laid down by the Department/ University. The candidates are required to pass the written test/interview (subject based) designed by Departmental Admission Committee for admission to PhD programme.
  - viii. Only admitted candidates would be informed to deposit the fee by Director (Admission), hence would confirm the admission of the candidate.
  - ix. For clarification about academic matters the students can contact Chairman, Department of Business Administration Allama Iqbal Open University H-8, Islamabad.  
(email: [mba@aiou.edu.pk](mailto:mba@aiou.edu.pk)). Phone No. +92(051)9250089
  - x. Applicants are required to send complete admission forms along with the attested copies of all relevant documents, certificates and marks sheets at the address:

**CHAIRMAN**

Department of Business Administration  
AIOU, H-8, Islamabad,  
email: [mba@aiou.edu.pk](mailto:mba@aiou.edu.pk)

**(before the closing date as specified by AIOU)**

**c) Duration of the Programme**

The minimum period required for its completion will be three years while **maximum period** will be **eight years**:

- The minimum period for completion of coursework (18

credit hours) shall be one year (two semesters) and maximum is two years (four semesters).

- The minimum period for the completion of research work shall be one and half year (three semesters) and maximum is three years (six semesters).
- In case the student fails to complete the course/research work within the prescribed maximum period he/she has to take a fresh admission in the PhD programme.
- In case of extension in the research period for completion of Thesis would be up to maximum period (five years), student will have to pay fee equivalent to 3 Credit Hours per semester, after three years (six semesters), and required payment (per semester) in this regard.

**d) Methods of Instruction**

Students would be provided with the relevant e-books, study material and the outline of courses along with the required reading material and assignments. The student would be required to submit assignments to their respective tutor, attend classes as and when arranged by the department and take final examinations conducted by AIOU. The medium of instruction and examinations would be in English.

**e) Assignments**

Assignments would be continuous assessment exercises which students complete while studying as well as attending the classes organized by the department. These would be designed in a way that students will be able to relate readings with their own objective findings. The students will send two compulsory assignments for each course to their tutors who return the same

after marking and providing necessary academic guidance, as per AIOU policy. The weightage of two assignments (continuous assessment) per course would be 20% marks towards final grade of the course. It is imperative that passing each assignment as well as in aggregate of the assignment marks is 70%marks.

#### **f) Classes**

PhD (Business Administration) would be face to face program. In lieu of tutorials classes (equivalent to 48 hours) is adopted for the program. PhD classes would be conducted into two phases. First phase (for 16 days) would be conducted in the beginning of the semester and second phase (16 days) at end of tutorial period but before the conduct of final examination. The classes for each course would be arranged only at the main campus AIOU, Islamabad. The attendance of students in the classes is compulsory. No relaxation would be provided to the students during the classes. The classes are organized in order to provide students proper guidance in course contents through intensive lectures, group discussion, etc. The classes schedule would be chalked out by the department and intimated to the students accordingly. Hostel facility at the Main Campus, AIOU Islamabad is available on payment if desired, on first come first basis. For the hostel facility students must contact Manager Hostel prior to start of classes, at their own.

#### **g) Examinations**

Examination rules and regulations would be applicable, as per the AIOU policy, as and when notified by AIOU Board of Advance Study and Research (BASR) or the Registrar from

time to time. **No exemption would be given for course work, classes and thesis, in any case.**

1. Assessment of the students will be made as follows:
  - i. Assignments (continuous assessment): Two assignments are compulsory for each 3 Credit Hours Course.
  - ii. Final Examination: Three hours written examination will take place at the end of the semester). The distribution of marks for each 3 credit hours coursework of PhD shall be as follows;

1) Assignments	20%
2) Mid Term	30%
3) Final Examination	50%
2. Pass percentage in aggregate will be 70%. If a student cannot pass in continuous assessment/ assignments or fails to maintain the minimum mandatory class attendance of 70% in a course, he/she will be declared fail.
3. For successful completion of each course the student will be required to qualify in each component i.e. assignments, class attendance and final examination, individually and collectively.
4. The assessment evaluation system would be as per the AIOU policy and as applicable at PhD level from time to time by the University.

#### **h) Synopsis**

After completion and qualifying coursework and enrolling for Research Thesis course code 9569 students would attend the Synopsis Orientation Workshop (SOW) arranged by the Department of Business Administration. The students would

defend their proposal/synopsis in front of BASR before the beginning of research process. The research process would be conducted and evaluated as per *Allama Iqbal Open University (as amended to date) PhD rules and regulations*. However, format and procedure of Thesis will be given by the Department, Students would be informed during the Synopsis Orientation Workshop, that is going to be conducted after successful qualifying courses and comprehensive examination conducted by the University.

**i) Thesis**

After the completion and passing of requisite coursework (18 credit hours) as well as SOW, in the specified time period, the student would be required to undertake research thesis of 36 credit hours as per AIOU laid down rules and regulations amended from time to time.

**j) Degree Requirements**

The Degree would be awarded to the student after successful completion of required coursework, thesis and viva voce as per the AIOU laid down rules and regulations as amended from time to time by the University.

**k) Fee Structure**

Only selected candidates would be required to submit the fee. The detail fee would be informed by the University to the selected candidates after completion of all admission procedure/ requirement for PhD Programme by the University.

**l) Fee Structure**

<b>Registration Fee:</b> (At the time of 1 <sup>st</sup> admission)	Rs.2500/-
<b>Admission Fee:</b> (At the time of first admission)	Rs.2500/-
<b>Technology Fee + Courier Charges:</b> (per student per semester)	Rs.500/-
<b>Course Fee:</b> Per 3 credit hour Rs.7500/- (7500 x 3) = Rs.22,500/-	Rs.22,500/-
<b>Security Fee:</b>	Rs.5,000/-
<b>Thesis Fee:</b> (two installments)	Rs.90,000/-
<b>Total Fee for First Semester</b>	<b>Rs.33,000/-</b>
This programme is merit based, therefore no fee/dues are required to be deposited until you receive the offer letter from Admission Department of the University.	

**m) Rules and Regulations**

Rules and regulations, in line with the HEC guidelines as well as applicable in AIOU (amended from time to time) at the PhD level will be applicable to the programme.

## **MS Management Sciences**

### **a) Duration**

As per HEC guidelines, MS (Management Sciences) programme will spread over 4 semesters covering 8 courses (24 credit hours) and a thesis (12 credit hours). It will be offered with two specializations: Human Resource Management (HRM) and Banking & Finance (B&F). The programme consists of 36 credit hours. The minimum period required for its completion will be as per AIOU rules.

### **b) Eligibility Criteria**

Applicants having 16 years of business education (Old MBA/MPA/M.Com/ACMA/ACA/4-Years B.Com/4-Years BBA) from any HEC recognized institution with minimum second division or equivalent CGPA would be eligible to apply.

### **c) Admission Procedure**

- i. There shall be an admission committee responsible to finalize the admission.
- ii. Admission in MS (Management Sciences) will be made once a year as decided by the Competent Authority. Applications will be invited through the daily newspapers/AIOU website as per AIOU policy.
- iii. Preliminary selection of the candidates will be made strictly on the basis of criteria laid down by the Department/University.
- iv. Candidates will be required to pass a test equivalent to GRE/GAT General conducted by the Department of Business Administration.

- v. Only selected candidates will be informed about their admission and to deposit the fee. The candidate will be informed about the deposit of fee by the Directorate of Admissions confirming the admission of the candidate.
- vi. The prevailing University rules and regulations regarding MS/MPhil programme enforced from time to time shall strictly be followed for the programme.
- vii. The MS (Management Sciences) programme will be merit based, therefore, no fees/dues will be required to be deposited until applicant receives the admission letter from the AIOU Directorate of Admissions.
- viii. Candidates will be required to send complete admission forms along with the attested copies of all certificates and marks sheets at the following address before the closing date.

### **CHAIRMAN**

Department of Business Administration  
Block No.13, AIOU, H-8, Islamabad.  
Ph: 051-9057722-23, 9250089  
[mba@aiou.edu.pk](mailto:mba@aiou.edu.pk)

- ix. **Academic clarification may be obtained via email or by telephone from the department.**

### **d) Scheme of Studies**

The MS (Management Sciences) programme will be offered with two specializations, i.e., HRM and B&F. The detail of

courses and tentative semester wise offering of courses is as under:

#### First Semester

Sr. No.	Course Code	Course Title	Credit Hours
1	8701	Advanced Research Methods	3
2	8702	International Business and Finance	3
3	8703	Strategic Marketing	3
4	8704	Strategic Human Resource Management	3

#### Second Semester

<i>Elective Courses</i> (for details, see as given under Elective Courses for MS Management Sciences)	12
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#### Third Semester

8720	Thesis	12
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**Total Credit Hours 24+12 = 36**

**Note:** However, the department reserves the right to change its offering any time if desired so.

#### e) Elective Courses for MS (Management Sciences) Programme:

For selection of specialization courses in MS programme, students would select elective courses from only one of the following specializations:

#### Elective Courses of Human Resource Management

Sr. No.	Course Code	Course Title	Credit Hours
1	8709	Strategic Human Resource Development	3
2	8710	Organisational Theory & Design	3
3	8711	International Human Resource Management	3
4	8712	Human Resource Change Management	3

#### Elective Courses of Banking & Finance

1	8715	Investment & Securities Management	3
2	8716	Risk Management & Insurance	3
3	8718	Islamic Banking	3
4	8721	Bank Management and Control	3

#### f) Thesis

After the completion of 24 credit hours course work, a student will undertake research work of 12 credits. After the receipt of admission list of the 3<sup>rd</sup> semester, the Department will hold two-weeks Synopsis Orientation Workshop (SOW). The purpose of the SOW will be to guide the researchers in finalizing their topics of synopsis/thesis. The topic must be according to the specialization already selected by the researcher. Participation in the SOW will be mandatory. Researchers are supposed to develop and present their synopsis before the Departmental Synopsis Committee. Finally, topic of thesis/synopsis will be forwarded to the Competent Authority for approval as per MS/MPhil rules and regulations of the university.

### **g) Methods of Instruction**

The medium of instruction and examination will be English. Face to face mode of study will be adopted for MS (Management Sciences) programme. The outline of courses along with the required reading material and assignments will be provided to the students.

### **h) Assignments**

The student will send two compulsory assignments for each 03 credit hours course to their tutors who return the same after marking and providing necessary academic guidance.

### **i) Classes**

MS (Management Sciences) is a face to face programme. Classes equivalent to 48 hours in each course as teaching pedagogy are applied. MS classes will be conducted in two phases. First phase for 16 days will be scheduled in the beginning of the semester and second phase for 16 days will be before the examination. The workshops will be arranged only at the Main Campus, AIOU, H-8, Islamabad. The participation of the students in the classes will be compulsory. No relaxation on any ground will be provided to the students in this regard. The classes will be organized in order to provide the students proper guidance in course contents through intensive lectures, group discussions, etc. The programme of the classes will be chalked out by the Department and intimated to students well in time. Hostel facility at the Main Campus AIOU Islamabad will be available on payment if desired and would be arranged by the concerned students at their own expenses.

### **j) Evaluation Scheme**

Assessment will be done as under:

<b>Assessment Component</b>	<b>Weightage in the aggregate result</b>
Assignments	20%
Mid Term/Project Presentation	30%
Final Examination	50%
<b>Total</b>	<b>100%</b>

- i. For successful completion of each course the student will be required to qualify each component.
- ii. Pass percentage in aggregate shall be 50%. If a student cannot pass in continuous assessment/assignments or fail to maintain the minimum mandatory class attendance of 70% in a course, he/she will be declared as fail.

### **k) Degree Requirements**

Following are the requirements for award of MS (Management Sciences) degree:

- i. Successful completion of 08 courses (24 Credit Hours).
- ii. Thesis: After completion of 24 Credit Hours course work, the students will be eligible to register for the Thesis (12Credit Hours). The students will be required to complete their thesis as per AIOU rules applicable as amended from time to time, and submit to the Department in line with the approved format etc., that would be evaluated on the guidelines given by HEC and adopted by the AIOU.
- iii. Viva voce examination: Viva voce examination shall be held according to AIOU rules and regulations, if the student meets the criteria of the evaluation of thesis any extension in the programme would be as per AIOU rules/ regulations.

### 1) Fee Structure

Item	Fee
Registration Fee: (At the time of 1 <sup>st</sup> admission)	Rs.1,000/-
Admission Fee: (At the time of first admission)	Rs.1,500/-
Per 3 credit hours Rs.7500/- 7500 x 4) = Rs.30,000/-	Rs.30,000/-
Thesis Fee: (For 12 Credit hours)	Rs.30,000/-
Thesis Evaluation Fee: (Once at the time of admission in Thesis)	Rs.5,510/-
Security Fee: (At the time of first admission)	Rs.5,000/-
Technology Fee + Courier Charges (per student per semester)	Rs.500/-
<b>Total Fee for 1<sup>st</sup> Semester</b>	<b>Rs.38,000/-</b>

### FACULTY MEMBERS

- 1. Prof. Dr. Syed Hassan Raza**  
Chairman  
Ph: 051-9057722  
Email: hassan\_raza@aiou.edu.pk
- 2. Dr. Muhammad Majid Mahmood Bagram**  
Associate Professor  
Ph: 051-9057406  
Email: majid\_mahmood@aiou.edu.pk
- 3. Dr. Adnan Riaz**  
Assistant Professor  
Ph:051-9057272  
Email: adnan\_riaz@aiou.edu.pk
- 4. Dr. Salman Ali Qureshi**  
Assistant Professor  
Ph: 051-9057840  
Email: Salman\_qureshi@aiou.edu.pk
- 5. Mr. Mahmood-ul-Hassan**  
Lecturer  
Ph: 051-9057855  
Email: mehmoood\_ul\_hassan@aiou.edu.pk
- 6. Mr. Sadar Ayub Khan**  
Lecturer  
Ph: 051-9057416  
Email: Sadar\_ayub@aiou.edu.pk
- 7. Mrs. Mobashira Hamid Alvi**  
Lecturer  
Ph: 051-9057186  
Email: Mobashira.alvi@aiou.edu.pk
- 8. Mr. Ahmed Hassan Jamal**  
Lecturer  
Ph: 051-9057379
- 9. Syeda Attiya Rahat**  
Lecturer  
Ph: 051-9057250
- 10. Mr. Ehsan Javaid**  
Lecturer  
Ph: 051-9057855
- **Staff:**  
Ph: 051-9057723

## **DEPARTMENT OF LIBRARY AND INFORMATION SCIENCES**

### **Introduction**

The Department of Library and Information Sciences was established in 1985 within the Faculty of Social Sciences and Humanities. Besides MPhil, the Department is currently offering three more programmes, Certificate in Librarianship (CLS), Master of Library and Information Sciences (MLIS), and BS in Library and Information Sciences (BS4-LIS). These programmes were respectively initiated in 1985, 2001, and 2019.

### **PhD Library and Information Sciences**

#### **Objectives**

The main objective of launching PhD programme is to contribute to the national and international Library and Information Sciences (LIS) literature through high quality research particularly focusing on current and future needs. Secondly, there is a high demand from information professionals across Pakistan to have this programme at the AIOU platform through unconventional means of education. Thirdly, there is a high number of LIS professionals working in Islamabad and Rawalpindi who intend to enhance their professional qualifications and they find no such programme offered by public or private universities in this region. Other objectives include:

- To address the local issues in LIS and provide a viable solution through research.

- To enable LIS professionals to make informed decisions based on research.
- To promote evidenced-based LIS practice through the use of relevant research.
- To promote LIS research culture in Pakistan.
- To enrich Pakistani LIS research literature through a quality research.
- To endeavor to create a new knowledge in LIS.
- To prepare LIS professionals for challenging leadership role.
- To meet the current demand of multidisciplinary research.
- To instill critical and analytical thinking in research students.
- To instill information literacy skills in research students.
- To improve academic writing skills of LIS research students.
- To improve soft skills of LIS research students.
- To provide a specialized manpower to the LIS job market, and
- To promote information entrepreneurship by establishing industry-academia linkages through need-based research.

#### **Scope of the Programme and Job Market**

There is no such Programme being offered by any university, public or private, in Islamabad, Rawalpindi, Khyber Pakhtunkhwa, and Baluchistan. Further, only a few public sector universities in Pakistan (University of the Punjab, University of Sargodha, Islamia University Bahawalpur, University of Karachi, and Sindh University) are offering this programme in LIS with limited number of seats and annual

pass-out. Moreover, no public sector university is offering this programme in a flexible mode of study that could be affordable to on-job professionals who cannot leave their homes and jobs for a long time for conventional mode of study. There are a number of academic and top managerial positions vacant in public and private universities and government colleges in this discipline (LIS) owing to lack of specialized manpower having PhD qualifications. The fee package of some of the private universities offering this programme is not affordable to many of the interested candidates. Therefore, the afore-mentioned circumstances demand this programme to be offered at the AIOU platform.

**Entry Requirements (Admission Criteria) and Number of Seats PhD in LIS is a merit-based program.**

Any candidate having MS/MPhil degree in Library and Information Sciences/Information Sciences/Information Management qualification from an HEC-recognized institution with at least 3.0/4.0 CGPA in semester system or first division (60% marks) in annual system can apply for admission. The number of seats will be limited based on merit as per AIOU/HEC policy. The admission merit will be determined as per AIOU rules/policy. Interested candidates should apply as mentioned in advertisement published in leading national dailies, social media, and AIOU website. No TA/DA or other expenses will be on the part of AIOU.

**Duration of the Program**

The duration of this program is as per AIOU/HEC rules/policy.

**PhD (LIS) Coursework**

There will be a two-semester PhD (LIS) coursework of 18 credit hours, consisting of six courses of three credit hours each. All these courses are compulsory.

The semester-wise breakup of the courses is as under:

**1st Semester:**

Sr.#	Code	Course Title	Credit Hours
1.	7831	Research Methods: Information, Systems, and Context	3
2.	7832	Development of Library and Information Science in Pakistan	3
3.	7833	Independent Study	3

**2nd Semester**

Sr.#	Code	Course Title	Credit Hours
1.	7834	Information: Perspectives, Needs, Seeking, and Use	3
2.	7835	Leadership and Team Management	3
3.	7836	Seminar in Advanced Research	3

Subsequent Semesters			
1.	7840	Thesis	36

**Note:** There shall also be a comprehensive examination at the end of second semester of the coursework as per AIOU rules. Synopsis orientation workshop(s) shall be held as per AIOU rules.

**Research Proposal and Thesis** (Third and subsequent semesters)  
As per AIOU rules

**Mode of Study**  
As per AIOU rules/policy.

**Medium of Study**  
English language will be the medium of study. Students may not opt for any other language for any of the components of this program.

**Assessment/Evaluation of Students' Coursework**  
Multiple criteria shall be adopted to assess students' coursework that may include any or all or combination of assignments, presentation, academic paper/essay/article/ synopsis, quiz, midterm and final exams. Pass marks shall be as per AIOU rules.

**Fee Tariff**

Item	Fee
Registration Fee: (At the time of 1 <sup>st</sup> admission)	Rs.2500/-
Admission Fee: (At the time of first admission)	Rs.2500/-

Technology Fee + Courier Charges (per student per semester)	Rs.500/-
Tuition fee: Per credit hour Rs.7500/- (7500 x 3) = Rs.22,500/-	Rs.22,500
Lab/Library fee per semester	Rs.700/-
<b>Total Fee for 1<sup>st</sup> Semester</b>	<b>Rs.28,700/-</b>

Fee for subsequent semesters including thesis and thesis evaluation fee shall be informed at the time of admission/ event.

**Note:** The AIOU reserves the right to make any change(s) anytime in the Programme partly or wholly without prior notice.

**FACULTY MEMBERS:**

1. Dr. Pervaiz Ahmed  
Chairman  
Ph: 051-9057819, 051-9250179  
Email: [pervaiz@aiou.edu.pk](mailto:pervaiz@aiou.edu.pk)
2. Dr. Muhammad Arif  
Assistant Professor  
Ph: 051-9057634  
Email: [Muhammad.arif@aiou.edu.pk](mailto:Muhammad.arif@aiou.edu.pk)
3. Dr. Amjid Khan  
Lecturer  
Ph: 051-9057235  
Email: [amjid.khan@aiou.edu.pk](mailto:amjid.khan@aiou.edu.pk)

## DEPARTMENT OF HISTORY

### Introduction

The Department of History was established in 1995 as part of the Faculty of Social Sciences & Humanities. Since inception, the Department has been running academic programmes at Intermediate, Graduate and Post-graduate level. MPhil History has been launched since Spring 2015. This aims to cater the needs of faculty members working at higher educational institutions and the general public.

### MPhil History

#### Objectives

- i. The major objective of the programme is to inculcate the sense of History and Historiography through research on local, regional and international History.
- ii. The evolution stemming from British India (colonial India) will be highlighted through specialized study courses consisted of Muslim Arab and international political studies.
- iii. The endeavors of Muslim leaders during freedom struggle will be focused.

#### Duration

- The minimum period required for completing MPhil in History will be two years (four semesters) while maximum period will be four years (eight semesters).
- The minimum period for the completion of coursework (24 credit hours) shall be one year (two semesters). The minimum period for the completion of research work will be one year (two semesters).

- In case the student fails to complete the course/research work within the prescribed maximum period of (eight semesters) four years. She/he has to take a fresh admission in the program.

#### Eligibility for Admission

The students are eligible to apply for admission to M Phil History with the following educational background:

- i. At least 2<sup>nd</sup> class Master Degree in History,
- ii. Candidates with published articles will be preferred.
- iii. All other rules and instructions applied by Allama Iqbal Open University from time to time.
- iv. Test and interview will be conducted by the Admission Committee, Department of History AIOU, Islamabad

#### Medium of Instruction

The medium of instruction and examination is English.

#### Scheme of Studies

The MPhil in History programme will be of 36 credit hours in total: 24 credit hours coursework and 12 credit hours of research work. Semester wise offering of courses will be as under:

#### 1<sup>st</sup> Semester: Spring

Sr. No.	Code	Course	Credit Hours
1	2731	British India (1857-1947)-I	3
2	2732	British India (1857-1947)-II	3
3	2733	Historiography	3
4	2734	Research Methodology	3

## 2<sup>nd</sup> Semester: Autumn

Sr. No.	Code	Course	Credit Hours
1	2735	History of Modern World since 1945-I	3
2	2736	History of Modern World since 1945-II	3
3	2737	History of Pakistan (1947-88)-I	3
4	2738	History of Pakistan (1947-88)-II	3

## 3<sup>rd</sup> and 4<sup>th</sup> Semester (Research Work)

Sr. No.	Code	Course	Credit Hours
1	2739	Synopsis Workshop (compulsory) Research Work/Thesis	12

### Synopsis Workshop (Compulsory)

After the completion of twenty-four credit hours of coursework a student will undertake research of 12 credit hours. After the receipt of admission list in the 3<sup>rd</sup> semester, the Department will hold two-week Synopsis Orientation Workshop for MPhil Thesis. The purpose of the workshop would be to guide the researchers in finalizing their topics of research/ synopses. Participation in the Synopsis Orientation Workshop will be mandatory. Researchers are supposed to develop and present their synopses before the Departmental Synopsis Committee. Finally, topic of research/ synopsis will be forwarded to the concerned body for approval as per MPhil in History rules and regulations of the university.

