Semester
Autumn
2026

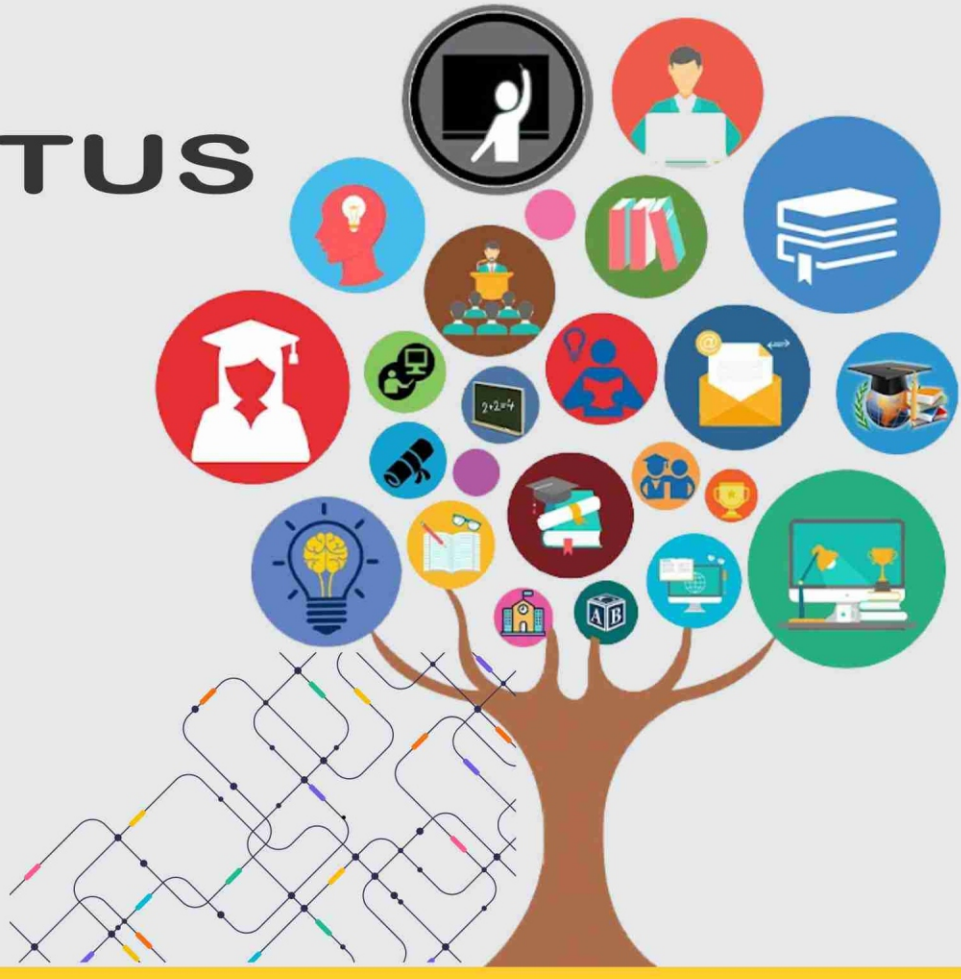
AIOU

PROSPECTUS

BS

Face to Face Programmes

- Faculty of Education
- Faculty of Sciences



Allama Iqbal Open University, Islamabad
www.aiou.edu.pk
Help Line: (051) 111-112-468

PROSPECTUS

OF

BS (Face to Face) Programmes

For

SEMESTER: AUTUMN 2026

Allama Iqbal Open University, Islamabad

Semester:..... Autumn, 2026
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Vice-Chancellor's Message

Dear Student,

السلام علیکم

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

Committed to your bright future

Prof. Dr. Nasir Mahmood
Vice Chancellor

AIOU ACADEMIC CALENDAR

IMPORTANT ACTIVITIES TO BE REMEMBERED

Spring Semester			Autumn Semester		
Proposed Activity	**Schedule**		**Proposed Activity**	**Schedule**	
	From	**To**		**From**	**To**
Admission	01- January	05- March	**Admission**	01- July	05- September
Test & Interview	06- March	30- March	**Test & Interview**	06- September	30- September
Study Period	01- April	30- July	**Study Period**	01- October	30- January
Examination (Conduct)	01-August	30- August	**Examination (Conduct)**	01- February	28- February
Result Declaration	15- September			15- September	

Note: Contact concerned Regional office for exact schedule of activities. Continuing Students are sent information for all activities by LMS/SMS. Simultaneously information is placed on website (www.aiou.edu.pk), students can download if not received by post.

MINIMUM AND MAXIMUM DURATION/SEMESTERS FOR FACE TO FACE PROGRAMMES

Sr. No.	Degree Level	Minimum Duration	Maximum Duration
1	Ph.D	3 years / 5 semesters	8 years *
2	MS/M.Phil/M.Sc (Hons)/MBA/COL MBA/MPA	2 years / 4 Semesters	4 Years **
3	BS (4-Year)	4 years / 8 Semesters	6 Years
4	Postgraduate Diploma (1-Year)	1 Year / 2 Semesters	2 Years
5	Certificate (6-Months)	6 Months / 1 Semester	1 Years
6	BS 2.5 years	2.5 Years/5 Semester	4 Years
7	BS 2 Years	2 years/ 8 Semester	4 Years

Note: Students must complete all degree requirements, including the clearance of any failed or repeat courses, within the prescribed maximum duration of their respective programme.
The FER-1 and FER-2 (reappear) chances shall be available only within the prescribed maximum duration of the respective programme. Students who fail to complete the programme within the maximum duration shall cease to be eligible for reappear chances (FER-1 and FER-2) irrespective of the number of remaining chances.

Evaluation/Assessment Criteria for all PGD/ADS/BS Face to Face Programmes

For Theory Courses:

S.No.	Components	Total Marks	Weightage	Passing Marks
1	Assignment	10	20%	50% (In aggregate)
2	Assignment 2	10		
3	Mid Term	30	30%	
4	Attendance	100	Nil	70%
5	Final Exam	100	50%	50%

For Theory-Practical Courses:

S.No.	Components	Total Marks	Weightage	Passing Marks
1	Assignment	10	20%	50% (In aggregate)
2	Assignment 2	10		
3	Mid Term	30	30%	
4	Practical	15		
5	Attendance	100	Nil	70%
6	Final Exam	100	50%	50%

For Practical/FYP Courses:

S.No.	Components	Total Marks	Weightage	Passing Marks
1	Attendance	100	Nil	70%
2	Final Exam	100	100%	50%

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

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

Follow these instructions to apply:

APPLY ONLINE (FRESH STUDENTS)

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

APPLY ONLINE (CONTINUE STUDENTS):

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

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ALLAMA IQBAL OPEN UNIVERSITY

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

At present, the AIOU is offering programmes from Matric to PhD level in diverse disciplines comprised four faculties. The university has established study centres across the country where distance education students are provided necessary guidance by their respective tutors. AIOU is also offering four years under-graduate degrees.

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

FACULTY OF SCIENCES

Faculty of Sciences form an integral part of the University, Since its establishment in 1982 with five teaching departments, it has undergone major development changes. It now comprises nine teaching and research departments which are offering courses at the undergraduate and postgraduate levels to more than ten thousand students. The Faculty operates under the basic guidelines of the University Act and on “Education for All as Convenient” basis so that maximum students get benefit from its academic programs and educational facilities. This principle has necessitated some structural changes in the non-formal mode, particularly at the postgraduate level, in the offering of theory courses and practical lab work. This conceptual adjustment has been quite successful and many in-service students are benefiting from postgraduate study programs. Improvement in qualification for a better life is a right of everyone and the faculty’s programs meet this challenge by offering opportunities to all. In particular, a significant number of beneficiaries are those who cannot afford education in formal institution due to a variety of reasons.

Research is an integral part of postgraduate study programs MPhil and Ph.D. degrees in Agricultural Sciences, Chemistry, Computer Sciences, Biology (Microbiology and Molecular Genetics), Environmental Sciences, Nutritional Sciences and Environmental Design, Mathematics, Statistics and Physics. Rules and regulations for governing postgraduate study programs are those approved by the Higher Education Commission (HEC).

DEPARTMENT OF BIOLOGY

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

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

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

The Department is offering following programmes:

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

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

BS Biochemistry
(Programme Code 5048)

1. Introduction

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

BS Biochemistry has an interdisciplinary and multidisciplinary approach enabling students to understand the core principles and experimental basis of Biochemistry. The scope of the discipline is extremely broad and graduates in Biochemistry can progress to a wide range of careers. They can work in national and international organization in either public or private sectors, biochemical industries, food production

companies, hospitals and diagnostic laboratories, pharmaceutical industries and research institutes etc.

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

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

2. Objectives

Objectives of this programme are

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

3. Eligibility Criteria

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

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

4. Duration of the Programme

In order to be eligible for the award of BS in Biochemistry, the student will have to earn a total of 130 credit hours including Capstone. Project of three credit hours within a minimum period of 4 years (8 semesters) failing which, a student can be given an extension of upto 2 years in maximum after completion of initial period.

5. Scheme of Studies (BS Biochemistry 4- years)

6. Semester wise lay out for BS Programs (Total CH Semester 130)

Semester 1			
Code	**Course Title**	**CH**	
BIO3507	Cell Biology	3(2+1)	Major
ITHC3501/ HADH3501	Islamic studies/Ethics	2(2+0)	General
PKST3502	Ideology & constitution of Pakistan	2(2+0)	General
MATH3508	Quantitative Reasoning-I	3(3+0)	General
ENGL3505	Functional English	3(3+0)	General
URD3503	Pakistani Adab-1	2(2+0)	General (Arts and Humanities)
Bio 3509	Introductory Biochemistry	3(2+1)	Major
	Total Credits	**18**	
Semester-2			
Code	**Course Title**	**CH**	
ENGL3504	Expository Writing	3(3+0)	General
BIO 3510	Fundamentals of Microbiology	3(2+1)	Major
SOC3503	Civics and Community Engagement	2(2+0)	General
CS3503	Application of	3(2+1)	General

	Information communication & Technologies		
MATH4505	Quantitative Reasoning II	3(3+0)	General
SOC3506	Introduction to Sociology	2(2+0)	General
PKST 3501	Pakistan Studies	2(2+0)	General
	Total Credit	**18**	

Semester-3			
Code	**Course Title**	**CH**	
CHEM3501	Inorganic Chemistry	4(3+1)	General
BIO4508	Diversity of Plants	3(2+1)	Major
BIO4509	Diversity of Animals	3(2+1)	Major
ENVS4501	Basics of Environmental science	3(2+1)	General (Natural Science)
MGT3503	Entrepreneurship	2(2+0)	General
BIO4504	Genetics and Evolution	3(2+1)	Major
	Total Credits	**18**	
	Semester 4		
Code	**Course Title**	**CH**	
CHEM3502	Organic Chemistry	4(3+1)	General
BIO4505	Biosafety; Principles and applications	3(2+1)	Major
BIO4510	Biotechnology	3(2+1)	Major
BIO4506	Animal Physiology and Ecology	3(3+0)	Major
BIO4507	Plant Physiology	3(3+0)	Major

	and Ecology		
	Total Credits	**16**	
	Semester 5		
Code	**Course Title**	**CH**	
BIO5520	Amino acids and Proteins	3(2+1)	Major
BIO5521	Carbohydrates and Lipids	3(2+1)	Major
BIO5525	Human Physiology	3(2+1)	Major
BIO6525	Immunology	3(2+1)	Major
BIO5519	Biochemical Techniques	3(2+1)	Major
BIO5522	Microbial Genetics	3(2+1)	Interdisciplinary
TFSR3501	Fahm-e-Quran(Tajwid, Translation & Tafsir	NC	
	Total Credits	**18**	
	Semester 6		
Code	**Course Title**	**CH**	
BIO5530	Enzymology	3(2+1)	Major
BIO5531	Nutritional Biochemistry	3(2+1)	Major
BIO5526	Molecular Biology	3(2+1)	Major
BIO6521	Metabolism-1	3(3+0)	Major
BIO5532	Clinical Biochemistry	3(2+1)	Major
SERT3501	Seerat -e- Tayyaba	NC	
	Total Credits	**15**	
	Semester-7		
Code	**Course title**	**CH**	
BIO6516	Bio-membrane and	3(3+0)	Major