### Admission Procedure

- There shall be a Departmental Admission Committee responsible to finalize the admission.
- Admission in MPhil History programme will be made once a year (i.e. Spring Semester). Applications will be invited through the daily newspapers/AIOU website.
- Preliminary selection of the candidates will be made strictly on the basis of merit/criteria laid down by the Department/ University.
- AIOU written test equivalent subject based test/interview will be essential for admission to this program.
- Only selected candidates will be informed about their admission and for depositing the fee. Fee depositing procedure will be mentioned in the intimation letter.
- The prevailing University rules/regulations regarding MPhil enforced from time to time shall strictly be followed for the MPhil Programme in History.

### Methods of Instruction

The following methodology will be adopted for running the MPhil Programme in History. The outline of courses along with the required reading material and assignments will be provided to the students by the Department.

### Assignments

Assignments are those written exercises which students complete while being at their homes and places of work after studying their reading material and attending the course workshop organized by the Department. These are designed in a way that students are able to relate their readings with their own objective judgments. The students will send two compulsory assignments for each 3 credit hours course to their tutors who return the same after marking and providing necessary academic guidance.

## Workshop

MPhil History has been launched in the mode of distance learning system. However, in lieu of tutorials, workshop component (48 hours teaching for each 3 credit hours course) is adopted in this program. MPhil workshop is conducted by the Department before the examination. Workshop would be arranged only at the main campus AIOU, Islamabad. The participation of the students in the workshop is compulsory. No relaxation on any ground can be provided to the students in this regard. The workshops (classes) are organized in order to provide the students proper guidance in course contents through intensive lectures, group discussion, etc. The programme of the workshop, chalked out by the Department will be intimated to the students well in time. Hostel facility at the Main Campus, AIOU Islamabad is available on payment by the students, if desired. A student who fails in continuous assessment component is not eligible to reappear but will be allowed to re-register for the same course at its next offering by the university. Whereas for workshops that is compulsory component of assessment, two additional consecutive chances would be given to students who fail to attend workshop activities on the payment of Reappear Workshop fee and permission from the Chairperson of the Department concerned, the offering of courses would be as per the AIOU policy.

## Assessment

Assessment will be done as under:

1. Assignments (continuous assessment). Two assignments are compulsory for each 3 Credit Hours Course.

2. Final Examination (three hours written examination will take place at the end of the semester). The weightage of each component is as follows.
  - a. Assignments 20%
  - b. Course Workshop 10%
  - c. Final Examination 70%
3. For successful completion of each course the student will be required to qualify each component.
4. To take final examination the student has to pass in assignments and maintain 75% attendance in the workshops.
5. The conditions to qualify each component are given below:
  - i. A minimum of 50% passing marks in each assignment.
  - ii. A minimum of 50% passing marks in the final written examination.
  - iii. 75% attendance in the workshops.

## Fee Tariff

S#	Item	Fee
i.	Registration Fee (Payable once at the time of admission)	Rs.1000/-
ii.	Admission Fee (Payable once at the time of admission)	Rs.1500/-
iii.	Technology Fee (per student per semester)	Rs.500/-
iv.	Course Fee: Per 3 credit hour Rs.4200/- (4200 x 4) = Rs.16,800/-	Rs.16,800/-
v.	Thesis Fee: (12 credit hours Rs.9000/-)	Rs.23,310/-
<b>Total Fee First Semester</b>		<b>Rs.19,800/-</b>

### **Admission Procedure**

This programme is merit based, therefore, no fee/ dues should be deposited until you receive the offer letter from Admission Department of the University. For clarification about academic matters please contact on the following address:

**Prof. Dr. Samina Awan**  
**Chairperson**  
**Department of History, Block No. 9**  
**Allama Iqbal Open University**  
**Sector H-8, Islamabad.**  
**Phone: 051-9250073, 9057827**

**Note: Admission form complete in all respect must be sent on the above address.**

### **FACULTY MEMBERS:**

For guidance, student may contact the following faculty members of the Department of History, Block-9, AIOU Main Campus, Sector H-8, Islamabad.

1. **Dr. Samina Awan**  
Chairperson/Professor  
Ph: 051-9250073, 051-9257827  
Email: [samina.awan@aiou.edu.pk](mailto:samina.awan@aiou.edu.pk)
2. **Dr. Kishwar Sultana**  
Associate Professor  
Ph: 051-9057837  
Email: [kishwar.sultana@aiou.edu.pk](mailto:kishwar.sultana@aiou.edu.pk)

3. **Mr. Abdul Basit Mujahid (MPhil)**  
Assistant Professor  
Ph: 0519057822  
Email: [basit.mujahid@aiou.edu.pk](mailto:basit.mujahid@aiou.edu.pk)
4. **Dr. Kausar Parveen**  
Assistant Professor  
Ph: 051-9057825  
Email: [kausar.parveen@aiou.edu.pk](mailto:kausar.parveen@aiou.edu.pk)
5. **Ms. Sadia Aziz (MPhil)**  
Lecturer  
Ph: 051-9057686  
Email: [sadia.aziz@aiou.edu.pk](mailto:sadia.aziz@aiou.edu.pk)
6. **Ms. Fozia Umar (PhD Scholar)**  
Lecturer  
Ph: 051-9057686
7. **Dr. Sajid Khan**  
Lecturer
- **Office:**  
Ph: 051-9057821

## شعبہ پاکستانی زبانیں

### تعارف:

شعبہ پاکستانی زبانیں 1998ء میں قائم ہوا۔ علامہ اقبال اوپن یونیورسٹی ملک کی واحد یونیورسٹی ہے جس میں پاکستان میں بولی جانے والی تمام زبانوں کے فروغ اور تدریس کے لیے شعبہ پاکستانی زبانیں کا قیام عمل میں لایا گیا جو پاکستانی زبانوں کے تدریسی کورس پیش کرتا ہے۔ یہ کورس میٹرک، انٹرمیڈیٹ اور بی اے کی سطح کے ہیں۔ مزید برآں پاکستانی زبانوں اور ان کے ادب سے متعلق کتب کی اشاعت اور پاکستانی زبانوں کے کلاسیکی شعرا پر سیمی ناز کا اہتمام بھی شعبہ پاکستانی زبانیں کی سرگرمیوں میں شامل ہے۔ پاکستان کے مختلف علاقوں میں بولی جانے والی زبانیں مستحکم حیثیت کی حامل ہونے کے ساتھ ساتھ کئی مشترک عناصر بھی رکھتی ہیں۔ قومی یک جہتی کے فروغ میں کسی ایسے پروگرام کی ضرورت کافی عرصہ سے محسوس کی جا رہی تھی جس میں پاکستانی زبانوں کا تقابلی مطالعہ، ادبیات پاکستان کا تقابلی مطالعہ اور ان زبانوں کے منفرد اور مشترک ادبی رجحانات کا احاطہ کیا گیا ہو۔ وقت کے اس تقاضے کے پیش نظر علامہ اقبال اوپن یونیورسٹی کے شعبہ پاکستانی زبانیں نے سمسٹر بہار 2004ء میں ایم فل پاکستانی زبانیں وادب پروگرام متعارف کرانے کا اہتمام کیا جس کے چیدہ چیدہ مقاصد درج ذیل ہیں۔

- 1- قومی یک جہتی اور ملی ہم آہنگی کے فروغ کے لئے طلبہ و طالبات کو پاکستانی زبانوں کے مشترک نقوش، بین اللسانی روابط اور مشترک ادبی رجحانات سے روشناس کرانا۔
- 2- طلبہ اور طالبات کو پاکستانی زبانوں اور ان کے ادب کے بارے میں مطالعاتی اور تحقیقی بنیادیں فراہم کرنا۔
- 3- پاکستان میں کثیر لسانی ماہرین کی کمی کو کسی حد تک پورا کرنے میں مدد دینا۔

4- پاکستانی زبانوں (پشتو، سندھی، بلوچی، براہوئی، پنجابی، سرائیکی) کے اساتذہ کی پیشہ ورانہ مہارت میں اضافہ کرنا۔

### مطالعاتی سکیم

#### ایم فل پاکستانی زبانیں وادب پروگرام:

- 1- ایم فل (پاکستانی زبانیں وادب) بہ تخصیص پنجابی، پشتو، سندھی، سرائیکی، بلوچی اور براہوئی) پروگرام 24 کریڈٹ آوز کے کورس ورک اور 12 کریڈٹ آوز کے ریسرچ ورک پر مشتمل ہے۔
- 2- طلبہ ایک سمسٹر میں زیادہ سے زیادہ تین تین کریڈٹ آوز کے چار کورسوں میں داخلہ لے سکتے ہیں۔

#### کورسوں کی تفصیل:

##### پہلا سمسٹر

کورس کوڈ	کورس کا نام	کریڈٹ آوز
2721	پاکستانی زبانوں کا تقابلی مطالعہ، ادبیات پاکستان کا تقابلی مطالعہ، اردو زبان وادب	3
2722	بلوچی، براہوئی: زبان وادب	3
2723	پشتو، ہندکو، توروالی، گاؤری: زبان وادب	3
2724	پنجابی، پہاڑی، گوجری: زبان وادب	3

☆ کورس ورک کی کامیاب تکمیل کے بعد خاکہ سازی کی ورکشاپ منعقد کی جائے گی، جس میں تحقیقی موضوعات کی تیاری کے سلسلے میں تربیت فراہم کی جائے گی۔ اس ورکشاپ میں شرکت کرنے والے طلبہ کے موضوعات کے خاکے ایم فل کے یونیورسٹی قواعد کے تحت منظوری کے لیے پیش کیے جائیں گے۔ اس ورکشاپ کا دورانیہ دو ہفتے کا ہوگا۔

### جانچ پڑتال

1- (20+30) 50% Continous Assignment and Mid Term  
2- 50% Final Examination

☆ ہر کورس کی کامیاب تکمیل کے لیے طلبہ کا امتحانی مشقوں، کورس ورکشاپ، مڈ ٹرم اور آخری امتحان میں کامیاب ہونا لازمی ہے۔

### ایم فل پاکستانی زبانیں و ادب میں داخلے کے قواعد و ضوابط

- 1- امیدوار کسی بھی تسلیم شدہ یونیورسٹی سے ایم اے پنجابی/ پشتو/ بلوچی/ برہمپوئی/ سندھی/ سرائیکی میں درجہ دوم یا اس کے مساوی قابلیت کا حامل ہونا لازمی ہے۔
- 2- ایم فل میں داخلے کے لیے امیدوار کا شعبے میں GRE/GAT General کے مساوی ٹیسٹ لیا جائے گا۔ کامیاب امیدوار ہی انٹرویو کے اہل ہوں گے۔

### آن لائن درخواست کے لیے رہنمائی

- 1- آن لائن درخواست فارم یونیورسٹی کے سرکاری ویب سائٹ [www.aiou.edu.pk](http://www.aiou.edu.pk) پر دستیاب ہوگا۔
- 2- درخواست دہندہ کے لیے آن لائن درخواست فارم میں تمام مطلوبہ خانے پُر کرنا لازمی ہیں۔

### دوسرا سمسٹر

کورس کوڈ	کورس کا نام	کریڈٹس آوز
2725	سندھی/سرائیکی/کشمیری: زبان و ادب	3
2726	شمالی علاقہ چات کی زبانیں و ادب (ہلتی، شہ، کھوار، برہوشسکی، وخی)	3
5765	اصول تحقیق (زبان و ادبیات) I	3
5766	اصول تحقیق (زبان و ادبیات) II	3

### تیسرا اور چوتھا سمسٹر (ریسرچ ورک)

کورس کوڈ	کورس کا نام	کریڈٹس آوز
2728	تحقیقی مقالہ (Thesis)	12

### ذریعہ تعلیم

کورس ورک اردو زبان میں ہوگا جبکہ ریسرچ ورک یعنی تحقیقی مقالہ اپنی مادری زبان (جس میں طالب علم نے ایم اے کیا ہو) کے علاوہ اردو اور انگریزی میں بھی لکھنے کی اجازت ہے۔

### مدریس

☆ ہر سمسٹر میں پیش ہونے والے کورسوں کی تدریس براہ راست (آن لائن) اور فی کورس (3 کریڈٹس آوز) 48 گھنٹے ہوگی۔ اس کی بدولت طلبہ کو روایتی تعلیم کی طرز پر بالمشافہ (Face to Face) تعلیم کا موقع میسر آئے گا اور تعلیمی و تحقیقی مسائل اور ان کے امکانات بھی زیر بحث لائے جائیں گے۔

نوٹ: داخلے کی منظوری کی اطلاع ملنے پر فیس جمع کرائی جائے بصورت دیگر فیس واپس نہیں ہوگی۔

شعبے کے اساتذہ کے نام، پتے اور فون نمبر

نمبر شمار نام وعہدہ پتہ اور فون نمبر

1.	ڈاکٹر عبداللہ جان عابد چیمبر مین	کمرہ نمبر 112، بلاک نمبر 05، AIOU 051-9250071
2.	ڈاکٹر حاکم علی برزو اسٹنٹ پروفیسر	کمرہ نمبر 110، بلاک نمبر 05، AIOU 051-9057778
3.	ڈاکٹر عبدالواحد اسٹنٹ پروفیسر	کمرہ نمبر 109، بلاک نمبر 05، AIOU 051-9057893
4.	ڈاکٹر ضیاء الرحمن بلوچ اسٹنٹ پروفیسر	کمرہ نمبر 107، بلاک نمبر 05، AIOU 051-9057779
5.	ڈاکٹر محمد صدیق ملک لیکچرار	کمرہ نمبر 113، بلاک نمبر 05، AIOU 051-9057778
6.	ڈاکٹر زینب النساء لیکچرار	کمرہ نمبر 108، بلاک نمبر 05، AIOU 051-9057776

3- درخواست دہندہ کو چاہیے کہ وہ درخواست کی فیس جاری کردہ چالان فارم پر مجوزہ

بینکوں میں جمع کرائے (متعلقہ بینکوں کے نام اشتہار میں درج ہیں)

4- فیس جمع کرانے کے بعد چالان نمبر آن لائن فارم میں درج کیا جائے اور بینک

چالان سے یونیورسٹی کا پتہ علیحدہ کر کے لفافے پر چسپاں کریں اور بعد ازاں اپنا

داخلہ فارم مع چالان فارم (یونیورسٹی کا پی) اور تمام اسناد کی مصدقہ نقول بذریعہ

رجسٹر ڈاک / UMS درج ذیل پتہ پر ارسال کریں۔

5- نامکمل اور تاخیر سے موصول ہونے والی درخواستوں پر کارروائی عمل میں نہیں لائی

جائے گی۔

ڈاکٹر عبداللہ جان عابد

چیمبر مین

شعبہ پاکستانی زبانیں، بلاک نمبر 5

علامہ اقبال اوپن یونیورسٹی، اسلام آباد

فون نمبر: 051-9250071

شرح فیس

1-	رجسٹریشن فیس	1000/- روپے (پہلی بار داخلہ کے وقت صرف ایک مرتبہ جمع کرانی ہوگی)
2-	داخلہ فیس	1500/- روپے (صرف پہلے سمسٹر کی فیس کے ساتھ)
3-	کورس فیس (فی 3 کریڈٹس آوز)	16,800/- = 4 x 4200 روپے
4-	آئی ٹی فیس	500/- روپے (ہر سمسٹر کی فیس کے ساتھ)
	کل فیس	19,800/- روپے

## **FACULTY OF EDUCATION**

The origin of the Faculty of Education pre-dates the university itself. The National Institute of Education was established in 1973 under the Federal Ministry of Education. It became part of the university in June, 1975 as Institute of Education in the then Faculty of Social Sciences. The progressively extending functions of the Institute brought the needs for structural change and in 1984 it got the status of Faculty of Education.

### **DEPARTMENTS OF THE FACULTY**

#### **Faculty of Education Comprises of the following Six Departments:**

1. Distance, Non-Formal and Continuing Education
2. Educational Planning, Policy Studies and Leadership
3. Early Childhood Education and Elementary Teacher Education
4. Secondary Teacher Education
5. Science Education
6. Special Education

#### **Distance, Non Formal Education and Continuing Education**

The department was established in 1984 and was renamed as Distance, Non Formal and Continuing Education Adult Education and Educational Technology at MA Education, MEd, MPhil and PhD in Education.

#### **Educational Planning, Policy Studies and Leadership (EPPSL)**

The department was established in 1976 was renamed as EPPSL in 2008. It offers programmes in educational planning and management. These programmes are aimed at producing a cadre of professionals for the educational institutions and organizations in the country. Programmes of EPPSL include Postgraduate Diploma, MA (EPM), MPhil and PhD in Education. The courses of these programmes are attained to the field requirements of target personnel in the areas of educational planning and management.

#### **Secondary Teacher Education**

The Department of Teacher Education was established in 1985 and was bifurcated into Secondary and Elementary Teacher Education Departments in July 2003. Its programmes aim at imparting academic and professional knowledge and training to in-services and pre service teachers and scholars.

The programmes/courses of this department comprises MA, MEd and BEd as professional degree programmes. The department also offers MPhil and PhD in Education, which are aimed to prepare highly skilled leaderships in the field of teacher education.

#### **Early Childhood Education and Elementary Teacher Education**

The Department of Elementary Teacher Education was established in 2003. In April 2008, the name of Elementary Teacher Education Department was changed as Early Childhood Education and Elementary Teacher Education Department.

The Department offers Associate Degree in Education, Post Graduate Diploma in ECE, BEd (1.5 year), BEd (2.5), BEd (4 years), MPhil and PhD programme, it also offers “Education” as subject at Matric, Intermediate and Graduate level.

The department is planning to launch, MA (Elementary Teacher Education) and Certificate of Entrepreneurship in ECE. The department also plans to offer non-credit research courses and postgraduate diploma for teaching in higher education.

### **Science Education**

The Department of Science Education was established in 1988. The programmes and courses of the department are mainly focused on education and training of mathematics and science teachers. Presently the department offers specialized courses in science education at undergraduate and postgraduate level. Specialized courses provide conceptual framework and insight into the teaching of science. The department also offers MEd, MPhil and PhD programmes in BEd (4 year) BEd (2.5 year) and specialization of Science Education in BEd (1.5) year.

### **Special Education**

The Department was established in 1985. The department imparts education and training to teachers for the special children in four specializations namely visual impairment, hearing impairment, physical disabilities and mental retardation with particular emphasis to facilitate mainstreaming of special children. Parents of the special children are also admitted to these programmes.

Present programmes/courses of this department comprise MEd, MA, MPhil and PhD in the field of Special Education.

## **PROGRAMMES OF FACULTY OF EDUCATION**

The Faculty has developed and launched more than 275 courses (up to Spring, 2015 Semester) in various disciplines from SSC to PhD level programmes. It is now fully recognized by both the government of Pakistan and International agencies as the prime national provider of professional education and training at all levels.

### **PhD in Education with following specializations:**

- Distance and Non-Formal Education
- Educational Planning and Management
- Teacher Education
- Special Education
- Science Education

### **MPhil Education with following specializations:**

- Distance and Non Formal Education
- Educational Planning & Management
- Elementary Teacher Education
- Teacher Education
- Special Education
- Science Education

### **MEd/MA Education with following specializations:**

- MEd Distance and Non Formal Education
- MEd Science Education
- MEd Special Education
- MEd Teacher Education
- MA Distance and Non Formal Education
- MA Educational Planning and Management
- MA Teacher Education
- MA Special Education

### **BEd/PGD/ADE/SSC/HSSC/BA Level Educational Programmes**

- BEd (1.5 years, 2.5 years, 4 years)
- PGD Educational Planning and Management
- PGD Early Childhood Education
- Courses of Education at SSC, HSSC and BA level
- Associate Degree in Education  
(1 year in service; 2 years; 3 years)

**All Programmes of Faculty of Education are recognized by HEC and accreditation is under process with NACTE.**

### **MPHIL EDUCATION PROGRAMMES**

**Faculty of Education offers MPhil Education in following programmes:**

- Special Education

#### **Specialization:**

- Elementary Teacher Education
- Teacher Education
- Distance and Non Formal Education
- Science Education

#### **Programme Goals**

MPhil in Education programme is designed to prepare scholars who have grasp of the discipline of Education: establish a cadre of specialists and professionals in different fields of education who can provide effective leadership in guiding and conducting high level research in various fields.

#### **Admission Procedure for MPhil Education Programme**

- i) Merit will be determined on the basis of educational qualification, experience, score of subject test and interview conducted by the department.

- ii) Selected candidates will be intimated by the Directorate of Admission with the advice to deposit fee according to the schedule.

*Courses by continuing students may not be taken as mentioned in the prospectus. These should be taken only as and when communicated in the letter by the Admission Department for continuing student for each semester.*

#### **Procedure of Studies for MPhil Education**

The university will provide study material in printed or electronic form to the enrolled students. The medium of instruction is English.

#### **Assignments**

Assignments are compulsory component. For each course students have to attempt two assignments. Passing marks in each assignment are 50%. The student has to submit his/her assignments as per schedule before or on time. It is advised that students must send their assignments under registered cover and keep a copy for their own record.

#### **Workshop**

For each course there will be a compulsory workshop of one-week duration at the main campus Islamabad. All expenditures including travelling, hostel charges etc. will be borne by the students themselves. The university will not bear any responsibility of TA/DA or provision of accommodation. Attendance in the workshops is compulsory. Facility of university hostel is available at the approved rates, provided if the rooms are vacant.

#### **Final Examination**

To sit in the final examination, one has to qualify the assignment component.

### **Research Thesis**

The student will be allowed to take research thesis after successful completion of 12 credit hours course work including “Advance Course on Educational Research and Statistics” (3706) and qualifying other requirements.

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The student will be allowed to take research thesis after successful completion of 12 credit hours course work including “Advance Course on Educational Research and Statistics” (3706) and qualifying other requirements.

## **MPhil Special Education**

### **i. Eligibility**

Applicants for MPhil Education with specialization in Special Education must possess a degree of MEd, MA Education, MEd or BEd/BSEd (4 year) at least with 2<sup>nd</sup> Division.

Admission to MPhil Education with specialization in Special Education will be made on merit as per approved criteria, the applicants having MA/MEd in Special Education be given priority.

### **ii. Programme Structure**

Students enrolled in MPhil have to pass the make-up courses prescribed by the department if they are not MA/MEd in Special Education. MPhil Education specialization in Special Education programme is comprised of 24 credit hours course work and a Research Thesis of 12 credit hours.

## **Semester-1**

### **a. Core Courses 12 Credit Hours**

<b>Sr. No.</b>	<b>Code</b>	<b>Courses Title</b>	<b>Credit Hours</b>
1.	3701	Trends and Issues in Education	3
2.	3748	Qualitative Research in Education	3
3.	3706	Advanced Course on Educational Research and Statistics	3
4.	3709	Trends & Issues in Special Education	3

### **Makeup Courses (MA Level) for the students who are without MA/MEd Special Education Degree:**

1.	672	Perspective of Special Education	3
2.	673	Handicapped Persons in the Community	3

## **Semester-2**

### **b. Specialization 12 Credit Hours**

<b>Sr. No.</b>	<b>Code</b>	<b>Courses Title</b>	<b>Credit Hours</b>
1.	3716	Advanced Study on Exceptionality-I	3
2.	3717	Advanced Study on Exceptionality-II	3
3.	3718	Career Planning and Rehabilitation-I	3
4.	3719	Career Planning and Rehabilitation-II	3

Makeup Courses (MA Level) for the students who have not done MA/MEd Special Education Degree. 6 Credit Hours Courses from Any Specialization Area.

Code	Courses Title	Credit Hours
<b>a. Visual Impairment</b>		
677	Independence Training for the Visually Handicapped	3
678	Special Education for Visually Handicapped	3
<b>OR</b>		
<b>b. Hearing Impairment</b>		
680	General Introduction to the Hearing Impairment	3
681	Psychology of Deafness & Child Development	3
<b>OR</b>		
<b>c. Mental Retardation</b>		
3603	Introduction & Assessment of Mentally Retarded Children-I	3
3604	Introduction & Assessment of Mentally Retarded Children-II	3
<b>OR</b>		
<b>d. Physical Disabilities</b>		
3607	Physical Handicaps-I	3
3608	Physical Handicaps-II	3

**c. 3<sup>rd</sup> and 4<sup>th</sup> Semester**

**Research Thesis (3712) 12 credit hours**

For clarification about academic matters please contact on the following address:

**Note: Admission form complete in all respect may be sent on the following address:**

**CHAIRPERSON**

Department of Special Education, Faculty of Education,  
Allama Iqbal Open University, Sector H-8, Islamabad  
Ph: 051-9250078, 051-9057853, 051-9057859

**MPhil Elementary Teacher Education**

**Eligibility:**

MA (Education), MEd/MSEd or BEd/BSEd (4 year) with 2nd Division. Admission will be granted on merit as per approved criteria of AIOU.

**MPhil:**

**Coursework:** 24 Credit Hours

**Thesis:** 12 Credit Hours

**Semester-1**

**(12 Credit Hours)**

Sr. No.	Code	Courses	Credit Hours
1.	3751	Advanced Research Methods	3
2.	3752	Educational Leadership & Supervision	3
3.	3753	Curriculum & Instruction	3
4.	3754	Assessment of Evaluation in Education	3

**Semester-2**

**(12 Credits Hours)**

**(Core courses 6 credits & Specialization Courses 6 Credits)**

1.	3755	Foundations of Education	3
2.	3756	Trends and Issues in Elementary Education	3

Student can select any one cluster from below clusters:

<b>Specialization Courses</b>			
Curriculum	3757	Curriculum Design	3
	3758	Curriculum Evaluation	3
Assessment	3759	Test & Scale Development	3
	3760	Assessment & Reporting of Student Learning	3
Educational Psychology	3761	Psychological Testing	3
	3762	Social Psychology	3
Educational Research	3763	Educational Statistics	3
	3764	Critiques in Educational Research	3
Educational Administration	3765	Organizational Theory & Behaviour in Education	3
	3766	Economics & Finance of Education	3

**3<sup>rd</sup> and 4<sup>th</sup> Semester:**

**Thesis/Research Work (12 Credit Hours)**

Code	Course	Credits
3747	Thesis	12

**Note: Admission form complete in all respect may be sent on the following address:**

**CHAIRMAN**  
 Department of Early Childhood Education &  
 Elementary Teacher Education (ECE&ETE)  
 ICT Block, AIOU, Sector H-8 Islamabad  
 Ph: 051-9257719, 051-9057718

## **MPhil Science Education**

### **i. Eligibility**

Applicants for MPhil Science Education must possess BEd (4 year) with Science Education, BS Science Education, MEd, MEd/MA (specialization in Science Education) at least with 2<sup>nd</sup> division. Admission to MPhil will be granted on merit basis (Test and Interview) according to the approved criteria of AIOU.

### **ii. Programme Structure**

MPhil Education Specialization in Science Education comprises 24 credit hours course work and 12 credit hours Research thesis.

**The detailed breakup of courses is as follows:**

### **Semester-1**

#### **a. Core Courses (12 Credit Hours)**

S. No.	Code	Courses	Credit Hours
1.	3701	Trends and Issues in Education	3
2.	3748	Qualitative Research in Education	3
3.	3706	Advanced Course on Educational Research and Statistics	3
4.	6771	Trends and Issues in Science Education	3

### **Semester-2**

#### **b. Specialization (12 Credit Hours)**

1.	6772	ICTs in Science Education	3
2.	6773	Teaching Models & Strategies in Science Education	3
3.	6774	Assessment and Evaluation in Science Education	3
4.	6775	Curriculum Development in Science Education	3

**c. 3<sup>rd</sup> and 4<sup>th</sup> Semester:**

**Thesis (24 Credit Hours) = (3720)**

**Note: Admission form complete in all respect may be sent on the following address:**

**CHAIRMAN**

Science Education Department  
Faculty of Education,  
Allama Iqbal Open University  
Sector H-8, Islamabad  
Ph: 051-9057718, 051-9057719

**MPhil Distance and Non-Formal Education**

**i. Eligibility**

Applicants for MPhil Education (Distance and Non-Formal Education) must possess the following qualification:

MA Education (at least 2<sup>nd</sup> division) **OR**

MEd (at least 2<sup>nd</sup> division) **OR**

MSEd (at least 2<sup>nd</sup> division) **OR**

BEd (4 Year) **OR**

MS Education

Admission will strictly be made on merit basis as per approved criteria.

**ii. Programme Structure**

MPhil Education with specialization in Distance, Non-Formal and Continuing Education programme comprises 24 credits hours course work and 12 credit hours thesis for MPhil.

**Semester-1**

**a. Core Courses 12 Credit Hours**

S. No.	Code	Courses	Credit Hours
1.	3701	Trends and Issues in Education	3
2.	3703	Trends and Issues in Distance Education	3
3.	3748	Qualitative Research in Education	3
4.	3706	Advanced Course on Educational Research and Statistics	3

**Semester-2**

**Students can take any two clusters from the following:**

**b. Specialization 12 Credit Hours**

S. No.	Code	Courses	Cluster	Credit Hours
1.	3726	Non Formal Education-I	Cluster-A	3
	3727	Non Formal Education-II		3
2.	3728	Adult Education -I	Cluster-B	3
	3729	Adult Education -II		3
3.	3730	Educational Technology-I	Cluster-C	3
	3731	Educational Technology-II		3
4.	3732	Distance Education-I	Cluster-D	3
	3733	Distance Education-II		3

**c. 3<sup>rd</sup> & 4<sup>th</sup> Semester**

**Research Thesis (3714) 12 Credit Hours**

**Note: Admission form complete in all respect may be sent on the following address:**

**CHAIRMAN**

Department of Distance, Non-Formal &  
Continuing Education (DNFCE)  
Faculty of Education, AIU  
H-8, Islamabad. Ph: 051-9250055

## **MPhil Teacher Education**

### **i. Eligibility**

Applicant for MPhil Education in Teacher Education must possess a degree of MEd, MA Education or MEd/BSEd at least with 2<sup>nd</sup> division. Admission to MPhil Education (Teacher Education) will be granted on merit as per approved criteria.

### **ii. Programme Structure**

MPhil Education specialization in Teacher Education programme comprises 24 credit hours course work and 12 credit hours thesis.

### **Semester-1**

#### **a. Core Courses**

**12**

#### **Credit Hours**

<b>S. No.</b>	<b>Code</b>	<b>Courses</b>	<b>Credit Hours</b>
1.	3701	Trends and Issues in Education	3
2.	3704	Trends and Issues in Teacher Education	3
3.	3748	Qualitative Research in Education	3
4.	3706	Advanced Course on Educational Research and Statistic	3

### **Semester-2**

#### **b. Any two clusters from the following:**

<b>S. No.</b>	<b>Code</b>	<b>Courses</b>	<b>Credit Hours</b>
1.	3736	Advance Approaches to Curriculum Development I	3
	3737	Advance Approaches to Curriculum Development II	3
2.	3739	Teaching Strategies-I	3
	3740	Teaching Strategies-II	3
3.	3742	Measurement & Evaluation in Education-I	3
	3743	Measurement & Evaluation in Education-II	3

#### **c. Semester 3<sup>rd</sup> and 4<sup>th</sup> Research Thesis (3713)**

**12 Credit Hours**

**Note: Admission form complete in all respect may be sent on the following address:**

#### **CHAIRPERSON**

Department of Secondary Teacher Education  
Faculty of Education,  
Allama Iqbal Open University, Sector H-8 Islamabad  
Ph: 051-9250057, 051-9057708

### Fee Tariff (MPhil Education)

Details of dues for admission to programme are as under:

Item	Fee
<b>Registration Fee</b> (Once, if not already registered with AIU)	Rs.1000/-
<b>Admission Fee</b> (Once at the time of first semester)	Rs.1500/-
Per one credit hour Rs.1400/- 3 Credit Hours course Rs.4200 x 4 = 16,800/-	Rs.16,800/-
Technology Fee + Postal Charges	Rs.500/-
<b>Total Fee for 1<sup>st</sup> Semester</b>	<b>Rs.19,800/-</b>

### MPhil Education Coordinators

For clarification about academic matters, please contact on the following address:

1. **Distance, Non-Formal and Continuing Education**

Dr. Zafar Iqbal Lilla

Ph: 051-9057720

Email: [zafarar72@yahoo.com](mailto:zafarar72@yahoo.com)

2. **Educational Planning, Policy Studies & Leadership**

Dr. Azhar Mumtaz Sadi

Ph: 051-9057709

Email: [azhar.mumtaz@aiou.edu.pk](mailto:azhar.mumtaz@aiou.edu.pk)

3. **Secondary Teacher Education**

Dr. Munnaza Ambreen

Ph: 051-9057713

Email: [munazza.ambreen@yahoo.com](mailto:munazza.ambreen@yahoo.com)  
[munazza.ambreen@aiou.edu.pk](mailto:munazza.ambreen@aiou.edu.pk)

4. **Special Education**

Dr. Tanzila Nabeel

Ph: 051-9250078, 051-9057857

Email: [spedu@aiou.edu.pk](mailto:spedu@aiou.edu.pk)

5. **Science Education**

Dr. Muhammad Tanveer Afzal

Assistant Professor

Ph: 051-9057711

Email: [tanveer.afzal@aiou.edu.pk](mailto:tanveer.afzal@aiou.edu.pk)

6. **Elementary Teacher Education**

Dr. Fazal ur Rahman

Associate Professor

Ph: 051-9057268

Email: [fazalaiou@yahoo.com](mailto:fazalaiou@yahoo.com)

**PhD in Education  
in following programmes:**

- Educational Planning and Management
- Special Education

**Specializations:**

- Elementary Teacher Education
- Secondary Teacher Education
- Distance & Non-Formal Education
- Science Education

**All Programmes of Faculty of Education are recognized by HEC and accreditation is under process with NACTE.**

**PhD in Education**

**Faculty of Education offers PhD Education in following specializations:**

- Educational Planning and Management

**PhD Eligibility to Apply**

- Graduate holding MS/MPhil in the relevant area or equivalent with CGPA 3.0/1st Division in 30 credit hours will be eligible for admission in PhD programme.
- Departmental Subject based test and interview.
- Candidate will apply for admission on prescribed form to the concerned Chairman of the department. If the candidate wishes to apply in more than one specialization, he/she has to apply separately for each specialization.
- Admission will be strictly on merit and on approved criteria.

**PhD Educational Planning & Management**

**PhD Course Work: 18 Credit Hours**

**Semester-1**

**a. Common Courses 9 Credit Hours**

Sr. No.	Code	Courses	Credit Hours
1.	4774	Comparative Education	3
2.	4775	Instrumentation in Educational Research	3
3.	4778	E-Learning	3

**Semester-2**

**b. Course Work (Specialization)**

**any two of following: 6 Credit Hours**

1.	4782	Human Resource Management	3
2.	4783	Educational Leadership and Management	3
3.	4791	Policy Analysis	3

**c. Any one collateral area courses:**

**(Subject to offering) 3 Credit Hours**

1.	3776	Discourse Analysis	3
2.	4777	Emerging Trends in Pedagogy	3
3.	4771	Adult and Life Long Education)	3

**d. Comprehensive Examination**

**e. Publish research article as per approved policy of Higher Education Commission.**

**f. Thesis (4788) (12 credit hours)**

### **PhD EPM Eligibility to Apply:**

- i. Candidates who have passed MS/M.Phil in EPM/ELM with 3.0 CGPA or above are eligible to apply.
- ii. Candidates who have passed MS/M.Phil in Education; with at least 9 credit hours courses of Educational Planning, Policy Studies, Leadership and Management; with 3.0 CGPA or above are eligible to apply.
- iii. Candidates who have passed MS/M.Phil in policy studies, Project Management or Business Management, must have MA Education to stand eligible for Ph.D EPM.
- iv. Candidates who have completed MS/M.Phil without research thesis will be assessed as per HEC Criteria.
- v. Department will conduct admission test and interview.
- vi. Previous experience and research publications shall be given weightage.
- vii. Candidate will apply for admission on prescribed form to the concerned Chairman of the department. If the candidate wishes to apply in more than one specialization, he/she has to apply separately for each specialization.
- viii. Admission will be strictly on merit and on approved criteria.

**Note: Admission form complete in all respect may be sent on the following address:**

**INCHARGE**  
Department of Educational Planning  
Policy Studies and Leadership,  
Faculty of Education, AIOU, Sector H-8, Islamabad  
Ph: 051-9250059

### **PhD Special Education**

**PhD Course Work: 18 Credit Hours**

#### **Semester-1**

**a. Common Courses 9 Credit Hours**

<b>Sr. No.</b>	<b>Code</b>	<b>Courses</b>	<b>Credit Hours</b>
1.	4774	Comparative Education	3
2.	4775	Instrumentation in Educational Research	3
3.	4778	E-Learning	3

#### **Semester-2**

**b. Specialization Courses 6 Credit Hours**

<b>Sr. No.</b>	<b>Code</b>	<b>Courses</b>	<b>Credit Hours</b>
1.	4780	Programming and Planning for Exceptional Youth	3
2.	4781	Emerging Trends in Special Education	3

**c. Collateral Area**

Each student will take a course (3 credit hours) from this area

<b>S. No.</b>	<b>Code</b>	<b>Courses</b>	<b>Credit Hours</b>
1.	4776	Discourse Analysis	3
2.	4777	Emerging Trends in Pedagogy	3
3.	4783	Educational Leadership & Management	3

- d. Comprehensive Examination
- e. Publish research article as per approved policy of Higher Education Commission.
- f. **3<sup>rd</sup> & 4<sup>th</sup> Semester Thesis (4785) 24 Credit Hours**

**Note: Admission form complete in all respect may be sent on the following address:**

**CHAIRPERSON**  
Department of Special Education,  
AIOU, H-8, Islamabad.  
Ph. 051-9250078

### **PhD Elementary Teacher Education**

**Maximum Load Per Semester: 18 Credit**  
**Medium of Instruction: English**  
**Semester Duration: 16-18 weeks**  
**Mode of Delivery: ODL/Online**  
**Coursework: 18 Credit Hours**  
**Thesis: 24 Credit Hours**  
**Total Credit: 42 Credits**

#### **PhD Eligibility Criteria**

- i) Graduate holding MPhil/MS (Education) or equivalent with CGPA 3.0/1<sup>st</sup> Division will be eligible for admission in PhD Programme.
- ii) Department will conduct test and interview.
- iii) Candidate will apply for admission on prescribed form to the concerned Chairman of the Department. If the candidate wishes to apply in more than one specialization, he/she has to apply separately for each specialization.
- iv) Admission will be strictly on merit and on approved criteria.

#### **a. Core Courses**

Sr. No.	Code	Title of Course	Credit Hours
1	4801	Elementary Education in Comparative Perspective	3
2	4802	Qualitative Research Methods	3
3	4803	Quantitative Research Design	3
4	4804	Elementary Teacher Education	3

#### **b. Course Work (Specialization any one cluster)**

**(6 Credit Hour)**

Cluster	Code	Title of Course	Credit Hours
Curriculum	4805	Curriculum change & Policy Analysis	3
	4806	Curriculum Integration	3
Educational Psychology	4807	Developmental Psychology	3
	4808	Constructivism in Education	3
Assessment	4809	Comparative Assessment	3
	4810	Large Scale Assessment in Education	3
Educational Research	4811	Survey Research	3
	4812	Experimental Research	3
Educational Administration	4813	Total Quality Management	3
	4814	Human Resource Management in Education	3

**3<sup>rd</sup> and 4<sup>th</sup> Semesters**  
**Thesis (24 Credit Hours)**

Course	Code	Credits
Thesis	4815	24

- c. Comprehensive Examination
- d. Publish Research paper in Higher Education Commission Approved Journal
- e. Thesis (24 Credit Hours)

Besides having 48 hours of face-to-face interaction with course tutor or resource persons, the students are expected to spend a minimum of 220 hours of independent work in reading course guide, allied material and on-line sources mentioned in the course pack to meet the course requirements. The course workshop will be intended to guide students about the methods of working, orientation to course units (given in course guides), purpose of allied material and the ways in which allied material can be helpful in achieving course objectives. The course orientation will be helpful for students to make independent study more purposeful and directed. Further details are as:

**Tutorials**

Tutorials for this programme will be offered online. Tutorial schedule be given to the students and the tutors. Student login ID and Password to be issued by course coordinator according to the admission list. Course guidelines and work plan to be electronically shared with students. Course discussion blog and FAQ built and response to student queries, system of reminders to students for upcoming assignments, guidance sessions and workshop preparation. For this activity, online support will be provided using LMS / MOODLE of AIOU. There will be 09

tutorial meetings (each meeting of 1-hour duration) for one course and will be mandatory both for the students and the tutors.

**Assignment**

Assignments are compulsory component. For each 3 credit hours course students have to attempt two assignments. Passing marks in assignments are 70%. The student has to submit his/her assignments on line (LMS) as per schedule before or on time. For online programme, TV programme/ FM support and web TV material on pre-requisite readings, accessible to students through LMS. Providing individual guidance on request through e-mail and discussion blog to students. Allowing submission of draft assignments with power point files for review and use during course workshop.

**Workshop**

Workshop is compulsory component of the programme. For each 3 credit hour course, there will be a workshop for one-week duration at the main campus Islamabad. All expenditures including travelling hostel charges etc. will be borne by the students themselves. The university will not bear any responsibility of TA/DA or provision of accommodation.

Attendance in the workshops is compulsory. Only those students who have qualified the assignment component can attend the workshop. Facility of University hostel is available at the approved rates, provided that the rooms are vacant.

**Mid-Term Examination**

Midterm examination will be conducted at the end of the course workshop.

### **Final Examination**

At the last day of each workshop, information about the final examination will be given. To sit in the examination, one has to qualify the assignment component and workshop separately.

### **Thesis**

The student will be allowed to take research thesis after successful completion of 18 credit hours course work and qualifying other requirements. There will be a synopsis orientation workshop for two weeks at main campus Islamabad. The student will develop research synopsis under the guidance of the Department.

**CHAIRMAN**

**Dr. Fazal ur Rehman**

Department of Early Childhood Education &  
Elementary Teacher Education  
ICT Block, Allama Iqbal Open University  
Sector H-8, Islamabad  
Ph: 051-9057718, 051-9057719

### **Ph.D Teacher Education**

**Ph.D Course Work: 18 Credit Hours**

#### **a. Common Courses 9 Credit Hours**

S. No.	Code	Courses	Credit hours
1.	4774	Comparative Education	3
2.	4775	Instrumentation in Educational Research	3
3.	4778	E-Learning	3

#### **b. Specialization Course**

1.	4776	Discourse Analysis	3
2.	4777	Emerging Trends in Pedagogy	3

#### **c. Collateral Area Courses. The students can opt any one from the following:**

1.	4782	Human Resources Management	3
2.	4783	Educational Leadership & Management	3

#### **d. Comprehensive Examination**

#### **e. Research article in Higher Education Commission approved Journal.**

#### **f. 3<sup>rd</sup> & 4<sup>th</sup> Semester:**

4778	Thesis	24
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For clarification about academic matters please contact on the following address:

**CHAIRMAN**

Department of Secondary Teacher Education,  
Faculty of Education  
Allama Iqbal Open University, Sector H-8, Islamabad.  
Ph: 051-9250057, 051-9057708  
Email: [drnaveeda@gmail.com](mailto:drnaveeda@gmail.com)

## **PhD Science Education**

**Ph.D Course Work: 18 Credit Hours**

### **a. Common Courses 9 Credit Hours**

S. No.	Code	Courses	Credit Hours
1.	4774	Comparative Education	3
2.	4775	Instrumentation in Educational Research	3
3.	4778	E-Learning	3

### **b. Specialization Course**

1.	6779	Nature of Science in Science Education	3
2.	6777	Professional Development of Science Teacher	3

### **c. Collateral Area Courses (any one from the following)**

1.	4782	Human Resources Management	3
2.	4783	Educational Leadership & Management	3

**d. Comprehensive Examination**

**e. Research article in Higher Education Commission approved Journal.**

### **f. 3<sup>rd</sup> & 4<sup>th</sup> Semester:**

4789	Thesis	24
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For clarification about academic matters please contact on the following address:

**CHAIRMAN**  
 Prof. Dr. Nasir Mahmood  
 Department of Science Education,  
 Allama Iqbal Open University  
 Sector H-8, Islamabad

### **PhD (Special Edu/Teacher Edu/Science Edu/DNFE) Eligibility to Apply**

- i. Graduate holding MS/M.Phil in the relevant area or equivalent with CGPA 3.00/ 1<sup>st</sup> Division will be eligible for admission in PhD Programme.
- ii. Subject (GAT) (Education) by NTS with at least 60% score.
- iii. Candidate will apply for admission on prescribed form to the concerned chairman of the department. If the candidate wishes to apply in more than one specialization, he/she has to apply separately for each specialization.
- iv. **Admission will be strictly on merit and on approved criteria.**

## **PhD Distance and Non-Formal Education**

### **Semester-1**

#### **a. Common Courses 9 Credit Hours**

Sr. No.	Code	Courses	Credit hours
1.	4774	Comparative Education	3
2.	4775	Instrumentation in Educational Research	3
3.	4778	E-Learning	3

### **Semester-2**

#### **b. Specialization Course work (6 Credit Hours)**

##### **Specialization Courses:**

Student may take following specialization courses:

1.	4771	Adult and Lifelong Education	3
2.	4773	Human Resource Management in Distance Education	3

#### **c. Collateral Area**

Each student will take a course from this area equivalent to 3 credit hours.