	Cell Signaling		
BIO6524	Scientific Research and Report writing	3(2+1)	Major
STAT3506	Biostatistics	3(3+0)	Interdisciplinary
BIO6523	Bioinformatics	3(2+1)	Interdisciplinary
BIO6522	Metabolism 2	3(3+0)	Major
Bio 3505	Plant Bio Chemistry	3(3+0)	Major
	Total Credits	**15**	
	Semester-8		
Code	**Course Title**	**CH**	
BIO6519	Capstone Project	3(0+3)	Mandatory
BIO6520	Internship/ Field Experience	3(0+3)	Mandatory
BIO6528	Genetic Engineering	3(2+1)	Major
BIO6527	Epidemiology	3(2+1)	Interdisciplinary
Bio 6529		3(3+0)	
	Total Credits	**12**	
Total Credit Hours: Semester 5 – 8 =60 and Total CH: 70+60= 130			

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 18	Rs. 50400/-
LAB CHARGES	Rs4200/-
Total	Rs. 57550/-

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

1. Mode of Study

University will provide face to face teaching to the students.

i. **Medium of Instruction:** The Medium of Instructions for BS Biochemistry will be English.

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

iii. **Mode of Teaching**

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

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

iv. **Assessment and Evaluation:** For each course the student progress will be assessed based on the followings:

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

i. Continuous assessment will be comprised of 02 assignments and one midterm. A student must have to obtain 50% marks overall including continuous assessment and final exam to pass a course.

ii. For each practical based course, A student must need to obtain a minimum of 50% marks in the practical workshop individually in order to pass this component.

b) Final Examinations

A written examination will be conducted for each course face to face. A student must need to obtain minimum 50% marks

to pass final exam of a course.

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

2. Guidelines for Online Application

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

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

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

For Further Queries Contact

i. Coordinator BS-Biochemistry

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

BS Biochemistry (AD based 2 Years) (Programme Code 5587)

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.

This programme 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.

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

Vision

To educate, train and promote professionalism and understand life at the molecular level so to better serve the community.

Mission

The mission of the BS Biochemistry Programme is to provide students with a foundational understanding of the chemical basis of biological processes as well as the skill sets to critically evaluate, interpret and create biochemical information. It would identify local and global issues that need intervention by a Biochemist, and develop intelligent strategies and biochemical approaches in problem solving methods

The Scope

The Scope of the discipline is extremely broad and a biochemist may emerge as a Biotechnologist, Genetic counselor, Forensic scientists, healthcare scientists, toxicologist, sequencing data analyst. Anyone with back ground in computer may emerge as Bioinformatician.

Aim

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

Objectives

- To equip student with the knowledge and skill 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 fundamentals laboratory procedures and techniques necessary to understand the life processes and can serve in diagnostic and research labs
- To inculcate confidence among students to pursue higher education in their specialized areas of interest

Eligibility Criteria

Associate degree with at least 60 CH in relevant field

Assessment

Mode

As per AIOU Approved Criteria

Duration

Face to Face

This is a minimum 2 years Program comprised of 4 semesters. Each semester is of 16-18 Weeks duration

Medium of Instruction

English

Total CH

60

	Semester 5		
Code	**Course Title**	**CH**	
BIO5520	Amino acids and Proteins	3(2+1)	Major
BIO5521	Carbohydrates and Lipids	3(2+1)	Major
BIO5525	Human Physiology	3(2+1)	Major
BIO6525	Immunology	3(2+1)	Major
BIO5519	Biochemical Techniques	3(2+1)	Major
BIO5522	Microbial Genetics	3(2+1)	Interdisciplinary
TFSR3501	Fahm-e-Quran(Tajwid,	NC	

	Translation & Tafsir		
	Total Credits	**18**	
	Semester 6		
Code	**Course Title**	**CH**	
BIO5530	Enzymology	3(2+1)	Major
BIO5531	Nutritional Biochemistry	3(2+1)	Major
BIO5526	Molecular Biology	3(2+1)	Major
BIO6521	Metabolism-1	3(3+0)	Major
BIO5532	Clinical Biochemistry	3(2+1)	Major
SERT3501	Seerat -e- Tayyaba	NC	
	Total Credits	**15**	
	Semester-7		
Code	**Course title**	**CH**	
BIO6516	Bio-membrane and Cell Signaling	3(3+0)	Major
BIO6524	Scientific Research and Report writing	3(2+1)	Major
STAT3506	Biostatistics	3(3+0)	Interdisciplinary
BIO6523	Bioinformatics	3(2+1)	Interdisciplinary
BIO6522	Metabolism 2	3(3+0)	Major
Bio 3505	Plant Bio Chemistry	3(3+0)	Major
	Total Credits	**15**	
	Semester-8		
Code	**Course Title**	**CH**	
BIO6519	Capstone Project	3(0+3)	Mandatory
BIO6520	Internship/ Field Experience	3(0+3)	Mandatory
BIO6528	Genetic Engineering	3(2+1)	Major
BIO6527	Epidemiology	3(2+1)	Interdisciplinary
Bio 6529		3(3+0)	
	Total Credits	**12**	
Total Credit Hours: Semester 5 – 8 =60 and Total CH: 70+60= 130			

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 18	Rs. 50400/-
LAB CHARGES	Rs4200/-
Total	Rs. 57550/-

BS BOTANY
(Programme Code 5116)

1. 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. Plants are crucial to the future of human society as they provide food, oxygen, medicine, and products for people, as well as creating and preserving soil.

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

2. Objectives

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

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

3. BS Botany (4 Year)
(Programme Code 5116)

Eligibility Criteria for admission in BS Programs(4 years) is:

1. Students holding FSC (Pre Medical) or equivalent/ 'A' lavel with Biology as a major subject shall be eligible for admission.

BS BOTANY (4 Years)

Semester 1			
Code	**Course Title**	**CH**	
BIO3507	Cell Biology	3(2+1)	Major
ITHC3501/ HADH3501	Islamic studies/Ethics	2(2+0)	General
PKST3502	Ideology & constitution of Pakistan	2(2+0)	General
MATH3508	Quantitative Reasoning	3(3+0)	General
ENGL3505	Functional English	3(3+0)	General
URD 3503	Pakistani Adab-1	2(2+0)	General (Arts and Humanities)
BIO 5511	Phycology & Bryology	3(3+0)	Major
	Total Credits	**18**	
Semester-2			
Code	**Course Title**	**CH**	
ENGL3504	Expository Writing	3(3+0)	General

BIO3511	Mycology	3(2+1)	Major
PKST 3501	Pakistan Studies	2(2+0)	General
SOC3503	Civics and Community Engagement	2(2+0)	General
CS3503	Application of Information communication & Technologies	3(2+1)	General
MATH4505	Quantitative Reasoning II	3(3+0)	General
SOC3506	Introduction to Sociology	2(2+0)	General
	Total Credits	**18**	
	Semester-3		
Code	**Course Title**	**CH**	
BIO 4511	Bacteriology & Virology	3(2+1)	Major
BIO4508	Diversity of Plants	3(2+1)	Major
BIO4512	Phytogeography	3(2+1)	Major
ENVS4501	Basics of Environmental science	3(2+1)	General (Natural Science)
MGT3503	Entrepreneurship	2(2+0)	General
BIO4504	Genetics and Evolution	3(2+1)	Major
	Total Credits	**17**	
	Semester 4		
Code	**Course Title**	**CH**	
BIO 4513	Biodiversity & Conservation	3(2+1)	Major
BIO4514	Plant Pathology	3(2+1)	Major
BIO4510	Biotechnology	3(2+1)	Major
BIO 4515	Plant Systematics, Anatomy, & Development	3(3+0)	Major
BIO4507	Plant Physiology and Ecology	3(3+0)	Major
	Total Credits	**15**	

	Semester 5		
Code	**Course Title**	**CH**	
BIO5509	Diversity of Vascular Plants	3(2+1)	Major
BIO5510	Plant Anatomy	3(2+1)	Major
BIO3503	Plant Biochemistry	3(3+0)	Major
BIO5534	Principles of Genetics	3(3+0)	Major
ENVS 5510	Environmental Biology	3(2+1)	Interdisciplinary
TFSR3501	Fahm-e-Quran (Tajwid, Translation & Tafsir		NC
	Total Credits	**15**	

	Semester 6		
Code	**Course Title**	**CH**	
BIO5512	Plant Ecology -I	3(2+1)	Major
BIO5513	Plant Physiology – I	3(2+1)	Major
BIO5526	Molecular Biology	3(3+1)	Major
BIO6513	Plant Systematics	3(2+1)	Major
BIO4505	Biosafety, Principles & Applications	3 (2+1)	Major
BIO5535	Plant Molecular Genetics	3(3+0)	Major
SERT 3501	Seerat -e-Tayyaba	NC	
	Total Credits	**18**	
	Semester-7		
Code	**Course Title**	**CH**	
BIO6508	Plant Ecology -II	3(2+1)	Major
BIO6509	Plant Physiology – II	3 (2+1)	Major
BIO6523	Bioinformatics	3 (2+1)	Interdisciplinary
BIO6524	Scientific Research and Report writing	3 (2+1)	Major
STAT3506	Biostatistics	3 (3+0)	Interdisciplinary
BIO6516	Bio-membrane and cell signaling	3(3+0)	Interdisciplinary
	Total Credits	**18**	

	Semester-8		
Code	**Course title**	**CH**	
BIO6519	Capstone Project	3(0+3)	Mandatory
BIO6520	Field Experience	3(0+3)	Mandatory
BIO6528	Genetic Engineering	3 (2+1)	Major
BIO6512	Ethnobotany	3 (3+0)	Major
BIO 6532	Forensic Botany	3(2+1)	Major
	Total Credits	**15**	
Total Credit Hours: Semester 68+66=134			

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 18	Rs. 50400/-
LAB CHARGES	Rs4200/-
Total	Rs. 57550/-

For further queries please contact coordinator BS Botany
Dr. Samar Naseer
Lecturer
Department of Biology, AIOU
Phone No: 051-9575285

Bs Botany (AD Based 2 Years)
Programme Code 5585

4. 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. Plants are crucial to the future of human society as they provide food, oxygen, medicine, and products for people, as well as creating and preserving soil.

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

Eligibility Criteria

Associate Degree with at least 60 Ch in relevant field

Assessment

As per AIOU Approved Criteria

Mode

Face To Face

Duration

This is minimum 2 years program comprised of 4 semesters. Each semester is of 16-18 weeks duration.