1.	4776	Discourse Analysis	3
2.	4777	Emerging Trends in Pedagogy	3
3.	4783	Educational Leadership & Management	3

#### **d. Comprehensive Examination**

#### **e. 3<sup>rd</sup> & 4<sup>th</sup> Semester: Thesis (4786) 24 Credit Hours**

#### **f. Publish research article as per approved policy of Higher Education Commission.**

**Note: Admission form complete in all respect may be sent on the following address:**

#### **CHAIRMAN**

Department of Distance, Non-Formal & Continuing Education,  
Faculty of Education, AIOU, H-8, Islamabad  
Ph: 051-9250055

#### **Specific Information**

1. If a student is required to take course(s) of lower level, s/he will be allowed to do so but the credit of these courses will not be counted towards his/her PhD credits.
2. If a student has to remain absent for a period of one or more than one semesters in case of exigency or proceeding abroad, he may apply for the freezing of the period for thesis without violating the maximum period i.e. five years. The student will have to pay fee at the rate of six credit hours for the frozen period.
3. The student shall be allowed to pursue only one programme at a time at AIOU.
4. Fee structure of any course/thesis/seminars programme may be changed during the programme. Student has to deposit the required fee as intimated by the Admission Department.
5. During each semester there will be compulsory workshop of one week for each course. Only those students who qualify the assignment component will be eligible to take final examination.

### Fee Tariff (PhD Education)

Detail of dues for admission to programme are as under:

Item	Fee
<b>Registration Fee</b> (Once, if not already registered with AIU)	Rs.2500/-
<b>Admission Fee</b> (Once at the time of first semester)	Rs.2500/-
Per one credit hour Rs.2500/- 3 Credit Hours course Rs.7500/- (3 course codes x Rs.7500/-)	Rs.22,500/-
Research Thesis: (24 credit hours)	Rs.60,000/-
Technology Fee + Postal Charges	Rs.500/-
<b>Total Fee for 1<sup>st</sup> Semester</b> (without Research thesis fee)	<b>Rs.28,000/-</b>

Note: PhD ETE Total Fee (12 credit hours): **Rs. 35,500/-**

### FACULTY MEMBERS

#### **Prof. Dr. Nasir Mahmood**

Dean

Ph: 051-9057702, 051-9050058, 051-9250060

### Chairpersons of Departments

#### 1. **Dr. Fazal ur Rehman**

Early Childhood Education & Elementary Teacher

Education Department

Ph: 051-9057268

Email: [fazalaiou@yahoo.com](mailto:fazalaiou@yahoo.com)

#### 2. **Dr. Tanzeela Nabeel**

Special Education Department

Ph: 051-9057853, 051-9250078

Email: [tanzilanabeel@gmail.com](mailto:tanzilanabeel@gmail.com)

#### 3. **Dr. Naveed Sultana**

Secondary Teacher Education Department

Ph: 051-9057705

Email: [drnaveeda@gmail.com](mailto:drnaveeda@gmail.com)

#### 4. **Dr. Muhammad Ajmal Chaudhary**

Distance, Non-Formal & Continuing Education

Department

Ph: 051-9250055

Email: [drajmal@aiou.edu.pk](mailto:drajmal@aiou.edu.pk)

#### 5. **Dr. Afshan Huma**

Educational Planning, Policy Studies & Leadership

Department

Ph: 051-9250059

Email: [afhsan.huma@aiou.edu.pk](mailto:afhsan.huma@aiou.edu.pk)

### Assistant Professors

#### 1. **Dr. Muhammad Samiullah**

051-9057852

Email: [samigoldmetalist1077@hotmail.com](mailto:samigoldmetalist1077@hotmail.com)

#### 2. **Mr. Zahid Majeed**

Special Education Department

Ph: 051-9057294

Email: [zah\\_ent@yahoo.com](mailto:zah_ent@yahoo.com)

#### 3. **Dr. Munazza Ambreen**

Secondary Teacher Education Department

Ph: 051-9057713

Email: [munazza.ambreen@aiou.edu.pk](mailto:munazza.ambreen@aiou.edu.pk)

4. **Dr. Muhammad Tanveer Afzal**  
Science Education Department  
Ph: 051-9057711  
Email: [tanveer.afzal@aiou.edu.pk](mailto:tanveer.afzal@aiou.edu.pk)
5. **Dr. Zafar Iqbal Lillah**  
Distance, Non-Formal & Continuing Education  
Department  
Ph: 051-9057720  
Email: [zafar.iqbal@aiou.edu.pk](mailto:zafar.iqbal@aiou.edu.pk)
6. **Dr. Afshan Huma**  
Educational Planning, Policy Studies & Leadership  
Department  
Ph: 051-9250059  
Email: [afhsan.huma@aiou.edu.pk](mailto:afhsan.huma@aiou.edu.pk)
7. **Dr. Azhar Mumtaz Saadi**  
Educational Planning, Policy Studies & Leadership  
Department  
Ph: 051-9057709  
Email: [azhar.mumtaz@aiou.edu.pk](mailto:azhar.mumtaz@aiou.edu.pk)
8. **Dr. Muhammad Athar Hussain**  
Early Childhood Education & Elementary Teacher  
Education Department  
Ph: 051-9057268  
Email: [Muhammad.athar@aiou.edu.pk](mailto:Muhammad.athar@aiou.edu.pk)
9. **Dr. Rehmatullah Bhatti**  
Distance, Non-Formal & Continuing Education  
Department  
Ph: 051-9057706  
Email: [rehmat.ullah@aiou.edu.pk](mailto:rehmat.ullah@aiou.edu.pk)

### Lecturers

1. **Dr. Amtul Hafeez**  
Distance, Non-Formal & Continuing Education  
Department  
Ph: 051-9057706  
Email: [amtulhafeezch@yahoo.com](mailto:amtulhafeezch@yahoo.com)
2. **Mrs. Naila Naseer**  
Distance, Non-Formal & Continuing Education  
Department  
Ph: 051-9057194  
Email: [naila.naseer@aiou.edu.pk](mailto:naila.naseer@aiou.edu.pk)
3. **Dr. Aftab Ahmed**  
Science Education Department  
Ph: 051-9057720  
Email: [aftab.ahmed@aiou.edu.pk](mailto:aftab.ahmed@aiou.edu.pk)
4. **Ms. Farkhunda Rasheed Ch.**  
EPPSL  
Ph: 051-9057797  
Email: [farkhunda.rasheed@aiou.edu.pk](mailto:farkhunda.rasheed@aiou.edu.pk)
5. **Mr. Arshad Mehmood Qamar**  
Science Education Department  
Block-5, Room 105  
Ph: 051-9057168  
Email: [arshad.mehmood@aiou.edu.pk](mailto:arshad.mehmood@aiou.edu.pk)
6. **Ms. Tahira Bibi**  
Educational Planning, Policy Studies & Leadership  
Department  
Ph: 051-9057715  
Email: [tahiralepm@gmail.com](mailto:tahiralepm@gmail.com)

7. **Dr. Sarwat Maqbool**  
Educational Planning, Policy Studies & Leadership  
Department  
Ph: 051-9057704  
E.mail: [sarwat.maqbool@aiou.edu.pk](mailto:sarwat.maqbool@aiou.edu.pk)
8. **Mr. Hamid Nadeem**  
Educational Planning, Policy Studies & Leadership  
Department  
Ph: 051-9057709  
E.mail: [hamid.ali@aiou.edu.pk](mailto:hamid.ali@aiou.edu.pk)
9. **Dr. Sidra Rizwan**  
Secondary Teacher Education Department  
Ph: 051-9057707  
Email: [sidra.rizwan@aiou.edu.pk](mailto:sidra.rizwan@aiou.edu.pk)
10. **Ms. Tooba Malik**  
Secondary Teacher Education Department  
Ph: 051-9057711  
Email: [tooba.saleem@aiou.edu.pk](mailto:tooba.saleem@aiou.edu.pk)
11. **Ms. Mubshera Tufail**  
Early Childhood Education and Elementary Education  
Ph: 051-9057719, 051-9057718  
Email: [mubasheratufail@yahoo.com](mailto:mubasheratufail@yahoo.com)
12. **Mr. Salman Khalil Ch.**  
Early Childhood Education and Elementary Education  
Ph: 051-9057709  
Email: [Salman.khalil@aiou.edu.pk](mailto:Salman.khalil@aiou.edu.pk)
13. **Dr. Zafar Iqbal**  
Ph: 051-905876  
Email: [mzafar.iqbal@aiou.edu.pk](mailto:mzafar.iqbal@aiou.edu.pk)
14. **Ms. Saima Kashif**  
Science Education Department  
Ph: 051-9057642  
Email: [saimakashif15@yahoo.com](mailto:saimakashif15@yahoo.com)

## FACULTY OF SCIENCES

Faculty of Sciences forms an important and integral part of the university. Since its establishment in 1982 with five teaching departments, it has undergone major developments. 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 programmes and educational facilities. This principle has necessitated some structural changes in the non-formal mode, particularly at the postgraduate level, in the offering of theory courses and practical lab work. This conceptual adjustment has been quite successful and many of its in-service students are benefiting from the postgraduate study programmes. Improvement in qualifications for a better life is a right of everyone and the Faculty’s programmes meet this challenge by offering opportunities to all. In particular, a significant number of beneficiaries are those who cannot afford education in formal institutions due to a variety of reasons.

Realizing the importance of science education and growing needs of the Faculty of Sciences, the University has completed a building, the Research Complex, at a cost of Rs. 35 million. The Research Complex now accommodates departments of Agricultural Sciences, Biology, Chemistry, Environmental Sciences, Home & Health Sciences, Mathematics, Statistics and Physics. These departments are running a variety of postgraduate technical, scientific and professional programmes successfully. The Research Complex also has a Computer Lab

with Internet and On-line Library Facility for literature survey, Seminar Room, Lecture Hall and Library. In addition, there are many labs for practical work, teaching and research, and instrumentation labs for analysis. The University is developing these labs through its own resources. The Faculty of Sciences is fortunate to have Prof. Dr. Zia Ul-Qayyum as the University’s Vice-chancellor, who has given personal attention to the development of the Faculty of Sciences by providing generous amount of funds and valuable guidance.

Two Model labs have been developed in the Research Complex with the assistance of the Higher Education Commission to meet the training needs of science teachers. This development is significant for training of teachers since under the new educational policy four-year BS programme has started in undergraduate educational institutions.

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

Research is an integral part of the postgraduate study programmes leading to MSc, MPhil and PhD degrees in Agricultural Sciences, Chemistry, Computer Sciences, Home and Health Sciences,

Physics, Mathematics and Statistics. Rules and regulations governing the postgraduate study programmes are those approved by the Higher Education Commission (HEC).

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

## **DEPARTMENT OF BIOLOGY AND ENVIRONMENTAL SCIENCES**

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

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

manpower meant to serve science both at national and international levels.

Currently the Department is offering graduate programmes in following disciplines:

- MSc Microbiology
- MSc Environmental Sciences
- MSc Botany
- BS Microbiology
- BS Environmental Sciences
- BS Botany

In addition to that, Department is offering some courses from basic to postgraduate levels for main pool of AIOU's general programmes.

### **MSc Microbiology (2 Years)**

#### **Introduction**

Presently there is a revolution in the scientific knowledge and this can be called as "Scientific Revolution". Among the scientific disciplines of biological sciences, Microbiology is one of the most important fields, particularly in Pakistan where it is contributing in a wide spectrum of areas including Medicine, Dairy, Poultry, Agriculture and Industry.

Although, the subject of Microbiology has been introduced since long, but the demand from on-job personnel has never been fulfilled in the past. Due to rapid increase in the country's population and based on a great demand from the in-service employees working in public and private institutions, a BS

programme in the subject of Microbiology has already been introduced. Now, to cater the need of graduates in relevant disciplines, an MSc programme is being proposed. This programme is designed with an aim to

- Fulfill the gap of trained manpower in the discipline of Microbiology.
- Strengthen the on-going research projects being run in the country in microbiology-related disciplines.

Create awareness among the students regarding new research techniques and modern approaches applicable in the field of Microbiology to address the challenges in the fields of Medicine, Dairy, Poultry, Agriculture and Industry.

### **Objectives**

The curriculum designed for the MSc Microbiology will produce the graduates to:

- Cope up with the issues for wide spectrum of areas including Medicine, Dairy, Poultry, Agriculture and Industry.
- Play a vital role in the economic growth and to bring qualitative changes in the above mentioned areas in the country.
- Create awareness about public health and safety and facilitate the establishment of liaison between Microbiologist and industry.

### **Launching Scheme**

Face to face classes will be scheduled only at main campus of Allama Iqbal Open University, H-8, Islamabad.

### **Guideline for Online Application:**

1. The online application form can be accessed from university official website [www.aiou.edu.pk](http://www.aiou.edu.pk)
2. Applicants are required to fill all the desired fields on online application form.
3. Applicants are desired to deposit application fee on the prescribed challan form in specified banks.
4. The challan number after fee submission should be entered in online application form for successful completion.
5. Incomplete forms shall not be entertained.
6. Selection of candidates will be made strictly on merit and as per policy of the AIOU.
7. Only selected candidates will be required to pay their fee/dues by the prescribed dates.
8. The deposited fee will not be refundable or adjustable for future admission.
9. The document showing fee deposit must be provided in the office of Chairperson, Department of Biology, AIOU on or before the last date for the fee submission.
10. In case of non-compliance, it would be assumed that fee has not been deposited and the student is not any more interested in getting admission. The department may invite a candidate in waiting list for admission against the vacant seat.

### **Eligibility and Selection Criteria**

BSc Degree with 2<sup>nd</sup> Division with Botany and Zoology as major; BSc Veterinary Sciences, MBBS, BSc Medical Lab. Technology, B Pharmacy, BSc Microbiology with at least Second Division are eligible to apply. The admission will be strictly on merit, which will be determined by the departmental admission committee.

## **TEACHING METHODS AND MEDIUM OF INSTRUCTION:**

The following teaching methodology will be adopted for this programme:

### **1. Medium of Instruction:**

The medium of instruction will be English.

### **2. Study Material:**

The study material will consist of print material and CDs if available. Lecture handouts will be provided to the students by the concerned Resource Person. However, the students are also advised to consult other reference books available in the University Library.

### **3. Teaching Support:**

- a) The university will provide face-to-face teaching to all students registered in this programme.
- b) The schedule of classes and dates of submission of assignments will be conveyed to the students well in time.

### **4. Assessment and Evaluation:**

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

- a) Performance in the face to face teaching component.
- b) Continuous assessment through written assignments, midterm examination, or workshops or practical activities in the laboratory.
- c) For final assessment a three hours written examination will be conducted for each course (both in theory and practical) in which face to face classes were held.

- d) A student has to achieve 50% marks to pass the course in every individual component i.e. continuous assessment, Practical Examination and the Final Exam.
- e) Project assessment will be carried out as per prevailing practice in AIOU. The thesis will be evaluated by the committee formulated by the Chairman/Chairperson department.

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

### ***Class Work***

In this programme, face to face theory classes of one-hour duration per week for each credit hour will be held at the campus. As per AIOU rules, a minimum attendance of 70% is required in class work to appear in the final examination.

### ***Laboratory Work***

For each laboratory course in a semester a workshop of 4 to 7 days duration depending upon the number of practicals will be arranged during the semester at AIOU campus, Islamabad. The practicals will be conducted in the Microbiology laboratory.

### ***Degree Requirement***

In order to become eligible for the award of degree in MSc Microbiology the students must earn a total of 70 credit hours including six credit hours for research project or as specified by the department.

### **Duration and Structure**

The minimum duration of MSc Microbiology will be two years comprising four semesters. Failing which, a student can be given an extension of 2 years in maximum after the completion of the initial period.

## **SEMESTER WISE BREAKUP OF COURSES**

### **1<sup>st</sup> Semester**

<b>Sr. No.</b>	<b>Course Code</b>	<b>Course</b>	<b>Credit Hours</b>
1	4403	Fundamentals of Microbiology	4(3+1)
2	4481	Introductory Biochemistry	4(3+1)
3	4482	Biostatistics	3(3+0)
4	4407	Microbial Genetics	4(3+1)
5	4408	Virology	4(3+1)
<b>Total credits</b>			<b>19</b>

### **2<sup>nd</sup> Semester**

1	4445	Environmental Microbiology	4(3+1)
2	4419	Molecular Biology	4(3+1)
3	7413	Scientific Research	4(3+1)
4	4411	Food and Dairy Microbiology	4(3+1)
5	4405	Microbial Anatomy and Physiology	4(3+1)
<b>Total credits</b>			<b>20</b>

### **3<sup>rd</sup> Semester**

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

### **4<sup>th</sup> Semester**

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

**Total Credit Hours: 19+20+16+15 = 70**

### **Fee Tariff: Fee Semester-1 (19 Credit Hours)**

Programme Registration fee	Rs.500/-
Admission fee	Rs.1000/-
Technology fee (per semester)	Rs.500/-
Per 4 credit hours course fee: Rs.8000 x 4 = Rs.32000/-	Rs.32,000/-
Per 3 credit hours course fee: Rs.6000	Rs.6000/-
Lab Fee:	Rs.3000/-
<b>1<sup>st</sup> Semester Total Fee:</b>	<b>Rs.43,000/-</b>

## **MSc Environmental Science (2 Years)**

### **Introduction**

Environmental conservation, alleviation of poverty and sustainable development are high on the agenda of global concerns (UN conferences: Stockholm 1972, Rio de Janeiro, 1992, New York, 1997 and Johannesburg, 2002). In the context of Pakistan, sustainable development demands justice in the use of resources by the present generation keeping in view the needs of the future generations. Unsustainable management of natural resources hampers the development of mankind and contributes to the unequal distribution of economic welfare. Pollution, depletion of resources and disintegration of ecological functions are of global, regional and local concerns. To prevent continued environmental degradation and the decline of human society, interactions between the mankind and the environment have to be harmonized. This is achievable through an integrated, collective approach encompassing natural science, socio- economic and political factors with technological, economic and social interventions. Environmental science is systematic study of the world around us and our proper place in it. This emerging science is interdisciplinary in nature, integrating natural sciences, social sciences and humanities in a holistic study of the world around us. In contrast to more theoretical disciplines, environmental science is mission oriented. It seeks new, valid and contextual knowledge, skills and attitudes and their impartial, fair and balanced application to the contemporary world.

In pursuit of the best national interest and to align with the international needs and standards, the Government of Pakistan

developed the National Conservation Strategy (NCS) in 1992 for environmental education. It is worth mentioning that while developing the NCS the GoP has emphasized the significant role of AIOU in disseminating environmental awareness and education in Pakistan. Considering the enormous demand in the teaching institutions as well as the governmental and non- governmental sectors, the experts produced in the field of environment are extremely low. The minimum requirement is of about 13,000 environmental experts to fill the void in the county, whereas, the public and private institutions are presently producing annually 300 experts only, keeping in view the dearth of qualified environmental experts and to produce quality graduates for emerging need in Pakistan in Environmental Science.

### **Scope of the programme**

This program will enable the students to address the challenges of maintaining environmental integrity for sustainable development in relation to human development. It aims at producing dynamic young graduates in the field of Environmental Science by developing strong skill, academic foundation, communication abilities and professionalism enabling them to compete in both the governmental and non- governmental sectors.

### **Aim**

The program aims at developing human resources for sustainable development through appropriate education and training.

### **Objectives**

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

1. Demonstrate comprehensive understanding of Environmental Science as an interdisciplinary and multidisciplinary subject

2. Achieve awareness about the past, current and expected future situation of environmental considerations in pursuit of sustainable development.
3. Understand the relationship between economic growth and environment and its ramifications.
4. Encourage and develop critical thinking among students in dealing with the real world environmental challenges preferably of local origin.
5. Acquire skills, knowledge and competencies to mitigate environmental problems and make pathways to sustainable development.
6. Selection of candidates will be made strictly on the basis of merit and as per policy of the AIOU.
7. Only selected candidates will be required to pay their fee/dues by the prescribed dates.
8. The deposited fee will not be refundable or adjustable for future admission.
9. The document showing fee deposit must be provided in the office of in charge, Department of Biology, AIOU, H-8, Islamabad on or before the last date for the fee deposition
10. In case of non-compliance, it would be assumed that fee has not been deposited and the student is not any more interested in getting admission. The department may invite a candidate in waiting list for admission against the vacant seat.

### **Eligibility for Admission**

Candidates with the following qualification may apply for admission in Master Programme in Environmental Science:

- i. Candidates having BSc Degree with at least second division with any of the two majors (Botany, Zoology, Microbiology, Chemistry, Geography, Geology, Environment, Physics etc.), except for double math and math-stat combinations.
- ii. Candidates having BSc (Hons) with at least second division in Agriculture, Forestry, Wildlife & Range Management, Horticulture, Geology.

### **Guideline for Online Application:**

1. The online application form can be accessed from university official website [www.aiou.edu.pk](http://www.aiou.edu.pk)
2. Applicants are required to fill all the desired fields on online application form.
3. Applicants are desired to deposit application fee on the prescribed challan form in specified banks.
4. The challan number after fee submission should be entered in online application form for successful completion.
5. Incomplete forms shall not be entertained.

### **Registration for Courses**

The selected candidates must register for the courses offered in a semester by the prescribed date.

### **Degree Requirement**

In order to become eligible for the award of degree in MSc (Environmental Science) the students must earn a total of 70 credit hours (including six credit hours for research project) or as specified by the department.

### **Duration and Structure**

The minimum duration of Master Programme in Environmental Science will be two years comprising four semesters. Failing which, a student can be given an extension of 2 years in maximum after the completion of the initial period.

### **Medium of Instruction**

The medium of course material, assignments, workshops as well as presentation would be English for all the courses.

### **The Study System**

Mode of instruction for programme will be face to face teaching, including regular classes, continuous assessment (assignments, tests, quizzes, presentations), practical / lab work and the final assessment (final examination).

### **Study Material**

As per AIOU policy, specifically designed / compiled / adopted course material for students will be provided.

### **Class / Lectures**

Face to face theory classes of one-hour duration per week for each credit hour will be held at the campus. As per AIOU rules, a minimum attendance of 70% is required in classwork to appear in the final examination.

### **Lab Work / Practical work**

For each laboratory course in a semester a workshop of 4-7 days duration depending upon the number of practical will be arranged during the semester at AIOU campus, Islamabad.

### **The Assessment System**

For each course the student's progress will be assessed as follows:

#### **a) Continuous Assessment**

- During the semester, the performance of students will be assessed through two assignments (200 marks) for each three credit hour course.
- During the semester, the performance of students will be assessed through 2 assignments (200 marks) and practical work (100 marks) for each four credit hour course.

#### **b) Final Examination**

A three-hour written examination for each course will take place at the end of the semester.

#### **c) Project / Thesis**

Student will choose topics for research after consultation with the faculty members of the department. Evaluation of the project will be based on the presentation of the project (30%) and project report (70%). Project report will be evaluated at department level.

#### **d) Final Evaluation**

For working out the final course grade the marks of Assignments and Final Examination will be calculated in the ratio of 30:70 for these programmes as per AIOU policy. Students have to secure at least 50% marks in assignments and at least 50% marks in Final Examination individually as well as 50% marks in aggregate to pass the course as approved for other equivalent programmes.

### **SEMESTER-WISE DISTRIBUTION OF COURSES (Total Credit Hours 70)**

All the courses have been designed in accordance with HEC Curriculum of Environmental Science for Bachelors and Masters Programme. Recent advances will be incorporated in the existing courses in subsequent years.

**1<sup>st</sup> Semester**

S. No.	Code	Course Name	Credit Hours
1	4441	I Introduction to Environmental Sciences	4(3+1)
2	4467	Physics of the Environment	4(3+1)
3	4443	Environmental Chemistry	4(3+1)
4	4482	Biostatistics	3
5	4458	Environmental Policies and Regulations	3
<b>Total Credit</b>			<b>18</b>

**2<sup>nd</sup> Semester**

1	7413	Scientific Research	4(3+1)
2	4445	Environmental Microbiology	4(3+1)
3	4444	Introduction to Environmental Economics	3
4	4438	Natural Resource management	3
5	4442	Environmental Pollution	4(3+1)
6	4448	Energy & Environment	3
<b>Total Credit</b>			<b>21</b>

**3<sup>rd</sup> Semester**

1	4452	Biodiversity and Conservation	4(3+1)
2	4455	Health, Safety & Environmental Management Systems	4(3+1)
3	4450	Environmental Impact Assessment	4(3+1)
4	4453	Sustainable Development	3
5	4456	Environmental Toxicology	3
<b>Total Credit</b>			<b>18</b>

**4<sup>th</sup> Semester**

S. No.	Code	Course Name	Credit Hours
1	4418	Research Project	6
2	4460	Project Management	3
3	4483	GIS & Remote sensing	4
<b>Total Credit</b>			<b>13</b>

**Total Credits = 18+21+18+13 = 70**

**Fee Tariff for 1<sup>st</sup> Semester:**

Programme Registration Fee	Rs.500/-
Admission Fee	Rs.1000/-
Technology Fee (per semester)	Rs.500/-
4 credit hour courses Rs. 8000 × 3 =	Rs.24000/-
3 credit hours course Rs. 6000 × 2 =	Rs.12000/-
Lab Fee:	Rs.2000/-
<b>Total Fee for 1<sup>st</sup> Semester:</b>	<b>Rs.40,000/-</b>

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

## **MSc Botany (2 Years)**

### **Introduction**

Historically, all living things were classified as either animals or plants and botany covered the study of all organisms not considered to be animals.

The study of plants is vital because they underpin almost all animal life on Earth by generating a large proportion of the oxygen and food that allow humans and other organisms to exist. 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. As a by-product of photosynthesis, they release oxygen into the atmosphere, a gas that is required by nearly all living things to carry out cellular respiration. Additionally, they are influential in the global carbon and water cycles and plant roots bind and stabilize soils, preventing soil erosion. 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.

### **Scope of the Programme**

This programme has interdisciplinary and multidisciplinary scope enabling students to understand the significance and concepts of Botany. It aims at producing dynamic young graduates in the field of Botany by developing strong skill, academic foundation, and professionalism enabling them to complete in governmental and nongovernmental sectors. Botany 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 MSc in Botany can progress to a wide range of careers. They can work in national and international organization Researchers, Environmental Scientists, Nature Reserve Managers, Research Scientists, Wildlife Management Advisors, Project Officers, Ecological Consultants and Conservation Officers, Quality Control Officers, Salesperson etc.

### **Aim**

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

### **Objectives**

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

1. Demonstrate comprehensive understanding of Botany as an interdisciplinary and multidisciplinary subject
2. Achieve awareness about the evolutionary trends, plant systematic and environmental considerations in pursuit of nature conservation.
3. Understand the relationship between economic growth and importance of indigenous plant resources.
4. Acquire skills, knowledge and competencies to take up research projects for nature conservation and exploration.

### **Criteria for Admission**

- a) Criteria for admission in MSc Botany Programme:
  - i. BSc (majors in Botany with at least 2<sup>nd</sup> division) from the formal education system.
  - ii. Candidates having BS in Agriculture (with at least 2<sup>nd</sup> Div) in either public or private sectors as Teachers, Biodiversity
- b) Foreign degree holders will need to produce equivalence certificate from HEC for admission in MSc.

**Guideline for Online Application:**

1. The online application form can be accessed from university official website [www.aiou.edu.pk](http://www.aiou.edu.pk)
2. Applicants are required to fill all the desired fields on online application form.
3. Applicants are desired to deposit application fee on the prescribed challan form in specified banks.
4. The challan number after fee submission should be entered in online application form for successful completion.
5. Incomplete forms shall not be entertained.

**The Chairperson**

**Department of Biology and Environmental Science  
Research Complex, AIOU,  
Sector H-8, Islamabad**

1. Selection of candidates will be made strictly on the basis of merit and as per policy of the AIOU.
2. Only selected candidates will be required to pay their fee/dues by the prescribed dates.
3. The deposited fee will not be refundable or adjustable for future admission.
4. The document showing fee deposit must be provided in the office of Incharge, Department of Biology, AIOU, H-8, Islamabad on or before the last date for the fee deposition
5. In case of non-compliance, it will be assumed that fee has not been deposited and the student is not any more interested in getting admission. The department may invite a candidate in waiting list for admission against the vacant seat.

**Registration for Courses**

The selected candidates must register for the courses offered in a semester by the prescribed date.

**Degree Requirement**

In order to become eligible for the award of degree in MSc. (Botany) the students must earn a total of 66 credit hours (including six credit hours for research project) or as specified by the department.

**Duration and Structure**

The minimum duration of Master Programme in Botany will be two years comprising four semesters. Failing which, a student can be given an extension of 2 years in maximum after the completion of the initial period.

**Medium of Instruction**

The medium of course material, assignments, workshops as well as presentation would be English for all the courses of this programme.

**The Study System**

Mode of instruction for programme will be face to face teaching, incorporating regular classes, continuous assessment (assignments, tests, quizzes, presentations), practical/lab work and the final assessment (final examination).

**Class / Lectures**

In this programme, face to face theory classes of one-hour duration per week for each credit hour will be held at the campus. As per AIOU rules, a minimum attendance of 70% is required in class to appear in final examination.

### Lab Work / Practical Work

For each laboratory course in a semester a workshop of 4-7 days duration depending upon the number of practical will be arranged during the semester at AIOU campus, Islamabad.

### The Assessment System

For each course the student's progress will be assessed as follows:

#### a) Continuous Assessment

- During the semester, the performance of students will be assessed through two assignments (200 marks) for Non-Practical Courses.
- During the semester, the performance of students will be assessed through two assignments (200 marks) and practical work (100 marks) for courses with Lab Work.

#### b) Final Examination

A three-hour written examination for each course will take place at the end of the semester.

#### c) Project / Thesis

Student will choose topics for research after consultation with the faculty members of the department. Evaluation of the project will be based on the presentation of the project (30%) and project report (70%). Project report will be evaluated at department level.

#### d) Final Evaluation

For working out the final course grade the marks of Assignments and Final Examination will be calculated in the ratio of 30:70 for these programmes as per AIOU policy. Students have to secure at least 50% marks in assignments and

at least 50% marks in Final Examination individually as well as 50% marks in aggregate to pass the course as approved for other equivalent programmes.

### SEMESTER WISE DISTRIBUTION OF COURSES (Total Credit Hours 66)

#### 1<sup>st</sup> Semester

S. #	Code	Course	Cr. Hrs.
1	7401	Diversity of Vascular Plants	3(2+1)
2	7402	Plant Anatomy	3(2+1)
3	7403	Phycology and Bryology	3
4	7404	Bacteriology and Virology	3(2+1)
5	4481	Introductory Biochemistry	4(3+1)
<b>Total Credit</b>			<b>16</b>

#### 2<sup>nd</sup> Semester

1	7405	Plant Ecology -I	3 (2+1)
2	7406	Plant Physiology - I	3 (2+1)
3	7408	Mycology and Plant Pathology	3 (2+1)
4	7410	Plant Systematic	3(2+1)
5	7407	Plant Biochemistry	3
<b>Total Credit</b>			<b>15</b>

#### 3<sup>rd</sup> Semester

1	7409	Plant Ecology -II	3 (2+1)
2	4419	Molecular Biology	4 (3+1)
3	7411	Plant Physiology - II	3 (2+1)
4	7412	Genetics - I	3
5	4482	Biostatistics	3
6	7413	Scientific Research	3
<b>Total Credit</b>			<b>19</b>

#### 4<sup>th</sup> Semester

S. #	Code	Course	Cr. Hrs.
1	4418	Research Project	6
2	7414	Genetics - II	3
3	4439	Ethonobotany	3
4	4446	Environmental Biology	4 (3+1)
		<b>Total Credit</b>	<b>16</b>

#### Fee for 1<sup>st</sup> Semester

Programme Registration fee	<b>Rs.500/-</b>
Admission fee	<b>Rs.1000/-</b>
Technology fee (per semester)	<b>Rs.500/-</b>
Per 3 credit hours course fee: $\text{Rs.}6000 \times 4 =$	<b>Rs.24000/-</b>
Per 4 credit hours course fee: $\text{Rs.}8000 \times 4 =$	<b>Rs.8000/-</b>
Lab Fee:	<b>Rs.3000/-</b>
<b>Total</b>	<b>Rs.37,000/-</b>

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

#### FACULTY MEMBERS

##### 1. Dr. Hina Fatimah

In Charge

Department of Biology and Environmental Science,

Ph. 051-9057279

##### 2. Dr. Muhammad Waseem

Assistant Professor

Ph. 051-9057267

##### 3. Dr. Zahid Ullah

Assistant Professor

Ph. 051-9057735

##### 4. Dr. Rizwana Kausar

Assistant Professor

Ph. 051-9057293

##### 5. Ms. Saba Farooq

Lecturer

Ph. 051-9057730

##### 6. Ms. Samar Naseer

Lecturer

Ph. 051-9057185

##### 7. Ms. Zaib un Nisa

Research Associate

Ph: 051-9057688

##### 8. Ms. Sadia Latif

Research Associate

Ph: 051-9057185

## **DEPARTMENT OF BIOLOGY AND ENVIRONMENTAL SCIENCES**

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

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

Currently the Department is offering MSc and BS Microbiology, Botany and Environmental Sciences Programmes. The four years BS Programme in Microbiology has been launched from the semester Spring 2009 and from Spring 2015 the Department is also offering MSc Programme in Microbiology. From Spring 2016 the department is also offering BS Environmental Sciences programme. The Department started MSc Botany and MSc Environmental Science from Spring 2017 and BS Botany programme from Spring 2018. In addition to that, Department is offering some courses from basic to post graduate levels for main pool of AIOU's general programmes.

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

### **BS Microbiology (4 Years)**

#### **Introduction:**

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

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

#### **This Programme is designed to:**

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

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

**The Specific Objectives are:**

1. To provide human resources/skilled Microbiological technologists for catering the needs of medical laboratories in hospitals and research institutes.
2. To provide foundation for higher studies in Micro-Biological Sciences.
3. To create awareness about the importance of this science for general public health.

**Target Groups**

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

**GUIDELINES FOR ONLINE ADMISSION**

1. The online application form can be accessed from university official website [www.aiou.edu.pk](http://www.aiou.edu.pk)
2. Applicants are required to fill all the desired fields on online application form.
3. Applicants are desired to deposit application fee on the prescribed challan form in specified banks.
4. The challan number after fee submission should be entered in online application form for successful completion.
5. Incomplete forms shall not be entertained.

6. Selected candidates will be made strictly on the basis of merit.
7. Only selected candidates will be informed about their admission.
8. The selected candidates will be required to pay the dues.

**Note:**

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

**CHAIRMAN**  
**Department of Biology**  
**Allama Iqbal Open University**  
**H-8 Sector, Islamabad.**

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

**Eligibility/Selection Criterion**

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

**Medium of Instruction**

The medium of instruction shall be English

### Study Material

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

### Mode of Teaching

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

### Assessment and Evaluation

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

- a) Continuous assessment through written assignments/tests or Workshop or practical activities.
  - i) For each discipline specific face to face course the marks obtained by each student in the two written assignments will constitute 2/3 part of the continuous assessment. A student has to obtain a minimum of 50% marks in the two assignments collectively in order to pass this component.
  - ii) For each discipline specific face to face course the marks obtained by each student in the practical workshop will constitute 1/3 part of the continuous assessment. A student has to obtain a minimum of 50% marks in the practical workshop individually in order to pass this component.
- b) Final examinations: three hours written examination for each course with 50% passing marks.

### Note:

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

### Assignments/Tests

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

### Degree Requirement:

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

### c) Scheme of Studies:

#### Semester Wise Breakup of Courses BS in Microbiology

##### Semester-1

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

**Semester-2**

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

**Semester-3**

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

**Semester-4**

1	3400	Fundamentals of Computer	4(3+1)
2	4412	Biotechnology	4(3+1)
3	9401	Islamic Studies / Ethics	3
4	9404	Public Relations	3
		<b>Total credits</b>	<b>14</b>

**Semester-5**

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

**Semester-6**

Sr. No.	Course Code	Course	Credit Hours
1	4405	Microbial Anatomy and Physiology	4(3+1)
2	4411	Food and Dairy Microbiology	4(3+1)
3	4416	Molecular Mechanism of Antimicrobial Drugs	4(3+1)
4	4419	Molecular Biology	4(3+1)
5	7413	Scientific Research	3(3+0)
		<b>Total credits</b>	<b>19</b>

**Semester-7**

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

**Semester-8**

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

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

**Fee Structure:**

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

**BS Environmental Science (4 Years)**

The 4 years' degree program 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:

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

**Criteria for Admission**

Criteria for admission in first semester of the 4-year program

- a. FSc (pre medical 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.
- b. Foreign certificate/ degree holders will need to produce equivalence certificate from IBCC to seek admission in semester 1 and from HEC for admission in semester V.
- c. Candidates can apply only through online application form available at: [aiou.edu.pk](http://aiou.edu.pk)

**GUIDELINE FOR ONLINE APPLICATION**

1. The online application form can be accessed from university official website [www.aiou.edu.pk](http://www.aiou.edu.pk)
2. Applicants are required to fill all the desired fields on online application form.
3. Applicants are desired to deposit application fee on the prescribed challan form in specified banks.
4. The challan number after fee submission should be entered in online application form for successful completion.
5. Incomplete forms shall not be entertained.

**Note: Admission is Merit Based.** Only selected candidates will be informed to deposit the fee on the prescribed challan form issued by the Department after interview.

**Medium of Instruction**

The Medium of Instructions for BS Environmental Science is English for all the courses except Islamic Studies/Ethics and Pakistan Studies which will be offered in Urdu for this program.

### Study System

**In 4-Year BS Environmental Science Programme regular classes for all science courses and practical work will be conducted at AIOU Main Campus.**

Minimum 70% attendance is required in science subjects as per AIOU rules. However, compulsory courses i.e. Pakistan Studies, Islamic studies and English will be offered on distance learning mode.

- **Teaching 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 reading.
- **Class Work:** Three-hour class work/lectures per week for a (3+0) credit hour course will be compulsory for sixteen weeks. The credit hours are specified against each course in the Layout of Program.
- **Lab Work:** Three-hour lab (laboratory) work/practical per week for a (3+1) credit hour course will be compulsory for sixteen weeks. The practical work will consist of lab oriented practicals, field visits and or any other activity as per requirement.

### The Assessment System

As per AIOU practice 30% weightage will be given to continuous assessment (class assignments, class tests, lab work, field visit and practical examination) whereas, 70% weightage to the final examination.

- **Continuous Assessment:** continuous assessment will be based on class test and lab work. The pass percentage in the lab assignments/field visit/class test will be 50%. The

weightage of continuous assessment in the final result will be 30%.

- **Final Examination:** Final examination of 100 marks for each 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.

### Degree Requirement and Duration

In order to maintain the equivalence of duration of study at international level, the Bachelor's degree programme will comprise of 4-year (8 Semester). For award of degree of BS in ES, the candidate will have to successfully pass all the courses (130 Credit hours including 6 Credit Hour Research Project) within a minimum period of 4 years (8 semesters). Failing which, a student can be given an extension of 2 Years in maximum, after completion of initial period.

### SEMESTER WISE DISTRIBUTION OF COURSE

#### Semester-1

S.#	Code	Course	CH
1	4401	Cell Biology, Genetics and Evolution	4(3+1)
2	4421	Inorganic Chemistry	4(3+1)
3	4431	Pre-Calculus	3(3+0)
4	4441	Introduction to Environmental Sciences	4(3+1)
5	9407	English I (ODL)	3(3+0)
			<b>18</b>

**Semester-2**

1	4402	Diversity of Plants	4(3+1)
2	4422	Organic Chemistry	4(3+1)
3	4432	Calculus I	3(3+0)
4	4442	Environmental Pollution	4(3+1)
5	9408	English II (ODL)	3(3+0)
			<b>18</b>

**Semester-3**

1	4403	Fundamentals of Microbiology	4(3+1)
2	4469	Diversity of Animals	4(3+1)
3	9402	Pakistan Studies (ODL)	3(3+0)
4	9409	English III	3(3+0)
			<b>14</b>

**Semester-4**

1	3400	Fundamentals of Computer	4(3+1)
2	4412	Biotechnology	4(3+1)
3	4445	Environmental Microbiology	4(3+1)
4	9404	Public Relations	3(3+0)
5	9401/ 0418*	Islamiat /Ethics(For Non-Muslim Students Only) (ODL)	3(3+0)
			<b>18</b>

**Semester-5**

S.#	Code	Course	CH
1	4443	Environmental Chemistry	4(3+1)
2	4458	Environmental Policies & Regulations	3(3+0)
3	4467	Physics of the Environment	4(3+1)
4	4482	Biostatistics	3(3+0)
			<b>14</b>

**Semester-6**

1	4438	Natural Resource Management	3(3+0)
2	4444	Introduction of Environmental Economics	3(3+0)
3	4446	Environmental Biology	4(3+1)
4	4448	Energy & Environment	3(3+0)
5	7413	Scientific Research	3(3+0)
			<b>17</b>

**Semester-7**

1	4450	Environmental Impact Assessment	4(3+1)
2	4452	Biodiversity and Conservation	4(3+1)
3	4453	Sustainable Development	3(3+0)
4	4455	Health, Safety & Environmental Management Systems	4(3+1)
5	4456	Environmental Toxicology	3(3+0)
			<b>18</b>

**Semester-8**

1	4418	Research Project	6
2	4460	Project Management	3
3	4483	GIS and Remote Sensing	4(3+1)
			<b>13</b>

**Total Credit Hours: 18+18+14+18+14+17+18+13 = 130**

### **Fee Structure**

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

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

### **BS Botany (4 Years)**

#### **Introduction**

The study of plants is vital because they underpin almost all life forms on 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. As a by-product of photosynthesis, they release oxygen into the atmosphere, a gas that is required

by nearly all living things to carry out cellular respiration. Additionally, they are influential in the global carbon and water cycles and plant roots bind and stabilize soils, preventing soil erosion. 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.

#### **Scope of the Programme**

This programme has an interdisciplinary and multidisciplinary scope enabling students to understand the significance and concepts of Botany. It aims at producing dynamic young graduates in the field of Botany by developing strong skill, academic foundation, and professionalism enabling them to compete in governmental and non-governmental sectors. Botany 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 in Botany can progress to a wide range of careers. They can work in national and international organization in either public or private sectors as Biodiversity Researchers, Environmental Scientists, Nature Reserve Managers, Research Scientists, Wildlife Management Advisors, Project Officers, Ecological Consultants and Conservation Officers, Quality Control Officers, Salesperson etc.

#### **Aim**

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

## **Objectives**

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

1. Demonstrate comprehensive understanding of Botany as an interdisciplinary and multidisciplinary subject.
2. Achieve awareness about the evolutionary trends, plants systematics, and environmental considerations in pursuit of nature conservation.
3. Understand the relationship between economic growth and importance of indigenous plant resources.
4. Acquire skills, knowledge and competencies to take up research projects for nature conservation and exploration.

## **GUIDELINE FOR ONLINE APPLICATION**

1. The online application form can be accessed from university official website [www.aiou.edu.pk](http://www.aiou.edu.pk).
2. Applicants are required to fill all the desired fields on online application form.
3. Applicants are desired to deposit application fee on the prescribed challan form in specified banks.
4. The challan number after fee submission should be entered in online application form for successful completion.
5. Incomplete forms shall not be entertained.

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

*The Incharge*  
**Department of Biology and Environmental Science**  
**AIOU, Sector H-8, Islamabad**

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

## **Eligibility/ Selection Criterion**

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

## **Medium of Instruction**

The Medium of Instructions for BS Botany will be English.