Medium of instruction

English

Total Ch

62

	Semester 5		
Code	**Course Title**	**CH**	
BIO5509	Diversity of Vascular Plants	3(2+1)	Major
BIO5510	Plant Anatomy	3(2+1)	Major
BIO 5511	Phycology & Bryology	3(3+0)	Major
Bio 5508	Biodiversity and Conservation	4(3+1)	Major
ENVS 3506	Environmental Biology	4(3+1)	Major
TFSR3501	Fahm-e-Quran (Tajwid, Translation & Tafsir		NC
	Total Credits	**17**	

	Semester 6		
Code	**Course Title**	**CH**	
BIO5512	Plant Ecology -I	3(2+1)	Major
BIO5513	Plant Physiology – I	3(2+1)	Major
BIO5526	Molecular Biology	3(3+1)	Major

BIO6513	Plant Systematics	3(2+1)	Major
Bio 5514	Mycology and Plant Pathology	3(2+1)	Major
SERT 3501	Seerat -e-Tayyaba	NC	
	Total Credits	**18**	
	Semester-7		
Code	**Course Title**	**CH**	
BIO6508	Plant Ecology -II	3(2+1)	Major
BIO6509	Plant Physiology – II	3 (2+1)	Major
BIO6523	Bioinformatics	3 (2+1)	Interdisciplinary
BIO6524	Scientific Research and Report writing	3 (2+1)	Major
STAT3506	Biostatistics	3 (3+0)	Interdisciplinary
BIO6516	Bio-membrane and cell signaling	3(3+0)	Interdisciplinary
	Total Credits	**18**	

	Semester-8		
Code	**Course title**	**CH**	
BIO6519	Capstone Project	3(0+3)	Mandatory
BIO6520	Field Experience	3(0+3)	Mandatory
BIO6528	Genetic Engineering	3 (2+1)	Major
BIO6512	Ethnobotany	3 (3+0)	Major
	Total Credits	**15**	
Total Credit Hours: Semester 68+66=134			

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 17	Rs. 47600/-
LAB CHARGES	Rs4200/-
Total	Rs. 54550/-

BS MICROBIOLOGY
(Programme Code 5045)

1. Introduction

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

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

This programme is designed to:

i. Provide skilled laboratory personnel for catering general public needs.

ii. Provide research atmosphere for the support of laboratory facilities.

2. Objectives

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

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

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

3. Eligibility Criteria (BS Microbiology 4 years)

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

4. Duration of Programme

In order to be eligible for the award of BS in Microbiology, the student will have to earn a total of 128 credit hours including three credit hours for research within a minimum period of 4 years (8 semesters) failing which, a student can be given an extension of 2 years (4 semesters) in maximum, after completion of initial period.

5. Scheme of Studies:

Semester 1			
Code	**Course Title**	**CH**	
BIO3507	Cell Biology	3(2+1)	Major
ITHC3501/ HADH3501	Islamic studies/Ethics	2(2+0)	General
PKST3502	Ideology & constitution of Pakistan	2(2+0)	General
MATH3508	Quantitative Reasoning-I	3(3+0)	General
ENGL3505	Functional English	3(3+0)	General
URD3503	Pakistani Adab-1	2(2+0)	General (Arts and Humanities)
Bio 3509	Introductory Biochemistry	3(2+1)	Major
	Total Credits	**18**	
Semester-2			
Code	**Course Title**	**CH**	
ENGL3504	Expository Writing	3(3+0)	General
BIO3510	Fundamentals of Microbiology	3(2+1)	Major
SOC3503	Civics and Community Engagement	2(2+0)	General
CS3503	Application of Information communication & Technology (ICT)	3(2+1)	General
MATH4505	Quantitative Reasoning II	3(3+0)	General
SOC3506	Introduction to Sociology	2(2+0)	General
PKST3501	Pakistan Studies	2(2+0)	General

	Total Credits	18	
Semester-3			
Code	**Course Title**	**CH**	
CHEM3501	Inorganic Chemistry	4(3+1)	General
BIO4508	Diversity of Plants	3(2+1)	Major
BIO4509	Diversity of Animals	3(2+1)	Major
ENVS4501	Basics of Environmental science	3(2+1)	General (Natural Science)
MGT3503	Entrepreneurship	2(2+0)	General
BIO4504	Genetics and Evolution	3(2+1)	Major
TFSR 3501	Fahm-e-Quran	1	
	Total Credits	**19**	
Semester 4			
Code	**Course Title**	**CH**	
CHEM3502	Organic Chemistry	4(3+1)	General
BIO4505	Biosafety; Principles and applications	3(2+1)	Major
BIO4510	Biotechnology	3(2+1)	Major
BIO4506	Animal Physiology and Ecology	3(3+0)	Major
BIO4507	Plant Physiology and Ecology	3(3+0)	Major
TFSR 9501		**1**	
	Total Credits	**17**	

Semester 5			
Code	**Course Title**	**CH**	
BIO5518	Applied Environmental Microbiology	3(2+1)	Major
BIO5522	Microbial Genetics	3(2+1)	Major
BIO5523	Virology	3(2+1)	Major
BIO5524	Soil Microbiology	3(2+1)	Major
BIO5525	Human Physiology	3(2+1)	Major
BIO5519	Biochemical Techniques	3(2+1)	Interdisciplinary
TFSR3501	Fahm-e-Quran (Tajwid, Translation & Tafsir	NC	
	Total credits	**18**	
Semester 6			
Code	**Course Title**	**CH**	
BIO5526	Molecular Biology	3(2+1)	Major
BIO5533	Antimicrobial and Antiviral Agents	3(2+1)	Major
BIO5527	Food and Dairy Microbiology	3(2+1)	Major
BIO5528	Microbial Anatomy and Physiology	3(2+1)	Major
BIO5529	Industrial Microbiology	3(2+1)	Major
SERT3501	Seerat -e- Tayyaba	NC	
	Total credits	15	
Semester-7			
Code	**Course title**	**CH**	

STAT3506	Biostatistics	3(3+0)	Interdisciplinary
BIO6524	Scientific Research and Report writing	3(2+1)	Interdisciplinary
BIO6525	Immunology	3(2+1)	Major
BIO6526	Medical Microbiology	3(2+1)	Major
BIO6523	Bioinformatics	3(2+1)	Interdisciplinary
Bio 6530	Vaccinology	3(3+0)	Major
	Total credits	**18**	
Semester-8			
Code	**Course title**	**CH**	
BIO6527	Epidemiology	3(2+1)	Major
BIO6519	Capstone Project	3(0+3)	Mandatory
BIO6520	Field Experience/ Internship	3(0+3)	Mandatory
BIO6528	Genetic Engineering	3(2+1)	Major
BIO 6531	Seminar 1	1	
	Total credits	**13**	
Total Credit Hours: Semester 134			

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 18	Rs. 50400/-
LAB CHARGES	Rs4200/-
Total	Rs. 57550/-

BS MICROBIOLOGY (2 Years)
(Programme Code 5584)

Semester 1			
Code	**Course Title**	**CH**	
BIO5518	Applied Environmental Microbiology	3(2+1)	Major
BIO5522	Microbial Genetics	3(2+1)	Major
BIO5523	Virology	3(2+1)	Major
BIO5524	Soil Microbiology	3(2+1)	Major
BIO5525	Human Physiology	3(2+1)	Major
BIO5519	Biochemical Techniques	3(2+1)	Interdisciplinary
TFSR3501	Fahm-e-Quran (Tajwid, Translation & Tafsir	NC	
	Total credits	**18**	
Semester 2			
Code	**Course Title**	**CH**	
BIO5526	Molecular Biology	3(2+1)	Major
BIO5533	Antimicrobial and Antiviral Agents	3(2+1)	Major
BIO5527	Food and Dairy Microbiology	3(2+1)	Major
BIO5528	Microbial Anatomy and Physiology	3(2+1)	Major
BIO5529	Industrial Microbiology	3(2+1)	Major
SERT3501	Seerat -e- Tayyaba	NC	
	Total credits	15	

Semester-3			
Code	**Course title**	**CH**	
STAT3506	Biostatistics	3(3+0)	Interdisciplinary
BIO6524	Scientific Research and Report writing	3(2+1)	Interdisciplinary
BIO6525	Immunology	3(2+1)	Major
BIO6526	Medical Microbiology	3(2+1)	Major
BIO6523	Bioinformatics	3(2+1)	Interdisciplinary
Bio 6530	Vaccinology	3(3+0)	Major
	Total credits	**18**	
Semester-4			
Code	**Course title**	**CH**	
BIO6527	Epidemiology	3(2+1)	Major
BIO6519	Capstone Project	3(0+3)	Mandatory
BIO6520	Field Experience/ Internship	3(0+3)	Mandatory
BIO6528	Genetic Engineering	3(2+1)	Major
Bio 6531	Seminar 1	1	
	Total credits	**13**	
Total Credit Hours: Semester 64			

Fee Tariff	
Item	**Rates**
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-

Per 1 Credit course 2800 x 18	Rs. 50400/-
LAB CHARGES	Rs4200/-
Total	Rs. 57550/-

Contacts

1- Dr. Rizwana Kousar (Assistant Professor)
rizwana.kousar@aiou.edu.pk
051-9575873
2- Dr. Sobia Kanwal (Assistant Professor)
sobia.kanwal@aiou.edu.pk
051-9575275
3- Dr. Saba Farooq (Lecturer)
Saba.farooq@aiou.edu.pk
051-9575284
4- Dr. Samar Naseer (Lecturer)
Samar.naseer@aiou.edu.pk
051-9575285
5- Ms. Zainab Syed (lecturer)
zainab.syed@aiou.edu.pk
051-9575283
6- Dr. Sadia Latif (Research Associate)
sadia.latif@aiou.edu.pk
051-9575286

DEPARTMENT OF ENVIRONMENTAL SCIENCE

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

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

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

i. BS Environmental Science 4- Year Program
ii. BS Environmental Science 2.5- Year Program
iii. BS Environmental Science 2- Year Program
iv. M.Phil. Environmental Science 2-Year Program

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

DEPARTMENT OF CHEMISTRY

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

The department is situated in Science Block on the main campus where it occupies the ground floor and a portion of the lower floor. With the expansion of lab facilities, the

department has extended its academic activities by launching the BS programme from Spring, 2009. BS programme is visualized in the new scheme of higher education as a fundamental step in improving the standard of graduate and postgraduate studies.

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

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

The department firmly believes in the promotion of chemistry as a science and in maintaining the highest standards. The department is in mission to promote chemistry as a science and provide opportunities of professional growth and updating knowledge to chemistry graduates.

BS CHEMISTRY
(Programme Code 5110)

1 Introduction

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

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

2 Objectives

The objectives of this programme are:

i) To provide a nurturing environment that facilitates and stimulates the active and explorative learning of Chemistry for the students.

ii) To provide chemical knowledge and laboratory skills required for professional chemists.
iii) To contribute to national effort in human resource development.

Currently department of Chemistry is offering following programs.

3 BS Chemistry (4-year program)

3.1 Eligibility Criteria

i) FSc with Chemistry as one of the major subjects.
ii) DAE (Diploma Holders) in Chemical Engineering / Chemical Technology from a Polytechnic Institute.
iii) "A"-Level with Chemistry or Equivalent.