## **Study Material**

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

## **Mode of Teaching**

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

## **Assessment and Evaluation**

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

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

- ii. For each discipline specific face to face course the marks obtained by each student in the practical workshop will constitute 1/3 part of the continuous assessment. A student has to obtain a minimum of 50% marks in the practical workshop individually in order to pass this component.

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

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

### Degree Requirement and Duration

In order to be eligible for the award of BS in Botany, the student will have to earn a total of 127 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 in maximum, after completion of initial period.

### Scheme of Studies

#### Semester-1

Sr. No.	Course Code	Course	Credit Hours
1	4401	Cell Biology, Genetics & Evolution	4(3+1)
2	4403	Fundamentals of Microbiology	4(3+1)
3	4421	Inorganic Chemistry	4(3+1)
4	4431	Pre-Calculus	3(3+0)
5	9407	English I (ODL)	3(3+0)
<b>Total Credits</b>			<b>18</b>

#### Semester-2

1	4402	Diversity of Plants	4(3+1)
2	4422	Organic Chemistry	4(3+1)
3	4432	Calculus-I	3(3+0)
4	9408	English II (ODL)	3(3+0)
<b>Total Credits</b>			<b>14</b>

#### Semester-3

Sr. No.	Course Code	Course	Credit Hours
1	4441	Introduction to Environmental Sciences	4(3+1)
2	4469	Diversity of Animals	4(3+1)
3	9402	Pakistan Studies (ODL)	3(3+0)
4	9409	English III (ODL)	3(3+0)
<b>Total Credits</b>			<b>14</b>

#### Semester-4

1	3400	Fundamentals of Computer	4(3+1)
2	4412	Biotechnology	4(3+1)
3	9401/ 0418	Islamic Studies / Ethics (For Non-Muslim Students)	3(3+0)
4	9404	Public Relations	3(3+0)
<b>Total Credits</b>			<b>14</b>

#### Semester-5

1	4452	Biodiversity and Conservation	4(3+1)
2	4481	Introductory Biochemistry	4(3+1)
3	7401	Diversity of Vascular Plants	3(2+1)
4	7402	Plant Anatomy	3(2+1)
5	7403	Phycology and Bryology	3(3+0)
<b>Total Credits</b>			<b>17</b>

**Semester-6**

Sr. No.	Course Code	Course	Credit Hours
1	7405	Plant Ecology-I	3(2+1)
2	7406	Plant Physiology-I	3(2+1)
3	7407	Plant Biochemistry	3(3+0)
4	7408	Mycology and Plant Pathology	3(2+1)
5	7410	Plant Systematics	3(2+1)
<b>Total Credits</b>			<b>15</b>

**Semester-7**

1	4419	Molecular Biology	4(3+1)
2	4482	Biostatistics	3(3+0)
3	7409	Plant Ecology-II	3(2+1)
4	7411	Plant Physiology-II	3 (2+1)
5	7412	Genetics-I	3(3+0)
6	7413	Scientific Research	3(3+0)
<b>Total Credits</b>			<b>19</b>

**Semester-8**

1	4418	Research Project	6
2	7414	Genetics-II	3(3+0)
3	4439	Ethnobotany	3(3+0)
4	4446	Environmental Biology	4(3+1)
<b>Total Credits</b>			<b>16</b>

**Total Credits: 18+14+14+14+17+15+19+16=127**

**Fee Structure**

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

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

## **FACULTY MEMBERS**

- 1. Dr. Hina Fatimah**  
Incharge  
Department of Biology and Environmental Science  
Ph. 051-9057279
- 2. Dr. Muhammad Waseem**  
Assistant Professor  
Ph. 051-9057267
- 3. Dr. Zahid Ullah**  
Assistant Professor  
Ph. 051-9057735
- 4. Dr. Rizwana Kausar**  
Assistant Professor  
Ph. 051-9057293
- 5. Ms. Saba Farooq**  
Lecturer  
Ph. 051-9057730
- 6. Ms. Samar Naseer**  
Lecturer  
Ph. 051-9057185
- 7. Ms. Zaib un Nisa**  
Research Associate  
Ph: 051-9057688
- 8. Ms. Sadia Latif**  
Research Associate  
Ph: 051-9057185

## **DEPARTMENT OF CHEMISTRY**

### **Introduction:**

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

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

The study programmes in chemistry have been developed by the Faculty according to the guidelines provided by the Higher Education Commission (HEC). Necessary changes have been effected to suit our students, but without deviating fundamentally from the principles set by the HEC. The Committee of Courses of the department comprising distinguished professors and scientists of the country thoroughly screened the proposed syllabi.

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

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

**Objectives:**

- To promote chemistry as a science and to provide opportunity to those who could not educate themselves in formal system of education for one reason or another.
- To provide opportunities of professional growth to all those chemistry graduates who are working as technical staff in research organizations.
- To update the knowledge of in-service chemistry teachers.

## **MSc Chemistry**

**a) Introduction:**

The M.Sc. programme in chemistry was launched in spring 2003 by the department. It was an outcome of the realization that there are many groups of students who wish to improve their qualifications, but facilities are not available to them in the country. Among them are in-service teachers, industrial workers, employees of research organizations and many of those fresh graduates who could not get admission in national universities or who took up jobs to serve their families. Thus it is an important human resource development programme of national importance, which contributes to development of job skill.

The duration of the MSc programme is of two years. An academic year consists of two semesters termed as spring and autumn semesters. Admissions are offered in the spring semester. Each year the department admits 25 students through a process based on previous academic record and interview. Classes are held in the evening and lab courses are covered in workshops. The department follows chemistry curricula as recommended by the HEC.

To date fifteen batches of MSc students have passed out. Successful students are serving in research organizations, colleges, universities and industry. Some students have also been selected by the HEC for scholarship to pursue higher studies leading to PhD.

**b) Objectives:**

The MSc programme in chemistry is designed for those who cannot benefit from formal education. It fulfils and meets several objectives:

- i. To provide advance training to those who are working in national institutions (schools, colleges, research organizations, industry).
- ii. To contribute to national effort in human resource development through its unique programme.
- iii. To provide postgraduate training facilities in chemistry to graduates who were deprived from admission in other national universities.

**c) Eligibility:**

A person holding BSc or BS Ed degree (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, for further details visit University website [www.aiou.edu.pk](http://www.aiou.edu.pk)

**d) Scheme of Studies:**

At present this programme is being offered in Islamabad region only.

The MSc programme is of two years duration, split into four semesters. In the first two semesters, the core courses will be taught. The specialized courses will be dealt in the third and fourth semesters. Now, the Department is offering specialization in Organic, Inorganic/Analytical and Physical Chemistry.

**SEMESTER WISE COURSE OFFERING**

The programme consists of 64 credits which can be completed within a minimum period of two years.

**1<sup>st</sup> Semester**

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

**2<sup>nd</sup> Semester**

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

**SPECIALIZATION IN ORGANIC CHEMISTRY****3<sup>rd</sup> Semester**

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)

<b>4<sup>th</sup> Semester</b>		
<b>Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
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)
<b>SPECIALIAZATION IN INORGANIC / ANALYTICAL CHEMISTRY</b>		
<b>3<sup>rd</sup> Semester</b>		
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)
<b>4<sup>th</sup> Semester</b>		
2544	Organometallic Chemistry	3(3+0)
2545	Group Theory for Chemist & 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)

<b>SPECIALIAZATION IN PHYSICAL CHEMISTRY</b>		
<b>3<sup>rd</sup> Semester</b>		
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)
<b>4<sup>th</sup> Semester</b>		
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)

**Note:** Only selected candidates will be informed to deposit the prescribed fee. **(Please do not send any fee with the application form)**

For admission procedure kindly visit website:  
[www.aiou.edu.pk](http://www.aiou.edu.pk)

**OR**

**Contact at Phone No. 051-9057754, 051-9057755**

**Department of Chemistry  
University Research Complex  
AIOU H-8 Islamabad.**

In case your university issues marks sheet on yearly or semester basis, please attach attested copies of all the mark sheets.

You will be required to **bring original degree/detailed marks certificate(s)** for verification at the time of interview. If you fail to do so, your application for admission will be rejected.

**e) Fee Tariff:**

Course Fee	Rs. 6000/- (for each 3 credit theory course) Rs. 4000/- (for each 2 credit theory course)
Practical Fee	Rs. 6000/- (for each 3 credit laboratory course) Rs. 8000/- (for each 4 credit laboratory course)
LabFee:	

**1<sup>st</sup> Semester  
Fee for 1<sup>st</sup> Semester**

Programme Registration fee	Rs.500/-
Admission fee	Rs.1000/-
Technology fee (per semester)	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/-
Lab fee (per semester)	Rs.6000/-
<b>Total</b>	<b>Rs.44,000/-</b>

**f) Instructional Methodology:**

Study Material:

Compiled course books will be provided by the University. However, the students are advised to consult other books from the list of recommended books for further reading.

**Mode of Teaching:**

In this programme theory courses will be taught by face-to-face teaching. For each laboratory course, workshops will be conducted during each semester A tutorial of three hours duration per week for each 3 credit theory course will be offered. Tutorial sessions would be compulsory and to appear in the final examination minimum attendance of 70% is required as per AIOU rules.

For each laboratory course in semester I & II, a workshop of 20 working days and for laboratory course in semester-III and IV, a workshop of 30 working days will be arranged during the semester at AIOU campus, Islamabad.

**Assessment System**

**Method of Assessment for Theory Courses**

**Continuous Assessment:**

Continuous assessment will be based on assignment(s)/ class tests. The pass percentage in assignment/test will be 50%. The weight-age of assignment/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 the semester. The pass percentage in final examination will be 50% and its weight-age in the final result will be 70%.

**Method of Assessment for Laboratory Courses:**

Assessment for all laboratory courses will be totally based on continuous assessment. As already mentioned, the

laboratory courses will be offered in the form of workshops. A specific number of experiments will be conducted in each workshop. Each experiment will be assessed separately, and attendance in these workshops will be compulsory for every student. Minimum required marks to pass each laboratory course will be 50%.

### **Degree Requirements:**

In order to become eligible for the award of degree of MSc Chemistry, student will have to successfully complete all the courses as per AIOU description, within a minimum period of two years (four semesters). Maximum duration for completion of MSc degree is five years (10 semesters).

### **FACULTY MEMBERS**

- 1. Prof. Dr. Naghmana Rashid**  
Chairperson  
Tel: 051-9250081, 051-9057818, 051-9057754
- 2. Dr. Uzma Yunus**  
Associate Professor  
Tel: 051-9057755
- 3. Dr. Moazzam H. Bhatti**  
Associate Professor  
Tel: 051-9057262
- 4. Dr. Muhammad Sher**  
Associate Professor  
Tel: 051-9057198
- 5. Dr. Nasima Arshad**  
Associate Professor  
Tel: 051-9057756
- 6. Dr. Muhammad Zaman Ashraf**  
Assistant Professor, Tel: 051-9057182
- 7. Ms. Mehwash Zia**  
Lecturer, Tel: 051-9057252
- 8. Dr. Farzana Shaheen**  
Lecturer, Ph: 051-9057198
- 9. Dr. Iqbal Ahmed**  
Lecturer  
Ph: 051-9057874
- 10. Dr. Eram Jabeen**  
Lecturer  
Ph: 051-9057414

### **BS Chemistry Programmes**

#### **a) Introduction:**

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

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

**b) Objectives:**

The main objectives of this programme are

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

**c) Eligibility:**

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

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

[www.aiou.edu.pk](http://www.aiou.edu.pk)

**OR**

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

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

**d) Scheme of Studies:**

Currently this programme is being offered in Islamabad region only. Later on it will be opened for the entire country wherever

the appropriate tutorial support and laboratories will be available.

The BS programme is minimum of four years duration, split into eight semesters. In the first four semesters, the main emphasis will be on basic chemistry, general and compulsory subjects. In the 5<sup>th</sup> and 6<sup>th</sup> semesters, Physical, Inorganic, Organic and Analytical chemistry will be offered as core courses. The specialized courses will be dealt in the seventh and eighth semester. Now, the Department is offering specialization in Organic, Inorganic/Analytical and Physical Chemistry.

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

**SEMESTER WISE COURSE OFFERING**

**Semester-1**

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

**Semester-2**

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

**Semester-3**

4423	Physical Chemistry	4(3+1)
4425	Basic Biochemistry	4(3+1)
4443	Environmental Chemistry	4(3+1)
9402	Pakistan Studies (ODL)	3(3+0)
9409	English III (ODL)	3(3+0)

**Semester-4**

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

**Semester-5**

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

**Semester-6**

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

**SPECIALIZATION IN ORGANIC CHEMISTRY****Semester-7**

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)

**Semester-8**

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

**SPECIALIAZATION IN INORGANIC/ANALYTICAL CHEMISTRY****Semester-7**

Course Code	Course	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	Advance Inorganic Chemistry Lab-1	3(0+3)
2543	Advance Inorganic Chemistry Lab-II	3(0+3)

**Semester-8**

2544	Organometallic Chemistry	3(3+0)
2545	Group Theory for Chemist & its Applications	3(3+0)
2547	Advanced Environmental Chemistry	3(3+0)
3561	Advance Inorganic Chemistry Lab- III	3(0+3)
3562	Advance Inorganic Chemistry Lab-IV	3(0+3)

**SPECIALIAZATION IN  
PHYSICAL CHEMISTRY**

**Semester-7**

2548	Chemical Kinetics	3 (3+0)
2549	Quantum Chemistry	3 (3+0)
2550	Electrochemistry	3 (3+0)
2568	Advance Physical Chemistry Lab-1	3 (0+3)
2569	Advance Physical Chemistry Lab-II	3 (0+3)

**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)

**e) Fee Structure**

Registration Fee:	Rs.500/-
Admission Fee:	Rs.1000/-
Technology Fee (per semester)	Rs.500/-
<b>Course Code (Lab)</b>	<b>Fee</b>
4401	Rs.8000/-
4421	Rs.8000/-
4431	Rs.6000/-
9401	Rs.600/-
9407	Rs.600/-
Lab fee (per semester)	Rs.6000/-
<b>First Semester Fee</b>	<b>Rs.31,200/-</b>

**f) Instructional Methodology:****Study Material:**

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

**Mode of Teaching:**

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

meetings of all ODL courses will be held at campus to facilitate the students and for smooth running of the programme.

### **Assessment System**

#### **Method of Assessment for Theory and Laboratory Courses**

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

#### **Continuous Assessment:**

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

#### **Final Examination:**

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

#### **Method of Assessment for Laboratory Courses:**

Assessment for all laboratory courses will be totally based on continuous assessment. As already mentioned, the laboratory courses will be offered in the form of workshops. A specific number of experiments will be conducted in each workshop. Each experiment will be assessed separately, and attendance in these

workshops will be compulsory for every student. Minimum required marks to pass each laboratory course will be 50%.

### **Degree Requirements:**

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

### **FACULTY MEMBERS**

#### **Prof. Dr. Naghmana Rashid**

Chairperson

Ph: 051-9250081, 051-9057818, 051-9057754

#### **Dr. Uzma Yunus**

Associate Professor

Ph: 051-9057755

#### **Dr. Moazzam H. Bhatti**

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#### **Dr. Nasima Arshad**

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**Ms. Mehwash Zia**

Lecturer

Ph: 051-9057252

**Dr. Farzana Shaheen**

Lecturer

Ph: 051-9057198

**Dr. Iqbal Ahmed**

Lecturer

Ph: 051-9057874

**Dr. Erum Jabeen**

Lecturer

Ph: 051-9057414

**BS Bio-Chemistry (4 Years)**

**a) Introduction**

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

**b) Scope of the Program**

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

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

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

**c) Aim**

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

**d) Objectives**

Objectives of this programme are

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

**e) Launching Scheme**

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

**f) Admission Procedure**

1. Admission to fresh students will be offered once in a year, spring semester only.
2. Applications for admission will be invited through National press.
3. Prescribed admission application available on AIOU admission portal will be filled electronically and hard copies of admission form along with degree/transcript/certificate will be submitted to:

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

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

**Note**

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

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

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

**g) Eligibility/Selection Criterion**

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

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

**h) Medium of Instruction**

The Medium of Instructions for BS Biochemistry will be English.

**i) Study Material**

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

**j) Mode of Teaching**

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

### k) Assessment and Evaluation

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

#### a. Continuous Assessment through written assignments/ class tests or Workshop or practical activities.

- i. Continuous assessment will be based on the marks obtained by the students in class assignments/class tests. A student has to obtain a minimum of 50% marks in theory in order to pass this component.
- ii. In addition, a student has to obtain a minimum of 50% marks in the practical workshop individually in order to pass this component.

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

#### Note:

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

### l) Degree Requirement and Duration

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

### m) Scheme of Studies

#### Semester-1

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

#### Semester-2

Sr. No.	Course Code	Course	Credit Hours
1	4402	Diversity of Plants	4(3+1)
2	4422	Organic Chemistry	4(3+1)
3	4432	Calculus-I	3
4	9408	English II (ODL)	3
5	7407	Plant Biochemistry	3(3+0)
		<b>Total Credits</b>	<b>17</b>

#### Semester-3

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

**Semester-4**

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

**Semester-5**

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

**Semester-6**

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

**Semester-7**

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

**Semester-8**

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

**n) Fee Structure**

Registration Fee:	Rs.500/-
Admission Fee:	Rs.1000/-
Technology Fee (per semester)	Rs.500/-
<b>Course Code (Lab)</b>	<b>Fee</b>
4401	Rs.8000/-
4421	Rs.8000/-

4431	Rs.6000/-
4481	Rs.8000/-
9407	Rs.600/-
Lab fee (per semester)	Rs.3000/-
<b>First Semester Fee</b>	<b>Rs.35,600/-</b>

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

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

### **FACULTY MEMBERS**

#### **1. Dr. Hina Fatima**

In Charge

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

#### **2. Dr. Muhammad Waseem**

Assistant Professor  
Ph: 051-9057267

#### **3. Dr. Zahid Ullah**

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

#### **4. Dr. Rizwana Kousar**

Assistant Professor and Program Coordinator  
Biochemistry  
Ph: 051-9057293

#### **5. Ms. Saba Farooq,**

Lecturer  
Ph: 051-9057730

#### **6. Ms. Samar Naseer**

Lecturer  
Ph: 051-9057185

#### **7. Ms. Zaib un Nisa**

Research Associate  
Ph: 051-9057688

#### **8. Ms. Sadia Latif**

Research Associate  
Ph: 051-9057185

## DEPARTMENT OF MATHEMATICS

### Introduction:

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

- MSc Mathematics
- MPhil Mathematics
- BS Mathematics

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

### MSc Mathematics Programme

#### a) Introduction:

MSc Mathematics program has been designed after consulting syllabus of National and International Universities. This program is mainly designed to encourage professionals and fresh graduates to enhance their mathematical backgrounds and skills.

#### b) Objectives:

The objectives of the MSc Mathematics program are:

1. To enhance the qualification of those who could not continue their education after BSc through formal universities.
2. To provide opportunity to in-service persons to improve their qualification.
3. To get quality teachers of Mathematics at all levels.

#### c) Eligibility:

Candidates having BA/BSc degree with at least second division and a minimum of 45% marks in major Mathematics.

#### Merit Criteria:

The preference order is given as follows:

- (i) Candidates having BSc degree with at least second division from any HEC recognized institute with Maths A and Maths B with at least 45% marks in Mathematics A or B.
- (ii) Candidates having BSc/BA degree with second division from any HEC recognized institute with General Maths with at least 45% marks.
- (iii) Candidates having professional degrees who have studied Mathematics Courses.

All the admissions will be on merit basis.

#### Degree Requirements:

For the award of MSc Mathematics degree, the student will have to complete/qualify the 20 courses equivalent to 60 credit hours within a minimum period of four semesters.

**Hostel Facility:**

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

**d) Scheme of Studies (Semester-wise Course Offering):**

The MSc Mathematics program is of two-years duration. It comprises of four semesters; 60 credit hours. These courses are as follows: In the last semester, the Department will offer 5 optional courses from the given list as per availability of experts.

**1st Semester**

Sr. No.	Course Code	Title of the Course	Credit Hours
1	1520	Computer & Scientific Applications C++	3(3+0)
2	1521	Topology	3(3+0)
3	1522	Linear Algebra	3(3+0)
4	1523	Real Analysis-I	3(3+0)
5	1525	Ordinary Differential Equations	3(3+0)

**2nd Semester**

Sr. No.	Course Code	Title of the Course	Credit Hours
1	1524	Differential Geometry	3(3+0)
2	1527	Complex Analysis	3(3+0)
3	1528	Group Theory	3(3+0)
4	1529	Analytical Mechanics	3(3+0)
5	1530	Real Analysis-II	3(3+0)

**3rd Semester**

Sr. No.	Course Code	Title of the Course	Credit Hours
1	1531	Numerical Methods (Matlab & Mathematics)	3(3+0)
2	1532	Partial Differential Equations	3(3+0)
3	1533	Functional Analysis	3(3+0)
4	1534	Theory of Rings	3(3+0)
5	1538	Mathematical Statistics-I	3(3+0)

**4th Semester**

Sr. No.	Course Code	Title of the Course	Credit Hours
1		Optional-I	3(3+0)
2		Optional-II	3(3+0)
3		Optional-III	3(3+0)
4		Optional-IV	3(3+0)
5		Optional-V	3(3+0)

**Total Credit Hours of full program = 60**

**Optional Courses**

Sr. No.	Course Code	Title of the Course	Credit Hours
1	4478	Mathematical Finance-I	3(3+0)
2	4479	Theory of Racks and Quandles	3(3+0)
3	4480	Research Project	3(0+3)
4	1535	Fluid Mechanics	3(3+0)
5	1540	Applied Number Theory	3(3+0)
6	1542	Mathematical Statistics-II	3(3+0)
7	1544	Optimization	3(3+0)

8	1545	Analytical Dynamics	3(3+0)
9	1546	Mathematical Modeling	3(3+0)
10	1547	Graph Theory	3(3+0)
11	1550	Research Report	3(3+0)
12	1537	Operation Research	3(3+0)
13	1539	Combinatorics	3(3+0)
14	1541	Galois Theory	3(3+0)
15	1548	Algebraic Topology	3(3+0)
16	1536	Relativistic Mechanics	3(3+0)
17	1549		3(3+0)

**e) Fee Structure:**

Registration Fee:	Rs.500/-
Admission Fee:	Rs.1000/-
Technology Fee (per semester)	Rs.500/-
Per 3 Credit Hours course fee: Rs.6000/- Rs. 6000 × 5 =	Rs.30000/-
<b>1st Semester Total Fee:</b>	<b>Rs.32,000/-</b>

After applying online, the student must submit the printed online admission form along with the AIOU copy of the receipt of (Prospectus Fee Rs.500/-) and all attested copies of documents in the Department of Mathematics Block No 07, Room No. 01, Main Campus, AIOU Islamabad.