3.2 Duration of Program

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

3.3 Scheme of Studies

The BS program is minimum of four years duration, split into eight semesters. In the first four semesters, the main emphasis will be on basic chemistry, general and compulsory subjects. In the 5th and 6th semesters, Physical, Inorganic, Organic and Analytical Chemistry will be offered as core courses. The specialized courses will be dealt in the 7th and 8th semester with specialization in Organic, Inorganic/Analytical and Physical Chemistry.

Total Credit Hours = 140

Title of Courses	Alphanumeric Course Code	CH	Category
Semester I			
Fundamentals of Chemistry	CHEM3512	3(2+1)	Major
Introductory Biochemistry	BIO3509	3(2+1)	General
Quantitative Reasoning-I	MATH3508	3(3+0)	General
Pakistani Adab-1	URD3503	2(2+0)	General
Ideology and Constitution of Pakistan	PKST3502	2(2+0)	General
Functional English	ENGL3505	3(3+0)	General
Islamic Studies/Ethics	ITHC3501 / HADH 3501	2(2+0)	General
Credits		**18**	
Semester II			
Principles of Inorganic Chemistry	CHEM3513	3(2+1)	Major
Environmental |Chemistry	CHEM3514	3(2+1)	Major
Quantitative Reasoning -II	MATH4505	3(3+0)	General
Application of information communication & Technologies	CS3503	3(2+1)	General
Expository English	ENGL3504	3(3+0)	General
Civics and Community Engagement	SOC3503	2(2+0)	General
Fehm-e-Quran I	TFSR 3502	1(0+1)	General
Credits		**18**	
Semester III			
Fuel Chemistry	CHEM4502	3(2+1)	Major
Principles of Organic Chemistry	CHEM4503	3(2+1)	Major
Principles of Polymer Chemistry	CHEM4504	3(2+1)	Major
Introduction to Nano-Chemistry	CHEM4505	3(2+1)	Major
Entrepreneurship	MGT3503	2(2+0)	General
Pakistan Studies	PKST 3501	2(2+0)	General

Fehm-e-Quran II	TFSE 5401	1(0+1)	General
Credits		**17**	
Semester IV			
Forensic Chemistry	CHEM4506	3(2+1)	Major
Industrial Chemistry	CHEM4507	3(2+1)	Major
Pharmaceutical Chemistry	CHEM4508	3(2+1)	Major
Principles of Physical Chemistry	CHEM4509	3(2+1)	Major
Principal of Analytical Chemistry	CMEM 4510	3(2+1)	Major
Introduction to Sociology	SOC3506	2(2+0)	General
Credits		**17**	
Semester V			
Advanced Organic Chemistry	CHEM5506	3(2+1)	Major
Advanced Inorganic Chemistry	CHEM5507	3(2+1)	Major
Advanced Physical Chemistry	CHEM5508	3(3+0)	Major
Advanced Analytical Chemistry	CHEM5509	3(2+1)	Major
Computational Chemistry	CHEM5510	3(2+1)	Major
Statistics for Chemists	STAT3507	3(3+0)	Major
Credits		**18**	
Semester VI			
Chemistry Lab-I	CHEM3511	4(0+4)	Major
Elective-I		3(3+0)	Major
Elective-II		3(3+0)	Major
Soil Chemistry	CHEM5511	3(2+1)	Major
Basic of Environmental Science	ENV4501	3(2+1)	Interdisciplinary
Seerat-e-Tayyaba	SERT3501	NC	Compulsory
Credits		**16**	
Semester VII			
Chemical Safety and Risk Management	CHEM6533	3(3+0)	Major
Elective_111		3(3+0)	Major
Elective-IV		3(3+0)	Major
Elective_V		3(3+0)	Major
Scientific Research and Report Writing	BIO6524	3(2+1)	Interdisciplinary
Field Experience/Internship	CHEM6531	3(0+3)	Major
Credits		**18**	
Semester VIII			
Elective_VI		3(3+0)	Major
Elective_VII		3(3+0)	Major
Artificial Intelligence in chemistry	CHEM 6534	3(2+1)	Major
Quality Control and Assurance		3(3+0)	Interdisciplinary
Agricultural Chemistry	CHEM 6535	3(2+1)	Major
Capstone Project	CHEM6532	3(0+3)	Major
Credit			**18**

List of Electives for Physical Chemistry

Sr	Title of Course	Course Code	Credit Hours	Category
1	Chemical Kineties	CHEM 6511	3(3+0)	Major
2	Colloids & Surfactants		3(3+0)	Major
3	Electrochemistry	CHEM 6513	3(3+0)	Major
4	Molecular Spectroscopy	CHEM 6526	3(3+0)	Major
5	Quantum Chemistry	CHEM 6512	3(3+0)	Major
6	Surface Chemistry		3(3+0)	Major
7	Symmetry & Group Theory		3(3+0)	Major

List of Electives of Inorganic Chemistry

Sr	Title of Course	Course Code	Credit Hours	Category
1	Chemistry of Transition Metals		3(3+0)	Major
2	Coordination Chemistry	CHEM 6506	3(3+0)	Major
3	Group theory for Chemistry and its Applications	CHEM 6522	3(3+0)	Major
4	Inorganic Polymers		3(3+0)	Major
5	Lanthanide & Actinide Chemistry		3(3+0)	Major
6	Main Group Chemistry		3(3+0)	Major
7	Organometallics Chemistry	CHEM 6521	3(3+0)	Major

List of Electives for Organic Chemistry

Sr	Title of Course	Course Code	Credit Hours	Category
1	Green Organic Synthesis		3(3+0)	Major
2	Heterocyclic Chemistry	CHEM 6501	3(3+0)	Major
3	Chemistry of Natural Products	CHEM6516	3(3+0)	Major
4	Spectroscopic Methods in Organic Chemistry	CHEM 6503	3(3+0)	Major
5	Special Organic Reactions	CHEM6517	3(3+0)	Major
6	Stereochemistry of Organic Compounds	CHEM 6502	3(3+0)	Major
7	Organic Synthesis	CHEM 6518	3(3+0)	Major

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 18	Rs. 50400/-
LAB CHARGES	Rs 8400/-
Total	Rs. 61750/-

BS Chemistry (BSc Based) 2.5 years
(Programme Code 5577)

Eligibility Criteria for BS Programs (BSc/AD Based with less than 60 credit hours) with Bridging Semester:

1. Students holding a BSc degree with 45% marks shall be eligible for admission.
2. Students with an Associate degree with 50% marks (14 years of education) having less than 60 credit hours shall be eligible for admission.
3. Students with a discipline-specific Associate degree who wish to switch to another discipline shall also be eligible for admission.

4.2 Duration of Prgramme

The minimum duration of BS Chemistry Programme is 2.5 years (5 Semesters) and maximum duration to complete BS program in 4 years (8 semesters).

4.3 Scheme of Studies

The BS programme is minimum of 2.5 years duration, split into five semesters. In the bridging semester, the main emphasis will be on basic chemistry courses with one mathematic course. In the 2nd and 3rd semesters, Physical, Inorganic, Organic and Analytical Chemistry will be offered as core courses. The specialized courses will be dealt in the 4th and 5th semester with specialization in Organic, Inorganic/Analytical and Physical Chemistry.

SEMESTER WISE COURSE OFFERING

Total Credit Hours = 88

ginBridg Semester				
Bridging Semester	Analytical Chemistry	CHEM3504	3(2+1)	Major
	Inorganic Chemistry	CHEM3501	4(3+1)	Major
	Organic Chemistry	CHEM3502	4(3+1)	Major
	Physical Chemistry	CHEM3503	4(3+1)	Major
	Pre-Calculus	MATH3501	3(3+0)	ID
	Credits		18	

5 BS 5th	Analytical Chemistry – I	CHEM3506	3(3+0)	Major
	Physical Chemistry – I	CHEM3507	3(3+0)	Major
	Organic Chemistry – I	CHEM3508	3(3+0)	Major
	Inorganic Chemistry – I	CHEM3509	3(3+0)	Major
	Mathematics for Chemists	CHEM3510	2(2+0)	Major
	Chemistry Lab – I	CHEM3511	4(0+4)	Major
	Fahm-e-Quran(Tajwid, Translation & Tafsir	TFSR3501	NC	
	Credits		**18**	
6 BS 6th	Analytical Chemistry – II	CHEM5501	3(3+0)	Major
	Physical Chemistry – II	CHEM5502	3(3+0)	Major
	Organic Chemistry – II	CHEM5503	3(3+0)	Major
	Inorganic Chemistry – II	CHEM5504	3(3+0)	Major
	Chemistry Lab – II	CHEM5505	4(0+4)	Major
	Seerat-e-Tayyaba	SERT3501	NC	
	Credits		**16**	
7th Specialization: Organic Chemistry	Heterocyclic Chemistry	CHEM6501	3(3+0)	Major
	Stereochemistry of Organic Compounds	CHEM6502	3(3+0)	Major
	Spectroscopic Methods in Organic Chemistry	CHEM6503	3(3+0)	Major
	Advanced Organic Chemistry Lab-I	CHEM6504	3(0+3)	Major
	Field Experience/Internship	CHEM6531	3(0+3)	Major
	Scientific Research and Report Writing	ENVS 5509	3(2+1)	ID
	Credits		**18**	
8th Specialization: Organic Chemistry	Chemistry of Natural Products	CHEM6516	3(3+0)	Major
	Special Organic Reactions	CHEM6517	3(3+0)	Major
	Organic Synthesis	CHEM6518	3(3+0)	Major
	Advanced Organic Chemistry Lab – II	CHEM6505	3(0+3)	Major

	Capstone Project	CHEM6532	3(0+3)	Major
	Water and Wastwater Treatment	ENVS4506	3(2+1)	ID
	Credits		**18**	

7th Specialization: Inorganic / Analytical Chemistry	Coordination Chemistry	CHEM6506	3(3+0)	Major
	Non-Spectroscopic Instrumental Methods of Analysis	CHEM6507	3(3+0)	Major
	Basic Instrumental Methods of Analysis	CHEM6508	3(3+0)	Major
	Advanced Inorganic Chemistry Lab – I	CHEM6509	3(0+3)	Major
	Field Experience/Internship	CHEM6531	3(0+3)	Major
	Scientific Research and Report Writing	ENVS 5509	3(2+1)	ID
	Credits		**18**	
8th Specialization: Inorganic / Analytical Chemistry	Organometallic Chemistry	CHEM6521	3(3+0)	Major
	Group Theory for Chemist and Its Applications	CHEM6522	3(3+0)	Major
	Advanced Environmental Chemistry	CHEM6523	3(3+0)	Major
	Advanced Inorganic Chemistry Lab – II	CHEM6510	3(0+3)	Major
	Capstone Project	CHEM6532	3(0+3)	Major
	Water and Wastwater Treatment	ENVS4506	3(2+1)	ID
	Credits		**18**	
7th Specialization: Physical Chemistry	Chemical Kinetics	CHEM6511	3(3+0)	Major
	Quantum Chemistry	CHEM6512	3(3+0)	Major
	Electrochemistry	CHEM6513	3(3+0)	Major
	Advanced Physical Chemistry Lab – I	CHEM6514	3(0+3)	Major
	Field Experience/Internship	CHEM6531	3(0+3)	Major
	Scientific Research and Report Writing	ENVS 5509	3(2+1)	ID
	Credits		**18**	
8th Specialization: Physical Chemistry	Molecular Spectroscopy	CHEM6526	3(3+0)	Major
	Chemical Thermodynamics	CHEM6527	3(3+0)	Major
	Surface Chemistry	CHEM6528	3(3+0)	Major
	Advanced Physical Chemistry Lab – II	CHEM6515	3(0+3)	Major
	Capstone Project	CHEM6532	3(0+3)	Major
	Water and Wastwater Treatment	ENVS4506	3(2+1)	ID
	Credits		**18**	

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 18	Rs. 50400/-
LAB CHARGES	Rs 8400/-
Total	Rs. 61750/-

BS Chemistry (AD Based) 2 years programme (Programme Code 5583)

Eligibility Criteria

Students with an Associate degree with 50% marks in the relevant field with at least 60 credit hours shall be

eligible for admission.