**f) Instructional Methodology:**

**Study material:**

Soft copy of books 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. The classes will be arranged by the Department at AIOU main campus, Islamabad Morning (9AM-2PM) and Evening (2PM-7PM) including about 10–15 days' workshop at the beginning and about 10–15 days at the end of each semester if required. The final schedule of the lectures will be displayed to the students at the start of the classes/ workshop during each semester at AIOU, Islamabad. At least 70% attendance in face to face teaching would be compulsory.

**Assignments/Test: (continuous assessment):**

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

**Final Examination:**

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

**Minimum Passing Marks:**

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

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

## **FACULTY MEMBERS:**

1. **Dr. Nasir Rehman**  
Associate Professor / Chairman  
Ph: 051-9057191, 9250056
  2. **Dr. Naqeeb-ur-Rehman**  
Assistant Professor  
Ph: 051-9057339
  3. **Mr. M. Faisal Iqbal**  
Lecturer  
Ph: 051-9057380
  4. **Dr. Irfan Mustafa**  
Lecturer  
Ph: 051-9057155
  5. **Ms. Fouzia Rehman**  
Research Associate  
Ph: 051-9057393
  6. **Dr. M Nazam**  
Lecturer  
Ph: 051-9057734
- **Staff:**  
Department of Mathematics  
Ph: 051-9057734

## **BS Mathematics Programme**

### **a) Introduction:**

To meet the challenging requirements of today's fast growing world, the Department of Mathematics has planned to launch BS Mathematics Programme. The BS degree is deemed equivalent to MSc Mathematics. BS degree holders are being preferred throughout the world as their knowledge is more focused on Mathematics. Our BS Mathematics programme will produce well trained, highly numerate and computer literate graduates.

### **b) Objectives:**

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

### **Summary of the Programme:**

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

**c) Eligibility:**

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

**Merit Criteria:**

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

**Payment of Fee:**

Only selected candidates should deposit the fee after receiving the admission letter from the Admission Section, AIOU, Islamabad.

**Hostel Facility:**

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

**d) Scheme of Studies:****Semester-1**

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

**Semester-2**

Sr. No.	Course Code	Course Title	Credit Hours
1	9408	English-II (ODL)	3(3+0)
2	4433	Calculus-II	3(3+0)
3	9403	Pakistani Adab-I (ODL)	3(3+0)
4	1549	Discrete Mathematics-I	3(3+0)
5	4441	Introduction to Environmental Sciences	4(3+1)
6	9410	Introduction to Sociology: Culture and Society (ODL)	3(3+0)

**Semester-3**

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

**Semester-4**

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

**Semester-5**

Sr. No.	Course Code	Course Title	Credit Hours
1	1520	Computer and Scientific Application C++	3(3+0)
2	1521	Topology	3(3+0)
3	1522	Linear Algebra	3(3+0)
4	1523	Real Analysis-I	3(3+0)
5	1525	Ordinary Differential Equations	3(3+0)

**Semester-6**

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

**Semester-7**

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

**Semester-8**

1	Optional-I	3(3+0)
2	Optional-II	3(3+0)
3	Optional-III	3(3+0)
4	Optional-IV	3(3+0)
5	Optional-V	3(3+0)

**Optional Courses**

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

**e) Fee Structure:**

Registration Fee:	Rs.500/-
Admission Fee:	Rs.1000/-
Technology Fee (per semester)	Rs.500/-
<b>Course Code (Lab)</b>	<b>Fee</b>

3400	Rs.8000/-
4432	Rs.6000/-
4434	Rs.6000/-
4471	Rs.6000/-
9402	Rs.600/-
9407	Rs.600/-
Lab fee (per semester)	Rs.750/-
<b>First Semester Fee</b>	<b>Rs.29,950/-</b>

**f) Applying for Admission Procedure:**

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

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

**Instructional Methodology:**

**Study material:**

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

**Mode of Teaching:**

For each course, 45 hours face to face teaching at main campus Islamabad will be required. In this regard, classes will be arranged by the Department at AIOU main campus Islamabad on weekend basis (Friday, Saturday, Sunday) from 3:pm onward including around 10-15 days workshop at the beginning and about 10-15 days at the end of each semester if required. The schedule of the lectures will be distributed to students at the start of classes during each semester at AIOU, Islamabad. Minimum 70% attendance is necessary in all subjects as per AIOU rules.

**Assignment/Test:**

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

**Final Examination:**

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

**Minimum Passing Marks:**

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

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

## **FACULTY MEMBERS**

1. **Dr. Nasir Rehman**  
Associate Professor/Chairman  
Ph: 051-9057191, 9250056
  2. **Dr. Naqeeb-ur-Rehman**  
Assistant Professor  
Ph: 051-9057339
  3. **Mr. M. Faisal Iqbal**  
Lecturer  
Ph: 051-9057380
  4. **Mr. Muhammad Aatif**  
Lecturer (M.Sc Math Coordinator)  
Ph: 051-9057197
  5. **Dr. Irfan Mustafa**  
Lecturer, (M.Phil Math Coordinator)  
Ph: 051-9057155
  6. **Mr. M. Nazam**  
Lecturer  
Ph: 051-9057734
  7. **Ms. Fouzia Rehman**  
Research Associate (BS Math Coordinator)  
Ph: 051-9057393
- **Staff:**  
**Department of Mathematics**  
Ph: 051-9057334

### **Visiting Faculty Members:**

The Department also takes the services of well-known Mathematicians from the different Universities of Pakistan.

## **DEPARTMENT OF STATISTICS**

### **Introduction:**

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

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

### **Academic Programmes**

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

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

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

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

### **MSc Statistics Programme**

#### **Introduction:**

MSc Statistics programme has been designed and updated after consulting syllabus of National and International Universities. This programme is particularly designed for the persons on job as well as for fresh graduates. Our aim is to provide them an opportunity to enhance their statistical thinking which may help in their respective professions or for new jobs seekers.

#### **Aims and Objectives:**

The main objectives of MSc Statistics programme are:

1. To enhance the qualification of those who could not continue their education after BA/BSc due to formal system of education.
2. To provide an opportunity to in service persons to improve their qualification and get promotion in their respective departments/institutions.
3. To produce quality teachers of Statistics from school level to university levels.

#### **Eligibility:**

Candidates having BA/BSc degree with at least 2<sup>nd</sup> division or 45% marks from any HEC recognized institute/university along with statistics as a major subject. However, the student having graduate degree without statistics may apply in zero semester of MSc Statistics detail given on Page 108.

#### **Merit Criteria:**

MSc Statistics is a merit based program. Documents will be scrutinized for eligibility of candidate. After scrutinize of documents, the department will call the eligible applicants for interview. The Departmental Admission Committee will recommend the suitable candidates for MSc Statistics admission on merit basis.

#### **Degree Requirements:**

For the award of MSc Statistics degree, the student will have to qualify the 20 courses within a minimum period of four semesters. However, zero semester students will complete his/her MSc Statistics Degree within a minimum period of five semesters with qualifying the 26 courses each of 3 credit hours.

**Hostel and Cafeteria Facilities:**

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

**Library and Internet Facilities:**

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

The library also has a separate section for blind student. Department of Statistics also has its own computer laboratory equipped with latest software's of Statistics & internet facilities.

**Scheme of Studies:**

The MSc Statistics programme comprises four semesters. The all courses are compulsory to qualify for the award of MSc Statistics degree. Whereas, the MSc Statistics programme comprises five semesters for zero semester students. The semester wise course offering is as under.

**Zero Semester — Spring 2020**

Sr. No.	Code	Course Title	Credit Hours
1	457	Business Communication	3(3+0)
2	1417	Statistics-I	3(3+0)
3	1418	Statistics-II	3(3+0)
4	1419	Statistics-III	3(3+0)
5	1420	General Mathematics	3(3+0)
	1431	Basics of Information Communication Technology	3(3+0)

**SEMESTER WISE COURSE OFFERING****1<sup>st</sup> Semester**

Sr. No.	Code	Course Title	Credit Hours
1	1551	Statistical Methods	3(3+0)
2	1552	Sampling Techniques-I	3(3+0)
3	1553	Design & Analysis of Experiments-I	3(3+0)
4	1554	Probability & Probability Distributions-I	3(3+0)
5	1555	Advanced Calculus	3(3+0)

**2<sup>nd</sup> Semester**

1	1513	Non-Parametric Statistics	3(3+0)
2	1556	Probability & Probability Distributions-II	3(3+0)
3	1557	Regression Analysis	3(3+0)
4	1558	Sampling Techniques-II	3(3+0)
5	1559	Design & Analysis of Experiments-II	3(3+0)

**3<sup>rd</sup> Semester**

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

**4<sup>th</sup> Semester**

1	1566	Statistical Inference-Testing of Hypotheses	3(3+0)
2	1567	Applied Multivariate Analysis	3(3+0)
3	1568	Operation Research	3(3+0)
4	1569	Data Analysis & Statistical Packages	3(3+0)
5	1570	Research Report	3(3+0)

**Total Credit hours for MSc Statistics Programme: 60**

### Fee Structure

Programme Registration Fee:	<b>Rs.500/-</b>
Admission Fee:	<b>Rs.1000/-</b>
Technology Fee: (per semester)	<b>Rs.500/-</b>
Per 3 credit hours course fee: Rs.6000/- (Rs.6000 × 5)	<b>Rs.30000/-</b>
<b>Total fee for 1<sup>st</sup> Semester</b>	<b>Rs.32,0000/-</b>

**Note:** Fee cannot be refunded or adjusted after dispatch of study material.

Only selected/recommended candidates would be required to deposit the fee.

### Instructional Methodology:

#### Face to Face teaching (Tutorials):

For each course, 45 hours face to face teaching support will be provided to the students. The final schedule of the lectures will be distributed to the students in consultation with the teachers (resource persons). The classes will be supplemented by the computers where required. 70% attendance in face to face teaching would be compulsory.

#### Weekend Classes/Workshops:

The classes will be arranged on weekends at Main Campus, AIOU, Islamabad only. The introductory workshop and end semester workshop may be arranged at the beginning and at the end of each semester (if necessary).

### Continuous Assessment:

- Two home-assignments for each course will be given to the students.
- Two sessional exams as a continuous assessment for each course will be conducted and 50% qualifying marks in sessional exam is mandatory to appear in final examination.
- If a student will have less than 50% marks in sessional tests. The student has to enroll in this course freshly with new fee.
- 30% weightage of sessional tests marks (100) will be included in conflated marks.

### Final Examination:

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

### Passing percentage:

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

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

**SPECIAL OFFERING OF ZERO SEMESTER FOR  
ADMISSION IN MSc STATISTICS PROGRAMME**

The Department is offering a zero semester for those **graduates** who did not study the statistics subject as a major course at graduation level and are not eligible for admission in MSc Statistics.

Initially, such graduates will enroll in zero semester to study the following six courses each of 3 credit hours and then these students will be capable to comprehend MSc Statistics level courses at AIOU.

**Zero Semester courses, codes and fee are as under:**

<b>Code</b>	<b>Course Title</b>	<b>Fee Rs.)</b>
1431	Basics of Information & Communication Technology (ODL)	600/-
457	Business Communications (ODL)	600/-
1420	General Mathematics	6000/-
1417	Statistics-I	6000/-
1418	Statistics-II	6000/-
1419	Statistics-III	6000/-
Programme Registration Fee:		500/-
Admission Fee:		1000/-
Technology Fee (per semester)		500/-
<b>Total zero semester Fee</b>		<b>27200/-</b>

The 45 hours teaching of each course at serial # 3, 4, 5 & 6 will be held in the department of statistics, Main Campus AIOU, Islamabad on weekend basis. However, the workshop of 10-15 days may be arranged to facilitate the students. The courses at serial # 1, 2 will be offered on open distance learning (ODL) mode as per AIOU rule.

**Applying Procedure for admission in MSc Statistics/Zero Semester**

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

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

## **FACULTY MEMBERS**

**1. Prof. Dr. Irshad Ahmad Arshad**

Chairman

Ph: 051-9057163, 9250062

Email: irshad.ahmad@aiou.edu.pk

**2. Dr. Muhammad Zakria**

Associate Professor Ph: 051-9057372

Email: zakria@aiou.edu.pk

**3. Dr. Zahid Iqbal**

Associate Professor Ph: 051-9057446

Email: zahid.iqbal@aiou.edu.pk

**4. Dr. Tauqir Ahmed Mughal**

Assistant Professor Ph: 051-9057209

Email: tauqirahmed1@outlook.com

**5. Dr. Muhammad Yameen Danish**

Lecturer

Ph: 051-9057266

Email: yameen.danish@aiou.edu.pk

**6. Mr. Sajid Amir Shah**

Research Associate

Email: [sajid.shah@aiou.edu.pk](mailto:sajid.shah@aiou.edu.pk)

– **Ms. Lubna Naz**

Statistical Assistant

Ph: 051-9057287

Email: lubna.naz@aiou.edu.pk

– **Staff Phone:**

Ph: 051-9057266

## **BS Statistics Programme**

**a) Introduction:**

With the passage of time in the new era of globalization, significant changes have been made in almost all walks of life to keep in pace with the growing world. Among many other fields, improvement in existing education system has become the top most priority of many nations across the globe. Therefore, it is the need of time to modify our current education system in order to meet the international standards. Having a vision of brighter future with compatible educated youth, the Department of Statistics is launching BS Statistics programme from Spring 2017. The BS Statistics would be sixteen years education equivalent to MSc Statistics and fulfilling the international standards of graduate degree.

**b) Aims and Objectives:**

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

**c) Eligibility:**

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

**Merit Criteria:**

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

**Degree Requirements:**

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

**Payment of fee:**

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

**Hostel and Cafeteria Facilities:**

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

**Library and Internet Facilities:**

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

The library also has an accessible centre for blind students. The Department of Statistics also has its own computer laboratory equipped with latest software's of Statistics & internet facilities.

**d) Scheme of Studies:**

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

**Semester-1**

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

**Semester-2**

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

**Semester-3**

Sr. #	Code	Course Title	Credit Hours
1.	4472	Algebra-I	3(3+0)
2.	4488	Introduction to Probability and Probability Distributions	3(3+0)
3.	9401/ 0418	Islamiat/ Ethics (For Non-Muslim Students only) (ODL)	3(3+0)
4.	9405	Principles of Marketing (ODL)	3(3+0)
5.	9409	English-III (ODL)	3(3+0)
6.	9411	Population Studies (ODL)	3(3+0)
<b>Sub Total</b>			<b>18</b>

**ODL\* (Open Distance Learning)**

**Semester-4**

1.	4477	Computing Tools	3(2+1)
2.	4489	Probability Theory and Statistics	3(3+0)
3.	4491	Basic Statistical Inference	3(3+0)
4.	4492	Official Statistics	3(3+0)
5.	9406	Human Resource Management (ODL)	3(3+0)
6.	9413	Arabic Language (ODL)	3(3+0)
<b>Sub Total</b>			<b>18</b>

**Semester-5**

1	1551	Statistical Methods	3(3+0)
2	1552	Sampling Techniques-I	3(3+0)
3	1553	Design & Analysis of Experiments-I	3(3+0)
4	1554	Probability & Probability Distributions-I	3(3+0)
5	1555	Advanced Calculus	3(3+0)
<b>Sub Total</b>			<b>15</b>

**Semester-6**

Sr. #	Code	Course Title	Credit Hours
1	1513	Non Parametric Statistics	3(3+0)
2	1556	Probability & Probability Distributions-II	3(3+0)
3	1557	Regression Analysis	3(3+0)
4	1558	Sampling Techniques-II	3(3+0)
5	1559	Design & Analysis of Experiments-II	3(3+0)
<b>Sub Total</b>			<b>15</b>

**Semester-7**

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

**Semester-8**

1	1566	Statistical Inference-Testing of Hypotheses	3(3+0)
2	1567	Applied Multivariate Analysis	3(3+0)
3	1569	Data Analysis and Statistical Packages	3(3+0)
4	1568	Operations Research	3(3+0)
5	1570	Research Report	3(3+0)
<b>Sub Total</b>			<b>15</b>

**Total BS Statistics Programme Credit Hours = 134**

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

### e) Fee Structure

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

### Instructional Methodology:

#### Face to Face teaching (Tutorials):

For each Non ODL course, there would be 45 hours face to face teaching support to the students. The distribution of the lectures will be provided to the students in classes/workshop after consultation with the teachers/resource persons. The classes will be supplemented by the computers where required. Over all 70%, attendance would be compulsory to appear in sessional tests.

#### Weekend Classes/Workshops:

The weekend classes/workshops will be arranged at Main Campus, AIOU, Islamabad only. The introductory workshop and end semester workshop may also be arranged at the beginning and at the end of each semester (if necessary).

### Continuous Assessment:

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

### Final Examination:

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

### Passing Percentage:

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

### Note:

- The student will have to pass each component separately to pass a course. However, sessional tests must pass before to appear in the final examination.
- Please do not deposit/hand over any fee to any person along with admission form.

*Applying Procedure for admission in BS Statistics*

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

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

**FACULTY MEMBERS**

1. **Prof. Dr. Irshad Ahmad Arshad**  
Chairman  
Ph: 051-9057163, 9250062  
Email: irshad.ahmad@aiou.edu.pk

2. **Dr. Muhammad Zakria**  
Associate Professor  
Ph: 051-9057372  
Email: zakria@aiou.edu.pk
  3. **Dr. Zahid Iqbal**  
Associate Professor  
Ph: 051-9057446  
Email: zahid.iqbal@aiou.edu.pk
  4. **Dr. Tauqir Ahmed Mughal**  
Assistant Professor  
Ph: 051-9057209  
Email: tauqirahmed1@outlook.com
  5. **Dr. Muhammad Yameen Danish**  
Lecturer  
Ph: 051-9057266  
Email: yameen.danish@aiou.edu.pk
- **Mr. Muhammad Sadil Ali**  
Research Assistant  
Email: sadil.ali@aiou.edu.pk
- **Staff Phone:**  
Ph: 051-9057266

## DEPARTMENT OF PHYSICS

### **Introduction:**

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

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

### **Vision:**

The Department of Physics carries out wide range of teaching and research programmes that will contribute significantly to the development of human capacity, science and technology in Pakistan. Our vision is to see our graduates and postgraduates to be equipped with the fundamental knowledge of Physics, problem solving and communication skills. This will be achieved

by reviewing and developing relevant academic programmes and research projects to address Pakistan technological needs in areas like Energy, Renewable Energy, Hydrogen Energy, Environment, Astronomy, Nanotechnology, Materials Science, Plasma, Medical Physics, Cosmology, Geo Physics, Density Functional Theory (DFT), and Nuclear Physics. Our vision is to be a locally and internationally recognized Physics Department that exposes its successes in public awareness campaign and through established knowledge dissemination channels.

### **Mission:**

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

### **Core Values:**

To perform to the highest levels of competence and professionalism in research and training, acting with utmost honesty and integrity while instituting measures that meet the need of all stake holders advance knowledge and technologies, Generate, preserve and disseminate knowledge and be involved in the development of innovative products, Cherish academic freedom, nurture and reward talent. The Department aspires to

be an effective agent of change and a model for the other Department in the field of research so as to meet the grooming demands of the new millennium.

### **Excellence in Research Undergraduate, Postgraduate Education Training**

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

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

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

#### **Aims and Objectives:**

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

### **MSc Physics (BSc/BSEd)**

#### ***a) Introduction:***

After the establishment of the department, the first programme launched by this department, in spring 1999 semester, was MSc Physics. This is a two years programme comprising four semesters. The programme was launched keeping in view the fact that many science graduates are forced to start a job after doing BSc due to financial constraints. In fact, not a single university in Pakistan offers MSc in Physics in the evening. For such graduates this programme provides a second opportunity to study. It is for those who could not continue education in formal system along with their jobs. At present the MSc programme is being offered at the AIOU main campus

Islamabad. The teaching faculty is highly qualified and experienced. Laboratories are an essential component for teaching of Physics. For this purpose, two well equipped laboratories for General Physics and digital and Computer Hardware Electronics with latest equipment have been set up.

**b) Objectives:**

The aim of this programme is to provide highly competent scientists and academicians with critical approach, up-to-date knowledge, and skills to carry out research, capable of imparting knowledge and research skills to the next generation.

*MSc Physics programme has been particularly designed for the following:*

1. Science graduates who are unable to pursue their students in Physics in the conventional system of education.
2. Graduate teachers who want to improve their qualification.
3. Science graduates working in different laboratories, decisions of improving their qualification.

**c) Eligibility (for BSc/BSEd Students only):**

**i)** A candidate possessing 2nd division BSc/BSEd degree with Physics & Mathematics combination is eligible to apply for admission. Admissions will be made strictly on merit.

**ii) Eligibility (for B.Tech Students only)**

Candidates holding B Tech / equivalent with at least second division are eligible to apply for admission in zero semester.

The admission will be made strictly on merit. **Qualifying the Departmental Interview is mandatory for admission.** Students are requested to bring all their credentials with them.

**d) Scheme of Studies (for BSc/BSEd students only):**

**Semester-wise Course Offering:**

The MSc programme is of two-year duration. It comprises four semesters of 66 credit hours.

**1<sup>ST</sup> Semester**

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

**2<sup>nd</sup> Semester**

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

**3<sup>rd</sup> Semester**

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

**4<sup>th</sup> Semester**

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

**MSc PHYSICS (B.Tech)****e) Scheme of Studies (for B Tech Students only)****Zero Semester for Admission in MSc Physics Programme**

The department has developed a special offering of Zero Semester for getting admission in MSc Physics programme for the students of B Technical Education (B Tech).

The purpose of this semester will be to accommodate those graduates who did not study Mathematics and Physics at Graduation / BSc level and are not eligible to get admission in MSc Physics. Further they do not get any good opportunities in getting postgraduate studies. The student will get registered in M.Sc. Physics programme and then he/she will be promoted to the next semester (1<sup>st</sup> Semester) as continue student, after attending the zero semester.

There would be three theory courses (03 credit hours) and two laboratory course (02 credit hours) in the Zero Semester.

The **Zero Semester** courses along with course codes & fee are as under:

Sr. #	Course Code	Course Title	Fee (Rs.)	Credit Hours
1.	1685	Mathematics for B-Tech	6000/-	03
2.	1686	Physics- I for B-Tech	6000/-	03
3.	1687	Physics-II for B-Tech	6000/-	03
4.	1688	Laboratory-I for Physics	4000/-	02
5.	1689	Laboratory-II for Physics	4000/-	02
6.	Programme Registration Fee		500/-	
7.	Admission Fee		1000/-	
8.	Technology Fee (per semester)		500/-	
<b>Total Fee</b>			<b>28,000/-</b>	

**Final Examination/Continuous Assessment:**

At the end of zero semester, the University will arrange final three hours written examination in each course. It is imperative to obtain 50% marks in the final examination to pass in each course. The roll number slips and other relevant information related to examination centre will be provided to the students before the examination.

**Assessment:**

The distribution of continuous assessment and final examination will be as follows:

Assignments (20% test/ quiz/Assignment +10% Attendance)	30 %
Final Examination	70%
Aggregate	50%

**Semester-wise Course Offering for B.Tech Students****1<sup>st</sup> Semester**

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

**2<sup>nd</sup> Semester**

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

**3<sup>rd</sup> Semester**

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

**4<sup>th</sup> Semester**

1	760	Nuclear Physics	3(3+0)
2	2560	Advanced Digital & Computer Hardware Electronics	3(3+0)
3	2559	Electronic Communication System	3(3+0)
4	2561	Laboratory for Advanced Digital & Computer Hardware Electronics	4(4+0)
5	5464	Research Techniques	3(3+0)

**Degree Requirement:**

For the award of MSc (Physics) degree, the students will have to complete the courses offered equivalent to 66 credit hours (22 courses) within a minimum period of four semesters.

**f) Fee Tariff: MSc Physics**

Programme Registration fee	Rs.500/-
Admission fee	Rs.1000/-
Technology fee (per semester)	Rs. 500/-
Course fee: (Per 3 credit hours) Rs.6000/- Rs.6000 × 4 = Rs.24000/-	Rs.24000 /-
Lab course: per each 2 credit hours course	Rs.4000/-
<b>Total Fee for 1<sup>st</sup> Semester:</b>	<b>Rs.30000/-</b>

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

**g) Instructional Methodology:**

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

**Study Material:**

The University will provide reprinted and compiled course books/CDs.

**Tutorial Support and Workshops:**

Tutorial support for this programme will be in the form of lectures by resource persons in the workshops. A minimum, 45 hours of face to face teaching/guidance for each three credit hour course, will be provided in these tutorials/workshops. Attendance in these sessions is compulsory. Students failing to attain 70% attendance will not be eligible to appear in the final examination. Each laboratory course comprises a minimum of 75 hours of laboratory courses. Practical work will be supervised and assessed by the practical supervisors/tutor. 80% attendance is compulsory for all the students in the laboratory course. AIOU will not bear any cost regarding TA/DA or boarding/lodging facilities during these workshops.

**Assessment:**

Student performance is evaluated / assessed as under: Assignment Weightage

(Quiz / Sessional Test / Presentations / Assignments)	20%
Course Workshop with 70% compulsory attendance	10%
Final Paper	70%
Aggregate	50%

At the end of each semester, the university will arrange final examination. The Roll number slips and other relevant information related to examination centers will be provided to the students before the examination. The students who fail in the final examination will be allowed two more chances to reappear in immediate subsequent semester examinations on payment of examination fee.

### **Admission Procedure:**

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

#### **Programme Coordinator**

MSc Physics Programme, Department of Physics New  
Building Ground Floor, Research Complex  
AIOU, H-8, Islamabad.

**Note: Admissions will be finalized after the test and interview.**

## **BS Physics**

### **a) Objectives of the Programme:**

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

1. To impart students with a conceptual understanding of the fundamental principles of Physics, natural laws and their interpretation, as well as mathematical formulation of the physical phenomena in nature.
2. To develop critical skills necessary for solving unknown problems from our physical surroundings.
3. To develop the capability of analyzing, addressing and posing solutions to problems of natural importance and to instill a deep appreciation of the need for optimum utilization of natural resources and environment.
4. To instill in students, the habit of independent thinking, deep inquiry, and motivation for self-education.

5. To sharpen our students' mathematical prowess making them capable of modeling, analyzing and predicting the behaviour of physical processes.
6. To enhance our student's skills in scientific communication and the ability to clearly present physics and science in simple and clear language.
7. To introduce to students, the spirit of working in interactive groups with the necessary requirements of scientific and professional ethics.
8. To develop hands-on experience in different laboratory techniques, modern instrumentation.
9. To enhance student competence in the design and conduct of experiments and analysis and presentation of experimental data and results.
10. To provide an in-depth understanding of some specialized area of Physics through the option of elective courses.
11. To equip students with the necessary skill set for pursuing careers in Physics education, research and industry in government or private organizations.

### **b) Eligibility Requirements:**

**FSc / ICs (Physics, Mathematics combination) / DAE with 45% marks or 2<sup>nd</sup> division.**

Admissions will be merit based and on number of seats available.

Interview will be conducted in the Department for selection of students.

**c) Scheme of Studies:**

**Semester Wise Course Offering:**

**Semester-1**

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

**Semester-2**

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

**Semester-3**

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

**Semester-4**

1.	5457	Modern Physics	3(3+0)
2.	5472	Differential Equations	3(3+0)
3.	5473	Probability & Statistics	3(3+0)
4.	5462	Optics	3(3+0)
5.	5463	Laboratory for Optics & Spectroscopy	1(1+0)
6.	5474	Fundamentals of Environmental Sciences	3(3+0)

**Semester-5**

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

**Semester-6**

1.	755	Mathematical Methods in Physics-II	3(3+0)
2.	756	Quantum Mechanics-I	3(3+0)
3.	765	Electromagnetic Theory – I	3(3+0)
4.	2566	Thermal & Statistical Physics	3(3+0)
5.	769	Computational Physics	3(3+0)
6.	762	Laboratory for Electronics	2+0

**Semester-7**

1.	2565	Electromagnetic Theory – II	3(3+0)
2.	759	Quantum Mechanics-II	3(3+0)
3.	761	Solid State Physics-I	3(3+0)
4.	758	Lasers & Optics	3(3+0)
5.	2553	Digital & Computer Hardware Electronic	3(3+0)
6.	2556	Laboratory for Digital & Computer Hardware Electronics	3(3+0)

**Semester-8**

Sr. No.	Code	Course Title	Credit Hours
1.	5464	Research Techniques	3(3+0)
2.	760	Nuclear Physics	3(3+0)
3.	2560	Advanced Digital & Computer Hardware Electronics	3(3+0)
4.	2561	Laboratory for Advanced Digital & Computer Hardware Electronics	4+0
5.	2559	Electronic Communication System	3(3+0)
		<b>Total Credit Hours:</b>	<b>135</b>

**d) Degree Requirement:**

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

**e) Fee Structure:**

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

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

**Instructional Methodology:**

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

**i) Study Material:**

The University will provide reprinted and compiled course books.

**ii) Tutorial Support and Workshops:**

Face to Face lectures will be a support for this programme by resource persons in the lecture sessions. A minimum, 45 hours of face to face teaching for each 03 credit hour course, will be provided in these sessions. Attendance in these sessions is compulsory. Students failing to attain 70% attendance in theory courses will not be eligible to appear in the final examination. Laboratory course and its practical work will be supervised and assessed by the laboratory course supervisors. 80% attendance is compulsory for all the students in the laboratory course. AIOU will not bear any cost regarding TA/DA or boarding/lodging facilities during the classes.

**iii) Schedule of Classes:**

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

**iv) Assessment:**

Student performance is evaluated / assessed as under:  
Class assignment through quiz/sessional test/assignment weightage = 20%

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

Final Paper	=	70%
Aggregate	=	50%

At the end of each semester, the university will arrange final examination. The Roll number slips and other relevant information related to examination centers will be provided to the students before the examination. The students who fail in the final examination will be allowed two more chances to reappear in immediate subsequent semester examinations on payment of examination fee.

**Admission Procedure:**

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

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

**Note: Admission will be finalized after test and interview.**

**FACULTY MEMBERS: (Department of Physics)**

1. Prof. Dr. Syed Zafar Ilyas Chairman  
Phone # 051-9057728
2. Mr. Ather Hassan  
Assistant Professor  
Phone # 051-9057214
3. Dr. Surayya Mukhtar  
Assistant Professor  
Phone # 051-9057184
4. Dr. Tariq Jan  
Assistant Professor  
Phone # 051-9057214
5. Ms. Hareem Mufti  
Lecturer  
Phone # 051-9057727
6. Dr. Abdul Jalil  
Lecturer  
Phone # 051-9057214
7. Ms. Uzma Nosheen  
Lecturer  
Phone # 051-9057727
8. Ms. Tayaba Aftab  
Lecturer  
Phone # 051-9057228
9. Mr. Hussain Ahmed  
Research Associate  
Phone # 051-9057214
- Ms. Zeba Sultana  
UDC  
Phone # 051-9057728
- Muhammad Usman  
UDC  
Phone # 051-9057728
- Mr. Muhammad Aman  
Laboratory Assistant  
Phone # 051-9057728
- Mr. Saeed Murtaza  
Lab. Assistant  
Phone # 051-9057728

## DEPARTMENT OF CHEMISTRY

The Department of Chemistry was established in March 1998. Its faculty consists of one Professor, four Associate Professors, One Assistant Professor and four Lecturers. The department has modern equipment/ instrumentation in its teaching and research labs in the Science Block at AIOU main campus. This equipment includes CHNS analyzer, Thermal Analyzer, UV-Visible, Fluorescence and FT-IR Spectrophotometer, GC-MS, HPLC, Atomic spectrophotometer, GC-MS, HPLC, Atomic Absorption spectrometer and Electrochemical System.

The Department has developed all the courses in accordance with the guidelines provided by the Higher Education Commission (HEC). These courses are reviewed from time to time through Committee of Courses to incorporate emerging modern trends in the subject. The Committee of Courses of the department has distinguished professors and scientists of the country as members besides departmental faculty. The Department of Chemistry in consultation with GC University Lahore and Fayetteville State University and the University of the North Caroline, USA going to offer Certificate/Diploma in Forensic Science from Spring 2020.

At present, Department of Chemistry is offering and coordinating the following programs:

1. Certificate/Diploma in Forensic Science (**New Offering**)
2. Chemistry Courses for F.Sc Students
3. BS Chemistry
4. MSc Chemistry
5. MPhil Chemistry
6. PhD Chemistry

## CERTIFICATE/DIPLOMA (FORENSIC SCIENCE)

### 1. Introduction

Allama Iqbal Open University was founded in 1974 to cater for the educational needs of the masses and fill up the existing gaps in the educational system. For the last forty-four years AIOU is providing educational facilities to a large number of students through its distance teaching methodology at different levels. A part of the mission of AIOU is to offer skill development programs, in this regard, Department of Chemistry intends to offer a Certificate/Diploma Program in Forensic Science.

### 2. Aims and Objectives

Forensic Science offers latest techniques and technology for crime investigation. Police forces are regularly involved in forensic investigations. The Certificate/Diploma in Forensic Science is designed to give knowledge and training to personnel working or those who intend to work in law enforcement agencies. A strong technical back ground in the different science disciplines that forms the basis of Forensic investigations will lead to proper investigation of crime scenes.

### 3. Target Groups

The Certificate/Diploma in Forensic Science is particularly designed for Students who have obtained at least twelve years of education (FA/F.Sc or equivalent) preferably employed in Law enforcement agencies, like Police Department etc. or desirous to work in law enforcement agencies.

#### **4. Eligibility (for admission in Forensic Science Certificate/Diploma Program)**

Candidates who have obtained at least twelve years of education (FA/F.Sc. or equivalent) will be eligible to apply for Forensic Science Certificate/Diploma Program.

#### **5. Online Admission Procedure**

- i. Visit Website <https://online.aiou.edu.pk>
- ii. Click on “Merit Based Admissions”  
(Forensic Science Certificate/Diploma Program)
- iii. Click Register and fill details
- iv. After successful registration, 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 four 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 you wish to apply.
- viii. Visit any ABL, FWBL, MCB OR UBL branch to submit application fee on or after NEXT WORKING DAY. After fee submission, please go to Step-2 and click on “Apply” and fill application fee details.

Candidates meeting the basic criteria will be informed via SMS/Email for verification of documents, the status can also be checked on <https://online.aiou.edu.pk> in Step -3. These candidates are required to send one (01) set of attested copies of the documents, printed and signed admission form to the address below.

#### **The Chairperson**

Department of Chemistry  
Science Block, AIOU, Islamabad.  
Tel: 051-9057754, 051-9057818, 051-950081

Admission will be merit based because seats are limited. Interview of the eligible candidates will be conducted by the Departmental Admission Committee and the merit will be determined on the basis of qualification, marks (acquired in matric, F.Sc/FA) and interview:

For clarification about academic matters please contact on the phone number given below:

**051-9057754, 051-9057818, 051-9250081**

**Note: Candidates who offered admission according to merit should submit final programme fee.**

#### **6. Scheme of Studies for Science Certificate/Diploma Program**

In order to become eligible for the award of Certificate of Forensic Science, the student will have to complete 12 credit courses as per AIOU description, within a minimum period of one semester. For the award of Diploma of Forensic Science, the student will have to complete 24 credit courses, within a minimum period of two semesters.

**DESCRIPTION OF THEORY COURSES**  
(Forensic Science Certificate/Diploma Program)

FORENSIC SCIENCE Certificate Program			FORENSIC SCIENCE Diploma Program		
Code	SEMESTER 1	CH	Code	SEMESTER 1	CH
4101	Basics of Forensic Science ( <b>Compulsory course</b> )	3(3+0)	4101	Basics of Forensic Science ( <b>Compulsory course</b> )	3(3+0)
4104	Forensic Chemistry ( <b>Compulsory course</b> )	3(3+0)	4104	Forensic Chemistry ( <b>Compulsory course</b> )	3(3+0)
4105	Introduction to Criminology ( <b>Optional course</b> )	3(3+0)	4105	Introduction to Criminology ( <b>Optional course</b> )	3(3+0)
4102	Crime Scene Investigations ( <b>Optional course</b> )	3(3+0)	4102	Crime Scene Investigations ( <b>Optional course</b> )	3(3+0)
4103	Forensic Biotechnology ( <b>Optional course</b> )	3(3+0)	4103	Forensic Biotechnology ( <b>Optional course</b> )	3(3+0)
4106	Practical Training ( <b>Compulsory course</b> )	3(0+3)	4106	Practical Training ( <b>Compulsory course</b> )	3(0+3)
			Code	SEMESTER 2	CH
			4107	Forensic Analysis ( <b>Compulsory course</b> )	3(3+0)
			4110	Forensic Toxicology and Narcotics ( <b>Compulsory course</b> )	3(3+0)
			4111	Instrumental Analysis ( <b>Optional course</b> )	3(3+0)
			4109	Forensic Law ( <b>Optional course</b> )	3(3+0)
			4108	Forensic Internship ( <b>Optional course</b> )	3(0+3)

**Note:** Besides compulsory courses, the remaining required courses will be selected depending on availability of expertise.

## 7. Offering

In the first phase this program will be offered in Islamabad/Rawalpindi region from Spring 2020. Later on it will be opened for the entire country wherever the appropriate tutorial support and laboratories will be available.

## 8. Assessment

Minimum required marks to pass each theory course are 50%. Two written tests for the theory course will be conducted during the semester. The marks obtained in the written tests will contribute 30% to the final course result. The final examination will be of 100 marks for each theory course. The marks obtained in the final examination will contribute 70% to the final course result.

Assessment for laboratory courses will be totally based on continuous assessment. As already mentioned, the laboratory courses will be offered in the form of workshops. A specific number of practical 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%.

## 9. Attendance

The program is based on face to face teaching. Classes would be compulsory and to appear in the final examination minimum 70% attendance will be required.

## 10. Fee Structure

### a. 1<sup>st</sup> Semester (Certificate and Diploma)

Registration Fee:	Rs.500/-
Admission Fee:	Rs.500/-
Technology Fee (per semester)	Rs.500/-
Per 3 credit hours Rs.6000/- (6000 x 4) = Rs.24,000/-	Rs.24000/-
Lab fee	Rs.6000/-
<b>First Semester Fee</b>	<b>Rs.31,500/-</b>

### c. 2<sup>nd</sup> Semester (Diploma)

Technology Fee (per semester)	Rs.500/-
Per 3 credit hours Rs.6000/- (6000 x 3) = Rs.18,000/-	Rs.18000/-
*Fee for course code 4108	Rs.6000/-
<b>2nd Semester Fee</b>	<b>Rs.24,500/-</b>

\*For not opting internship

The University reserves the right to change the fee tariff in the coming semesters. This can be done without any prior notice as deemed fit for the expected expenditure which is to be incurred on the semester based academic and operational activities of the program.

### **Important Addresses and Telephone Numbers (Academics Staff)**

1. Prof. Dr. Naghmana Rashid  
Chairperson Chemistry  
[Naghmana.rashid@aiou.edu.pk](mailto:Naghmana.rashid@aiou.edu.pk)  
[Tel:051-9057818](tel:051-9057818), 051-9250081
2. Dr. Uzma Yunus  
Associate Professor  
[uzma\\_yunus@yahoo.com](mailto:uzma_yunus@yahoo.com)  
[Tel:051-9057755](tel:051-9057755)
3. Dr. Moazzam H. Bhatti  
Associate Professor  
[Tel:051-9057756](tel:051-9057756)
4. Dr. Nasima Arshad  
Associate Professor  
[nasimaa2006@yahoo.com](mailto:nasimaa2006@yahoo.com)
5. Dr. Muhammad Sher  
Associate Professor  
[sherqau@yahoo.com](mailto:sherqau@yahoo.com)  
[Tel:051-9057198](tel:051-9057198)
6. Dr. Zaman Ashraf  
Assistant Professor  
[mzchem@yahoo.com](mailto:mzchem@yahoo.com)  
[Tel:051-9057182](tel:051-9057182)
7. Dr. Farzana Shaheen  
Lecturer  
[farzana.shaheen@aiou.edu.pk](mailto:farzana.shaheen@aiou.edu.pk)  
[Tel:051-9057394](tel:051-9057394)
8. Dr. Iqbal Ahmad  
Lecturer  
[iqbal.ahmad@aiou.edu.pk](mailto:iqbal.ahmad@aiou.edu.pk)  
[Tel:051-9057874](tel:051-9057874)
9. Dr. Erum Jabeen  
Lecturer  
[erum.jabeen@aiou.edu.pk](mailto:erum.jabeen@aiou.edu.pk)  
[Tel:051-9057414](tel:051-9057414)
10. Ms. Mehwash Zia  
Lecturer  
[mehwash.zia@aiou.edu.pk](mailto:mehwash.zia@aiou.edu.pk)  
[Tel:051-9057225](tel:051-9057225)
11. Ms. Nadia Riaz  
Research Associate  
[Naia.riaz@aiou.edu.pk](mailto:Naia.riaz@aiou.edu.pk)  
[Tel:051-9057225](tel:051-9057225)
12. Mr. Muhammad Sohail  
Research Associate  
[muhhammad.sohail@aiou.edu.pk](mailto:muhhammad.sohail@aiou.edu.pk)  
[Tel:051-9057417](tel:051-9057417)

## GENERAL INFORMATION

- i. The certificates/degrees of AIOU are equivalent to any other recognized Board/University.
- ii. A candidate is required to send complete admission form along with attested copies of all educational and experience certificates to Department as mentioned in the prospectus before or on the closing date.
- iii. If an applicant of post-graduate/research level programme does not receive any information regarding admission within three months from submission of application, he/she should presume non-selected.
- iv. A course taken by any student cannot be change during the semester. However, in real hardship cases, the change in courses will be allowed within fifteen days after receipt of books and deposit of prescribed fee.
- v. The address of a student will not be changed during the semester.
- vi. **Admission to courses for both the Spring and Autumn semesters are generally offered in the months of January and July, respectively, whereas, examinations commenced in November and May respectively. The continuing students will download their Enrolment Form (Continue Admission Form) from the AIOU website and send it to the University within due date.**
- vii. Fee cannot be refunded once paid for admission nor can it be adjusted for any other programme.
- viii. On payment of the registration fee, each student will be issued a registration number. This number must be quoted in all the future correspondence along with the roll number, course(s), code numbers and semester.
- ix. Study material shall be mailed to the students by the concerned department.
- x. After receipt of the study package, students are usually intimated about the tutors of each course for guidance. If you do not get information about tutors, you may contact your course coordinator of the concerned department.
- xi. 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.
- xii. A student who fails in continuous assessment component is not eligible to reappear but will be allowed to re-register for the same course at its next offering semester by the university.

- xiii. It is the responsibility of the student to remain in touch with the department regarding the selected programme.
- xiv. A student already admitted to a programme or a specialization of a programme shall not be allowed to transfer or to get admission to another programme unless he/she formally postpones it till the completion of the new programme or withdraws from the previous programme.
- xv. After completion of a programme successfully, a student has to apply to Controller of Examinations for issuance of certificate/degree.
- xvi. The university reserves the right to change the contents of this prospectus without any prior notice as per university policy.
- xvii. The student must inform the Admission Department in writing within the period of 15 days after receipt of study material parcel, *if found any wrong/short of material/books which is not according to the admission form/check list or mistake in name and address*. No request for any change will be entertained after the stipulated period.
- xviii. Check the books and tally with the course codes mentioned on the address label pasted on the registered packet. If there is any discrepancy, write immediately to Admission Department for correction/ supply of requisite books.
- xix. Admission forms incomplete in any respect will not be entertained and will be returned after close of semester to the students indicating the deficiency in clear terms with advise to request for refund of fee.
- xx. Admission form received without prescribed fee less fee or fee deposited after due date will not be considered.
- xxi. 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.
- xxii. In case provision of forged documents for admission, not only the admission will be refused to the applicant but the fee deposited by him/her will also be forfeited. The university may proceed further in the matter.

## **PROCEDURE FOR DEPOSITING FEE**

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

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

## **IMPORTANT TELEPHONE NUMBERS**

<b>Sr.#</b>	<b>Name</b>	<b>Telephone Nos.</b>
1.	Director Admissions	051-9250043 051-9250162 (Fax)
2.	Assistant Registrar (Mailing)	051-9250185
3.	Controller of Examinations	051-9250012
4.	Director Students Affairs	051-9250174
5.	Superintendent (Postgraduate)	051-9057422
<b>Helpline: (051) 111 112 468</b> <b>Help Desk: support.aiou.edu.pk/</b>		