5.2 Duration of Program

The minimum duration of BS Chemistry Program is 2 years (4 Semesters) and maximum duration to complete BS Chemistry (AD Based) program is 4 years (8 semesters)

SEMESTER WISE COURSE OFFERING

Total Credit Hours = 70

5 BS 5th	Analytical Chemistry – I	CHEM3506	3(3+0)	Major
	Physical Chemistry – I	CHEM3507	3(3+0)	Major
	Organic Chemistry – I	CHEM3508	3(3+0)	Major
	Inorganic Chemistry – I	CHEM3509	3(3+0)	Major
	Mathematics for Chemists	CHEM3510	2(2+0)	Major
	Chemistry Lab – I	CHEM3511	4(0+4)	Major
	Fahm-e-Quran (Tajwid, Translation & Tafsir	TFSR3501	NC	
	Credits		**18**	
6 BS 6th	Analytical Chemistry – II	CHEM5501	3(3+0)	Major
	Physical Chemistry – II	CHEM5502	3(3+0)	Major
	Organic Chemistry – II	CHEM5503	3(3+0)	Major
	Inorganic Chemistry – II	CHEM5504	3(3+0)	Major
	Chemistry Lab – II	CHEM5505	4(0+4)	Major
	Seerat-e-Tayyaba	SERT3501	NC	
	Credits		**16**	
7th Specialization: Organic Chemistry	Heterocyclic Chemistry	CHEM6501	3(3+0)	Major
	Stereochemistry of Organic Compounds	CHEM6502	3(3+0)	Major
	Spectroscopic Methods in Organic Chemistry	CHEM6503	3(3+0)	Major
	Advanced Organic Chemistry Lab-I	CHEM6504	3(0+3)	Major
	Field Experience/Internship	CHEM6531	3(0+3)	Major
	Scientific Research and Report Writing	ENVS 5509	3(2+1)	ID
	Credits		**18**	
8th Specialization: Organic Chemistry	Chemistry of Natural Products	CHEM6516	3(3+0)	Major
	Special Organic Reactions	CHEM6517	3(3+0)	Major
	Organic Synthesis	CHEM6518	3(3+0)	Major
	Advanced Organic Chemistry Lab – II	CHEM6505	3(0+3)	Major
	Capstone Project	CHEM6532	3(0+3)	Major
	Water and Wastwater Treatment	ENVS4506	3(2+1)	ID
	Credits		**18**	
7th Specialization: Inorganic / Analytical Chemistry	Coordination Chemistry	CHEM6506	3(3+0)	Major
	Non-Spectroscopic Instrumental Methods of Analysis	CHEM6507	3(3+0)	Major
	Basic Instrumental Methods of Analysis	CHEM6508	3(3+0)	Major
	Advanced Inorganic Chemistry Lab – I	CHEM6509	3(0+3)	Major
	Field Experience/Internship	CHEM6531	3(0+3)	Major
	Scientific Research and Report Writing	ENVS 5509	3(2+1)	ID

	Credits		**18**	
8th Specialization: Inorganic / Analytical Chemistry	Organometallic Chemistry	CHEM6521	3(3+0)	Major
	Group Theory for Chemist and Its Applications	CHEM6522	3(3+0)	Major
	Advanced Environmental Chemistry	CHEM6523	3(3+0)	Major
	Advanced Inorganic Chemistry Lab – II	CHEM6510	3(0+3)	Major
	Capstone Project	CHEM6532	3(0+3)	Major
	Water and Wastwater Treatment	ENVS4506	3(2+1)	ID
	Credits		**18**	

7th Specialization: Physical Chemistry	Chemical Kinetics	CHEM6511	3(3+0)	Major
	Quantum Chemistry	CHEM6512	3(3+0)	Major
	Electrochemistry	CHEM6513	3(3+0)	Major
	Advanced Physical Chemistry Lab – I	CHEM6514	3(0+3)	Major
	Field Experience/Internship	CHEM6531	3(0+3)	Major
	Scientific Research and Report Writing	ENVS 5509	3(2+1)	ID
	Credits		**18**	
8th Specialization: Physical Chemistry	Molecular Spectroscopy	CHEM6526	3(3+0)	Major
	Chemical Thermodynamics	CHEM6527	3(3+0)	Major
	Surface Chemistry	CHEM6528	3(3+0)	Major
	Advanced Physical Chemistry Lab – II	CHEM6515	3(0+3)	Major
	Capstone Project	CHEM6532	3(0+3)	Major
	Water and Wastwater Treatment	ENVS4506	3(2+1)	ID

	Credits		**18**	
Total Credit Hours: Semester 5 –84 = 64				

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 18	Rs. 50400/-
LAB CHARGES	Rs 8400/-
Total	Rs. 61750/-

6.1 Medium of Instruction

The Medium of Instructions for BS Chemistry will be English.

6.2 Study Material

The Class Teacher will provide the study material as per AIOU policy and will suggest reference books for further reading.

6.3 Mode of Teaching

In this programme, regular classes for all courses / practical work will be conducted at AIOU Main Campus in Face to Face mode. Minimum 70% attendance is required for all subjects as per AIOU rules. AIOU has adopted GPA/CGPA system from Spring Semester 2009 in all its four years Bachelor Degree programs.

6.4 Assessment and Evaluation

See page vi

8 Contact Details

Chairman

Department of Chemistry,
Science Block
Allama Iqbal Open University, H-8, Islamabad.

Contact Ph: 051-9575200

BS Programme Coordinator
Department of Chemistry,
Science Block
Allama Iqbal Open University, H-8, Islamabad.
Contact Ph: 051-9575226

9. Faculty Members

1. **Dr. Muhammad Sher**
   Associate Professor /Chairman
   Ph: 051–9575200
2. **Dr. Moazzam H. Bhatti**
   Professor
   Ph: 051–9575217
3. **Dr. Nasima Arshad**
   Associate Professor
   Ph: 051–9575218
4. **Dr. Iqbal Ahmed**
   Assistant Professor
   Ph: 051-9575223
5. **Dr. Muhammad Naeem Khan**
   Assistant Professor
   Ph: 051-9575225
6. **Dr. Muhammad Saleem**
   Assistant Professor
   Ph: 051-9575226
7. **Dr Attia Firdous**
   Assistant Professor
   Ph: 051-9575224
8. **Dr. Mehwash Zia**
   Lecturer
   Ph: 051-9575231
9. **Dr. Farzana Shaheen**
   Lecturer
   Ph: 051-9575232
10. **Dr. Erum Jabeen**
    Lecturer
    Ph: 051-9575234

DEPARTMENT OF AGRICULTURAL SCIENCES

Department of Agricultural Sciences (DAS) is making earnest efforts aiming at supplementing, supporting and re-enforcing extension services and offering agriculture related programs 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. One cannot deny the importance of livestock because it produces a huge quantity of food, such as beef, mutton, poultry meat, milk, yogurt and lot of other milk, and animal byproducts. Millions of acres are still being cultivated with the help of farm animals in this mechanized era. At present, higher education in agriculture is imparted by four formal agricultural universities in Pakistan, which are not catering in-service personnel. The AIOU conducted a survey to get an idea about the higher education in Livestock Management Agricultural Extension, Forestry Extension and 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. DAS has decided to offer MSc (Hons) Rural Development through

distance teaching system, especially for those who could not enhance their qualification through formal system.

Objectives

To help literate farmers and rural communities generally to improve their everyday farming operations and basic skills; to improve the level of knowledge and skills of field extension staff by drawing on the latest research findings and expertise at the national and international levels; to help in adoption and diffusion of improved technology among the farming population. To promote human resource development in agriculture and its related fields. Supplementing, supporting and reinforcing extension services and offering agriculture related programs at different levels.

Scheme of studies of B.Sc. (Hons.) Agriculture (Programme Code 5067)

Salient Features of the Program

- **Eligibility Criteria**: Pre-medical & Pre-engineering or diploma holders (3-year Diploma of field assistant or in field of agriculture) from national and international HEC recognized institutions.
- **Program Duration**: 08 semesters spread over 04 years
- **Medium of Instruction**: The medium of instructions and examinations will be in English
- **Mode of Learning**: This program shall be offered on Face to Face Mode
- **Degree Requirement**: 128 Credit Hours (After completing the four semesters, the students will have the option to opt one discipline from Horticulture, Agronomy and Soil Science.

Scheme of Studies

Semester 1

Name of Subject	Academic Cluster	Credit Hours	Course Code
Functional English	Functional English	3(3+0)	ENGL3505
Ideology and Constitution of Pakistan	Ideology and Constitution	2(2+0)	PKST3502
Quantitative Reasoning	Quantitative Reasoning-I	3(3+0)	MATH3508
Islamic Studies / Ethics	Islamic Studies / Ethics	2(2+0)	ITHC3501/ HADH 3501
Pakistani Adab-1	Arts and Humanities	2(2+0)	URD3503
Cell Biology	Interdisciplinary	3(2+1)	BIO 3507
Total		**15**	**Credit Hours**

Semester 2

Name of Subject	Academic Cluster	Credit Hours	Course Code
Quantitative Reasoning-II	Quantitative Reasoning-II	3(3+0)	MATH4505
Application of Information Communication & Technologies	ICT	3(2+1)	CS3503
Expository Writing	Expository Writing	3(3+0)	ENGL3504
Civics and Community Engagement	Civics and Community Engagement	2(2+0)	SOC3503
Introduction to sociology	Social Sciences	2(2+0)	SOC3506
Introduction to	Major	3 (3+0)	AGSI3506

Agriculture Extension			
Pak. Studies	GE	2(2+0)	PKST 3501
Total		**18**	**Credit Hours**

Semester 3

Name of Subject	**Academic Cluster**	**Credit Hours**	**Course Code**
Entrepreneurship	Entrepreneurship	2(2+0)	MGT3503
Basics of Environmental Science	Natural Sciences	3(2+1)	ENVS4501
Basic Agriculture	Major	3(2+1)	AGSI3501
Introduction to Plant Breeding and Genetics	Major	3(2+1)	AGSI4507
Introduction to Animal Husbandry	Interdisciplinary	3(2+1)	AGSI3502
Introductory Horticulture	Major	3(2+1)	AGSI4508
Total		**17**	**Credit Hours**

Semester 4

Name of Subject	**Academic Cluster**	**Credit Hours**	**Course Code**
Horticultural Crop Production	Major	3(2+1)	AGSI4504
Field Crop Production	Major	3(2+1)	AGSI4509
Introductory Entomology	Major	3(2+1)	AGSI4510
Introduction to Soil Science	Major	3(2+1)	AGSI4511
Introductory Plant Pathology	Major	3(2+1)	AGSI4512
Forestry and Range Management	Major	3(2+1)	AGSI4513
Total		**18**	**Credit Hours**

Major Horticulture 5th Semester

Name of Subject	**Academic Cluster**	**Credit Hours**	**Course Code**
Principles of Fruit Production	Major	3(2+1)	AGSI5513
Principles of Vegetable Production	Major	3(2+1)	AGSI5514
Principles of Ornamental Crop Production	Major	3(2+1)	AGSI5515
Propagation and Nursery Management	Major	3(2+1)	AGSI5516
In Vitro Propagation	Major	3(2+1)	AGSI5517
Breeding of Horticultural Crops	Major	3(2+1)	AGSI5518
Fahm-e- Quran, Tajwid Translation and Tafsir	Compulsory course	Noncredit	TFSR3501
		18	**Credit Hours**

6th Semester

Name of Subject	**Academic Cluster**	**Credit Hours**	**Course Code**
Tropical and Sub-Tropical Fruits	Major	3(2+1)	AGSI5519
Summer	Major	3(2+1)	AGSI5520

Vegetables			
Landscape Horticulture	Major	3(2+1)	AGSI5521
Medicinal and Aromatic Plants	Major	3(2+1)	AGSI5522
Post-Harvest Horticulture	Major	3(2+1)	AGSI5523
Mushroom Culture	Major	3(2+1)	AGSI5524
Seerat-e-Tayyaba	Compulsory course	Noncredit	SERT3501
		18	**Credit Hours**

7th Semester

Name of Subject	Academic Cluster	Credit Hours	Course Code
Research and Scientific Writing	Interdisciplinary	3(2+1)	AGSI6508
Temperate Fruits	Major	3(2+1)	AGSI6509
Winter Vegetables	Major	3 (2+1)	AGSI6510
Commercial Flower Production	Major	3 (2+1)	AGSI6511
Vegetable and Flower Seed Production	Major	3(2+1)	AGSI6512
Agribusiness, Marketing, and Trade	Interdisciplinary	3(3+0)	AGSI6513
		18	**Credit Hours**

8th Semester

Name of Subject	Academic Cluster	Credit Hours	Course Code
Internship	Major	3(0+3)	AGSI6514
Capstone Project	Major	3(0+3)	AGSI6515
		6	**Credit Hours**
Grand Total		**130 Credit Hours**	

Major Agronomy

5th Semester

Name of Subject	Academic Cluster	Credit Hours	Course Code
Plant Nutrients and Growth Regulators	Major	3(2+1)	AGSI5525
Agro-technology of Major Field Crops	Major	3(2+1)	AGSI5526
Irrigation Agronomy	Major	3(2+1)	AGSI5527
Field Crop Physiology	Major	3(2+1)	AGSI5528
Agro-Ecology	Major	3(3+0)	AGSI5529
Arid and Rainfed Agriculture	Major	3(2+1)	AGSI5530
Fahm-e- Quran, Tajwid Translation and Tafsir	Compulsory course	Noncredit	TFSR3501
		18	**Credit Hours**

6th Semester

Name of Subject	Academic Cluster	Credit Hours	Course Code
Crop Management under stressful Environments	Major	3(2+1)	AGSI5531
Seed Production Technology	Major	3(2+1)	AGSI5532
Introduction to Weed Science	Major	3(2+1)	AGSI5533

Conservation Agronomy	Major	3(2+1)	AGSI5534
Climate Change and Crop Production	Major	3(2+1)	AGSI5535
Climate Smart Agriculture in Pakistan	Major	3(3+0)	AGSI5512
Seerat-e-Tayyaba	Compulsory course	Noncredit	SERT3501
		18	**Credit Hours**

7th Semester

Name of Subject	Academic Cluster	Credit Hours	Course Code
Forage and Fodder Production	Major	3(2+1)	AGSI6516
Research and Scientific Writing	Interdisciplinary	3(2+1)	AGSI6517
Principles of Weed Science	Major	3(2+1)	AGSI6518
Farming system and Record Management	Major	3(2+1)	AGSI6519
Agribusiness, Marketing, and Trade	Interdisciplinary	3(3+0)	AGSI6520
Organic Farming	Major	3(2+1)	AGSI6521
		18	**Credit Hours**

8th Semester

Name of Subject	Academic Cluster	Credit Hours	Course Code
Internship	Major	3(0+3)	AGSI6514
Capstone Project	Major	3(0+3)	AGSI6515
		6	**Credit Hours**
		130 Credit Hours	

Major Soil Science

5th Semester

Name of Subject	Academic Cluster	Credit Hours	Course Code
Trace Elements in Agriculture	Major	3(2+1)	AGSI5536
Physical Properties of Soil	Major	3(2+1)	AGSI5537
Chemical Properties of Soil	Major	3(2+1)	AGSI5538
Instrumentation and Laboratory Techniques	Major	3(1+2)	AGSI5539
Soil Genesis and Morphology	Major	3(2+1)	AGSI5540
Municipal and Agro Waste Management	Major	3(3+0)	AGSI5508
Fahm-e- Quran, Tajwid Translation and Tafsir	Compulsory course	Noncredit	TFSR3501
		18	**Credit Hours**

6th Semester

Name of Subject	Academic Cluster	Credit Hours	Course Code
Salt-Affected Soils and Water Quality	Major	3(2+1)	AGSI5541
Soil Fertility and Fertilizer Use	Major	3(2+1)	AGSI5542
Soil Survey and Land Evaluation	Major	3(2+1)	AGSI5543

Soil and Water Conservation	Major	3(2+1)	AGSI5544
Plant Resource Utilization	Major	3(2+1)	AGSI5509
Climate Smart Agriculture in Pakistan	Major	3(3+0)	AGSI5512
Seerat-e-Tayyaba	Compulsory course	Noncredit	SERT3501
		18	**Credit Hours**

7th Semester

Name of Subject	Academic Cluster	Credit Hours	Course Code
Soil Microbiology	Major	3(2+1)	AGSI6522
Research and Scientific Writing	Interdisciplinary	3(2+1)	AGSI6523
Soil - Water - Plant Relationship	Major	3 (3+0)	AGSI6524
Land Degradation and Management	Major	3 (3+0)	AGSI6525
Agribusiness, Marketing, and Trade	Interdisciplinary	3 (3+0)	AGSI6526
Carbon Sequestration in Soil	Major	3(2+1)	AGSI6527
		18	**Credit Hours**

8th Semester

Name of Subject	Academic Cluster	Credit Hours	Course Code
Internship	Major	3(0+3)	AGSI6514
Capstone Project	Major	3(0+3)	AGSI6515

Total		**6**	**Credit Hours**
Grand Total		**130 Credit Hours**	

Evaluation and Assessment

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 15	Rs. 42000/-
LAB CHARGES	Rs 3550/-
Total	Rs. 48500/-

DEPARTMENT OF MATHEMATICS

Our vision is to be among the leading Mathematics departments of the country, which provides quality education in Mathematics and is the center of active and innovative research. The department aspires to promote understanding of Mathematics through teaching and research and inculcate in students the attributes of logical and critical thinking. The Department of Mathematics has been established in June 2014. In June 2014, the Department of Mathematics & Statistics has been bifurcated as two independent departments.

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

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

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

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

The Department provides instructional support to all the faculties of the University in the teaching of courses related to Mathematical sciences. Presently, the Department is offering courses for post-graduate and graduate programs which are carefully designed with a thoughtful selection of courses from applied, pure, financial, and computational domains of mathematics in the light of guidelines provided by the HEC.

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

BS MATHEMATICS
(Programme Code 5050)

Introduction

BS Mathematics has been designed after consulting syllabi of national and international universities. BS Mathematics program will strengthen the mathematical concepts of the candidate and will enhance their logical thinking. This

program caters the needs of information Technology and other sciences disciplines.

To meet the challenging requirements of today's fast growing world, the department of Mathematics has planned to launch BS Mathematics Program. 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 program will produce well trained, highly numerate and computer literate graduates.

1. Objectives

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

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

There are three types of BS-Mathematics program being offered depending upon their eligibility criteria and duration of the program.

2. BS Mathematics (4-Year Program)

- **Eligibility Criteria**

Candidate must have FSc/HSSC certificate in HSSC with major Mathematics or equivalent exams approved/verified by Inter Board Committee of Chairmen (IBCC).

- **Duration of Program**

For the award of BS degree in Mathematics, the student will have to earn a total of 128 credit hours within a minimum period of **4 years (8 semesters).** The maximum period to complete program is **6 years (12 semesters).**

- **Scheme of Study (BS math 4years)**

S#	Course Title	Code	CH	Category: General Education Cluster (GE)
Semester I				
1.	Functional English	ENGL3505	3(3+0)	GE: Functional English
2.	Islamic Studies/Ethics	ITHC3501/ HADH3501	2(2+0)	GE: Islamic Studies
3.		PKST3502	2(2+0)	GE: Ideology and Constitution of Pakistan
4.	Ideology and Constitution of Pakistan	STAT3501	3(3+0)	Interdisciplinary
5.	Introductory Statistics	URD3503	2(2+0)	GE: Arts and Humanities
6.	Pakistani Adab- I	MATH3502	3(3+0)	Major
	Calculus-I			
			15 Credit Hours	
Semester II				
1.	Expository Writing	ENGL3504	3(3+0)	GE: Expository English
2.	Civics and Community Engagement	SOC3503	2(2+0)	GE: Civics and Community Engagement
3.		CS3503	3(2+1)	
4.	Application of Information Communication & Technologies	SOC3506	2(2+0)	GE: Applications of ICT
5.		MATH3509	3(3+0)	
6.		MATH3507	3(3+0)	GE: Social Sciences
7.	Introduction to Sociology	PKST3501	2(2+0)	Major

	Calculus-II Set Theory & Logic Pakistan Studies			Major
			18 Credit Hours	
Semester III				
1. 2. 3. 4. 5. **6.**	Quantitative Reasoning-I Entrepreneurship Basics of Environmental Science Linear Algebra Analytical Geometry **Discrete** **Mathematics-I**	MATH3508 MGT3503 ENVS4501 MATH3512 MATH4502 **MATH3505**	3(3+0) 2(2+0) 3(2+1) 3(3+0) 3(3+0) 3(3+0)	GE: Quantitative Reasoning GE: Entrepreneurship GE: Natural Sciences Major Major **Major**
			17 Credit Hours	
Semester IV				
1. 2. 3. 4. 5. **6.**	Quantitative Reasoning-II Introduction to Probability and Probability Distributions Mathematical Methods Vector and Tensor Analysis Computer and Scientific Applications C++ Group Theory	MATH4505 STAT3503 MATH4504 MATH4503 MATH3510 MATH 5503	3(3+0) 3(3+0) 3(3+0) 3(3+0) 3(2+1) 3(3+0)	GE: Quantitative Reasoning Interdisciplinary Major Major Major Major
			18 Credit Hours	
Semester V				
1. 2. 3. 4. 5. **6.**	Real Analysis-I Ordinary Differential Equations Differential Geometry Waves and Oscillations Machine Learning Fahm-e-quran (Tajwid, translation and Tafsir)	MATH3513 MATH3514 MATH5501 PHY3509 CS5501 TFSR3501		
			15 Credit Hours	
Semester VI				
1. 2. 3. 4. 5. 6.	Topology Complex Analysis Analytical Mechanics Real Analysis-II Applied Number Theory Seerat-e-Tayyaba	MATH3511 MATH5502 MATH5504 MATH5505 MATH6510 SERT3501	3(3+0) 3(3+0) 3(3+0) 3(3+0) 3(3+0) NC	Major Major Major Major Major Mandatory Non-credit Course
			15 Credit Hours	
	Semester VII			
1. 2. 3. 4. 5.	Numerical Methods Partial Differential Equations Functional Analysis Theory of Rings Field Experience/Internship	MATH6501 MATH6502 MATH6503 MATH6504 **MATH6523**	3(2+1) 3(3+0) 3(3+0) 3(3+0) 3(0+3)	Major Major Major Major **Mandatory**
			15 Credit Hours	
Semester VIII				
1. 2. 3. 4. **5.**	Capstone Project Optional-I Optional-II Optional-III Optional-IV	MATH6524	3(0+3) 3(3+0) 3(3+0) 3(3+0) 3(3+0)	Mandatory Major Major Major **Major**
			15 Credit Hours	

Total Credit Hours: = 128

Optional Course		
MATH 6508	Operation Research	3(3+0)
MATH 6509	Combination	3(3+0)
MATH 6510	Applied Number Theory	3(3+0)
MATH 6511	Galois Theory	3(3+0)
MATH 6512	Mathematical Statistics-II	3(3+0)
MATH 6513	Optimization	3(3+0)
MATH 6514	Analytical Dynamics	3(3+0)
MATH 6515	Mathematical Modeling	3(3+0)
MATH 6516	Graph Theory	3(3+0)
MATH 6517	Algebraic Topology	3(3+0)
MATH 6518	Research Report	3(3+0)
MATH 6519	Mathematical Finance-I	3(3+0)
MATH 6520	Theory of Racks and Quandles	3(3+0)
MATH 6521	Research Project	3(3+0)
MATH 6522	Mathematical Methods For Statistics	3(3+0)

3. Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 15	Rs. 42000/-
LAB CHARGES	Rs1100/-
Total	Rs.46050/-

4. BS Mathematics (BA/ BSC Based) (2.5 Years) (Programme Code 5580)

Eligibility Criteria

1. Students holding a BSc degree with 45% marks shall be eligible for admission.
2. Students with an Associate degree (14 years of education) having less than 60 credit hours shall be eligible for admission.

- Students with a discipline-specific Associate degree who wish to switch to another discipline shall also be eligible for admission.
- **Duration of Program**

The students would be allowed to continue with BS-Mathematics in 5th semester after completing bridging semester which comprises of 18 credit hours of foundation courses. The Student will have to earn a total of 78 credit hours within a minimum period of 2.5 years and maximum of 4 years.

Scheme of Study

S#	**Bridging Semester**		
1.	Set Theory & Logic	MATH3507	3(3+0)
2.	Linear Algebra	MATH3512	3(3+0)
3.	Introduction to Probability and Probability Distributions	STAT3503	3(3+0)
4.	Mathematical Methods	MATH4504	3(3+0)
5.	Vector and Tensor Analysis	MATH4503	3(3+0)
6.	Computer and Scientific Applications	MATH3510	3(2+1)
			18 Cradit Hours

Semester V				
1.	Real Analysis-I	MATH3513	3(3+0)	Major
2.	Ordinary Differential Equations	MATH3514	3(3+0)	Major
			3(3+0)	Major
3.	Differential Geometry	MATH5501	3(3+0)	Interdisciplinary
4.	Waves and	PHY3509	3(3+0)	Interdisciplinary
5.	Oscillations	CS5501	NC	**Mandatory Non-credit Course**
6.	Machine Learning Fahm-e-quran (Tajwid, translation and Tafsir)	TFSR3501		

			15 Cradit Hours	
Semester VI				
1.	Topology	MATH3511	3(3+0)	Major
2.	Complex Analysis	MATH5502	3(3+0)	Major
3.	Analytical Mechanics	MATH5504	3(3+0)	Major
4.	Real Analysis-II	MATH5505	3(3+0)	Major
5.	Applied Number	MATH6510	3(3+0)	Major
6.	Theory	SERT3501	NC	Mandatory
	Seerat-e-Tayyaba		15	Non-credit Course
			15 Cradit Hours	
	Semester VII			
1.	Numerical Methods	MATH6501	3(2+1)	Major
2.	Partial Differential	MATH6502	3(3+0)	Major
3.	Equations	MATH6503	3(3+0)	Major
4.	Functional Analysis	MATH6504	3(3+0)	Major
5.	Theory of Rings	**MATH6523**	3(0+3)	**Mandatory**
	Field Experience/Internship			
			15 Cradit Hours	
	Semester VIII			
1.	Capstone Project	MATH6524	3(0+3)	Mandatory
2.	Optional-I		3(3+0)	Major
3.	Optional-II		3(3+0)	Major
4.	Optional-III		3(3+0)	Major
5.	Optional-IV		3(3+0)	Major
			15 Cradit Hours	

Optional Course		
MATH 6508	Operation Research	3(3+0)
MATH 6509	Combination	3(3+0)
MATH 6510	Applied Number Theory	3(3+0)
MATH 6511	Galois Theory	3(3+0)
MATH 6512	Mathematical Statistics-II	3(3+0)
MATH 6513	Optimization	3(3+0)
MATH 6514	Analytical Dynamics	3(3+0)
MATH 6515	Mathematical Modeling	3(3+0)
MATH 6516	Graph Theory	3(3+0)
MATH 6517	Algebraic Topology	3(3+0)
MATH 6518	Research Report	3(3+0)
MATH 6519	Mathematical Finance-I	3(3+0)
MATH 6520	Theory of Racks and Quandles	3(3+0)
MATH 6521	Research Project	3(3+0)
MATH 6522	Mathematical Methods For Statistics	3(3+0)

5. Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 18	Rs. 50400/-
LAB CHARGES	Rs1100/-
Total	Rs.54450/-

6. BS Mathematics AD Based 2 years (Programme Code 5589)

Eligibility

Associate Degree in the relevant field with at least 60 credit hours.

		Semester I		
1.	Real Analysis-I	MATH3513	3(3+0)	Major
2.	Ordinary Differential Equations	MATH3514	3(3+0)	Major
3.	Differential Geometry	MATH5501	3(3+0)	Major
4.	Waves and Oscillations	PHY3509	3(3+0)	Interdisciplinary
5.	Machine Learning	CS5501	3(3+0)	Interdisciplinary
6.	Fahme-Quran (Tajwid, translation and tafsir)	TFSR3501	NC	Mandatory Non-credit Course
			15 Cradit Hours	
		Semester II		
Topology		MATH3511	3(3+0)	Major

Complex Analysis	MATH5502	3(3+0)	Major
Analytical Mechanics	MATH5504	3(3+0)	Major
Real Analysis-II	MATH5505	3(3+0)	Major
Applied Number Theory	MATH6510	3(3+0)	Major
Seerat-e-Tayyaba	TFSR3501	NC	Mandatory Non-credit Course
		15	
		15 Cradit Hours	

	Semester III			
1.	Numerical Methods	MATH6501	3(2+1)	Major
2.	Partial Differential	MATH6502	3(3+0)	Major
3.	Equations	MATH6503	3(3+0)	Major
4.	Functional Analysis	MATH6504	3(3+0)	Major
5.	Theory of Rings	**MATH6523**	3(0+3)	**Mandatory**
	Field Experience/Internship			
		15 Cradit Hours		
	Semester IV			
1.	Capstone Project	MATH6524	3(0+3)	Mandatory
2.	Optional-I		3(3+0)	Major
3.	Optional-II		3(3+0)	Major
4.	Optional-III		3(3+0)	Major
5.	Optional-IV		3(3+0)	**Major**
		15 Cradit Hours		

Optional Course		
MATH 6508	Operation Research	3(3+0)
MATH 6509	Combination	3(3+0)
MATH 6510	Applied Number Theory	3(3+0)
MATH 6511	Galois Theory	3(3+0)
MATH 6512	Mathematical Statistics-II	3(3+0)
MATH 6513	Optimization	3(3+0)
MATH 6514	Analytical Dynamics	3(3+0)
MATH 6515	Mathematical Modeling	3(3+0)
MATH 6516	Graph Theory	3(3+0)
MATH 6517	Algebraic Topology	3(3+0)
MATH 6518	Research Report	3(3+0)
MATH 6519	Mathematical Finance-I	3(3+0)
MATH 6520	Theory of Racks and Quandles	3(3+0)
MATH 6521	Research Project	3(3+0)
MATH 6522	Mathematical Methods For Statistics	3(3+0)

7. Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 15	Rs. 42000/-
LAB CHARGES	Rs1100/-
Total	Rs.46050/-

5. Medium of Instruction

The Medium of Instructions for BS Mathematics will be English.

- **Study Material**

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

- **Mode of Teaching**

The classes will be conducted face-to-face in the main campus of AIOU.

Student progress will be assessed based on the followings:

Continuous Assessment

See page vi

Contact Details

For further information, contact:

i. **Chairman**
Department of Mathematics
Faculty of Sciences, Block # 7,
Allama Iqbal Open University
Phone: 051-9575712

ii. **Coordinator BS-Mathematics**

Department of Mathematics,
Faculty of Sciences, Block # 7
Allama Iqbal Open University
Phone: 051-9575734
Email: rizwan.salim@aiou.edu.pk

9. Faculty Members

1. **Dr. Zahid Iqbal**
   Associate Professor
   Chairman, Department of Mathematics
   Ph. 051-9575712
2. **Dr. Nasir Rehman**
   Associate Professor
   Ph. 051-9575700
3. **Dr. Irfan Mustafa**
   Assistant Professor
   Ph. 051-9575723
4. **Dr. Muhammad Nazam**
   Assistant Professor
   Ph. 051-9575731
5. **Dr. Muhammad Faisal Iqbal**
   Lecturer
   Ph. 051-9575746
6. **Dr. Rizwan Salim Badar**
   Lecturer
   Ph. 051-9575734

DEPARTMENT OF PHYSICS

Realizing the need of technology and scientific education in Pakistan Department of Physics at AIOU was established in 1998 with technological needs in areas like Energy, Energy Efficiency, Climate, and 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 of renewable energy and related areas in which the Department has led to innovations.

The Department is presently running BS 2-year, BS 2.5-year, BS 4-year, MPhil, and PhD degree programs with specialization in various disciplines. Apart from capacity development, activities Department of Physics has been involved in several international, national, and regional research projects. The Physics Department has developed research linkage with other National and International Universities and research organizations of repute to ensure two-way flow of knowledge.

BS PHYSICS
(Programme Code 5052)

Introduction

The Department of Physics offer 2-year, 2.5-year and 4- year BS Physics degree programs. These programs are designed according to the scheme of studies approved by the Higher Education Commission (HEC) of Pakistan to meet the national and international standards.

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

Objectives

The main educational objectives of BS degree programs are:

i. To impart students with a conceptual understanding of the fundamental principles of Physics, natural laws, and their interpretation, as well as mathematical formulation of the physical phenomena in nature.

ii. To develop critical skills necessary for solving unknown problems from our physical surroundings.

iii. To develop the capability of analyzing, addressing, and posing solutions to problems of natural importance and to instill a deep appreciation of the need for optimum utilization of natural resources and environment.

iv. To instill in students the habit of independent thinking, deep inquiry, and motivation for self-education.

v. To sharpen our students' mathematical prowess making them capable of modeling, analyzing, and predicting the behavior of physical processes.

vi. To enhance our students' skills in scientific communication and the ability to clearly present Physics and science in simple and clear language.

vii. To introduce students with the spirit of working in interactive groups with the necessary requirements of scientific and professional ethics.

viii. To develop hands-on experience in different laboratory techniques and modern instrumentation.

ix. To enhance students' competence in the design and conduct of experiments as well as analysis and presentation of experimental data and results.

x. To provide an in-depth understanding of some specialized areas of Physics through the option of elective courses.

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

BS Physics (4-year)

3.1. Eligibility Criteria

FSc. (Pre-Engineering/Pre-Medical), ICS (Physics, Mathematics combination) / DAE.

3.2. Duration of Program

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

2.3. Scheme of Studies

SCHEME OF STUDIES BS PHYSICS

Revised Scheme of Studies			Category
Semester 1			
Code	**Title**	**Cr.H.**	
ENGL3505	Functional English	3(3+0)	GE/ENG
PKST3502	Ideology and Constitution of Pakistan	2(2+0)	GE/PKST
MATH3502	**Calculus-I**	**3(3+0)**	**GE/QR-I**
URD3503	Pakistani Adab-I	2(2+0)	GE/A&H
PHY3501	Mechanics	4(3+1)	MAJOR
ITHC3501/ HADH3501	Islamic Studies or Ethics (for non-Muslim students only)	2(2+0)	GE/IST
CS6505	**Computer Programming: C&C++**	**3(3+0)**	**ID**
Total		**19 Credit Hours**	
Semester 2			
MATH3509	Calculus-II	3(3+0)	GE/QR-II
ENGL3504	Expository Writing	3(3+0)	GE/ENG
PHY3505	Electricity & Magnetism	4(3+1)	MAJOR
CS3503	**Application of Information and Communication Technologies**	**3(2+1)**	**GE/ICT**
SOC3506	Introduction to Sociology	2(2+0)	GE/SS
SOC3503 PKST 3501	Civics and Community Engagement Pak. Studies	2(2+0) 2(2+0)	GE GE
Total		**19 Credit Hours**	

Semester 3			
MATH3512	Linear Algebra	3(3+0)	ID
PHY3509	Waves and Oscillations	3(3+0)	MAJOR
MGT3503	Entrepreneurship	2(2+0)	GE
PHY3507	Heat and Thermodynamics	3(3+0)	MAJOR
ENVS4501	Basics of Environmental Sciences	**3(2+1)**	**GE/ID**
PHY4504	Laboratory for Thermodynamics and Waves	2(0+2)	MAJOR
PHY4505	Modern Physics-I	3(3+0)	MAJOR
Total		**19 Credit Hours**	
Semester 4			
PHY4506	Modern Physics-II	3(3+0)	MAJOR
MATH3514	Ordinary Differential Equations	3(3+0)	ID
PHY4507	Classical Mechanics-I	3(3+0)	MAJOR
STAT3503	Introduction to Probability & Probability Distribution	3(3+0)	ID
PHY4508	Laboratory for Geometrical Optics and Spectroscopy	2(0+2)	MAJOR
PHY3506	Optics	3(3+0)	MAJOR
Total			**17 Credit Hours**
Semester 5			
PHY3512	Mathematical Methods in Physics-I	3(3+0)	MAJOR
PHY5507	Classical Mechanics-II	3(3+0)	MAJOR
PHY3516	Electronics	3(3+0)	MAJOR
PHY5503	Electromagnetic Theory-I	3(3+0)	MAJOR
PHY5504	Laboratory for Electronics	2(0+2)	MAJOR

PHY5502	Quantum Mechanics-I	3(3+0)	MAJOR
	Total	**17 Credit Hours**	
Semester 6			
PHY5501	Mathematical Methods in Physics-II	3(3+0)	MAJOR
PHY5508	Laboratory for General Physics	2(0+2)	MAJOR
PHY6501	Electromagnetic Theory-II	3(3+0)	MAJOR
PHY5505	Computational Physics	3(3+0)	MAJOR
PHY6502	Quantum Mechanics-II	3(3+0)	MAJOR
PHY5509	Field Experience Internship	3(0+3)	INTERNSHIP
	Total	**17 Credit Hours**	
Semester 7			
PHY6503	Solid State Physics-I	3(3+0)	MAJOR
PHY6508	Nuclear Physics	3(3,0)	MAJOR
PHY6512	Laboratory for Nuclear Physics	3(0+3)	MAJOR
PHY6513	Capstone Project	3(0+3)	PROJECT
PHY5506	Thermal & Statistical Physics	3(3+0)	MAJOR
TFSR3501	Fahm-e-Quran (Tajwid, translation and Tafsir)	NC	
	Total	**15 Credit Hours**	
Semester 8			
PHY6516	Solid State Physics-II	3(3+0)	MAJOR
PHY6505	Digital & Computer Hardware Electronics	3(3+0)	MAJOR
PHY3515	Atomic & Molecular Physics	3(3+0)	MAJOR
PHY6514	Laboratory for Solid State Physics	3(0+3)	MAJOR
PHY6515	Lasers Physics	3(3+0)	MAJOR
SERT3501	Seerat-e-Tayyaba	NC	
	Total	**15 Credit Hours**	

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 19	Rs. 53200/-
Total	Rs.56150 /-

4. BS Physics (BSc Based) (Total Credit Hours 83) (Programme Code 5581)

The bridging semester (1st Semester) or comprising (18 credit hours) of foundation courses will be offered.

4.1. Eligibility Criteria

Eligibility Criteria for BS Programs (BSc) with 45% marks with Bridging Semester:.

1. Students holding BSc degree with 45% marks shall be eligible for admission.
2. Students with an Associate degree (14 years of education) having less than 60 credit hours shall be eligible for admission.
3. Students with a discipline-specific Associate degree who wish to switch to this discipline shall also be eligible for admission.

4.2. Duration of Program

The minimum duration of BS Physics (2.5- year) Program is 2.5 years/ (5 Semesters) and maximum duration to complete BS Physics (2.5 year) program is 4 Years.

4.3. Scheme of Studies for BS Physics (BSc- Based)

Bridging Semester			
PHY3505	Electricity & Magnetism	4(3+1)	MAJOR
PHY4506	Modern Physics-II	3(3+0)	MAJOR
PHY4507	Classical Mechanics-I	3(3+0)	MAJOR
PHY3507	Heat and Thermodynamics	3(3+0)	MAJOR
PHY3509	Waves and Oscillations	3(3+0)	MAJOR
PHY3506	Optics	3(3+0)	MAJOR
	Total	**19 Credit Hours**	
Semester 1			
PHY3512	Mathematical Methods in Physics-I	3(3+0)	MAJOR
PHY5507	Classical Mechanics-II	3(3+0)	MAJOR
PHY3516	Electronics	3(3+0)	MAJOR
PHY5503	Electromagnetic Theory-I	3(3+0)	MAJOR
PHY5504	Laboratory for Electronics	2(0+2)	MAJOR
PHY5502	Quantum Mechanics-I	3(3+0)	MAJOR
	Total	**17 Credit Hours**	
Semester 2			
PHY5501	Mathematical Methods in Physics-II	3(3+0)	MAJOR
PHY5508	Laboratory for General Physics	2(0+2)	MAJOR
PHY6501	Electromagnetic Theory-II	3(3+0)	MAJOR
PHY5505	Computational Physics	3(3+0)	MAJOR
PHY6502	Quantum Mechanics-II	3(3+0)	MAJOR
PHY5509	Field Experience Internship	3(0+3)	INTERNSHIP
	Total	**17 Credit Hours**	
Semester 3			
PHY6503	Solid State Physics-I	3(3+0)	MAJOR
PHY6508	Nuclear Physics	3(3,0)	MAJOR
PHY6512	Laboratory for Nuclear Physics	3(0+3)	MAJOR
PHY6513	Capstone Project	3(0+3)	PROJECT
PHY5506	Thermal & Statistical Physics	3(3+0)	MAJOR
TFSR3501	Fahm-e-Quran (Tajwid, translation and Tafsir)	NC	
	Total	**15 Credit Hours**	
Semester 4			
PHY6516	Solid State Physics-II	3(3+0)	MAJOR
PHY6505	Digital & Computer Hardware Electronics	3(3+0)	MAJOR
PHY3515	Atomic & Molecular Physics	3(3+0)	MAJOR
PHY6514	Laboratory for Solid State Physics	3(0+3)	MAJOR
PHY6515	Lasers Physics	3(3+0)	MAJOR
SERT3501	Seerat-e-Tayyaba	NC	
	Total	**15 Credit Hours**	

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 19	Rs. 53200/-
Total	Rs.56150 /-

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

BS Physics (AD Based)
(Programme Code 5590)

5.1. Eligibility Criteria

1. Students with Associate degree in the relevant field with at least 60 credit hours shall be eligible for admission. With 50% marks.

5.2. Duration of Program

The minimum duration of BS Physics AD Based (2- year) program is two years (4 semesters) and maximum duration to complete BS Physics (2-year) program is four years (8 semesters)

3.3. Scheme of Studies for BS Physics (2- year)

4. TOTAL CREDIT HOURS 64

	Semester 1		
PHY3512	Mathematical Methods in Physics-I	3(3+0)	MAJOR
PHY5507	Classical Mechanics-II	3(3+0)	MAJOR
PHY3516	Electronics	3(3+0)	MAJOR
PHY5503	Electromagnetic Theory-I	3(3+0)	MAJOR
PHY5504	Laboratory for Electronics	2(0+2)	MAJOR
PHY5502	Quantum Mechanics-I	3(3+0)	MAJOR
	Total	**17 Credit Hours**	
	Semester 2		
PHY5501	Mathematical Methods in Physics-II	3(3+0)	MAJOR
PHY5508	Laboratory for General Physics	2(0+2)	MAJOR
PHY6501	Electromagnetic Theory-II	3(3+0)	MAJOR
PHY5505	Computational Physics	3(3+0)	MAJOR
PHY6502	Quantum Mechanics-II	3(3+0)	MAJOR
PHY5509	Field Experience Internship	3(0+3)	INTERNSHIP
	Total	**17 Credit Hours**	
	Semester 3		
PHY6503	Solid State Physics-I	MAJOR	3(3+0)
PHY6508	Nuclear Physics	3(3,0)	MAJOR
PHY6512	Laboratory for Nuclear Physics	3(0+3)	MAJOR
PHY6513	Capstone Project	3(0+3)	PROJECT
PHY5506	Thermal & Statistical Physics	3(3+0)	MAJOR
TFSR3501	Fahm-e-Quran (Tajwid, translation and Tafsir)	NC	
	Total	**15 Credit Hours**	
	Semester 4		
PHY6516	Solid State Physics-II	3(3+0)	MAJOR
PHY6505	Digital & Computer	3(3+0)	MAJOR

	Hardware Electronics		
PHY3515	Atomic & Molecular Physics	3(3+0)	MAJOR
PHY6514	Laboratory for Solid State Physics	3(0+3)	MAJOR
PHY6515	Lasers Physics	3(3+0)	MAJOR
SERT3501	Seerat-e-Tayyaba	NC	
	Total	**15 Credit Hours**	

Total Credit Hours = 64

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 17	Rs.47600/-
Total	Rs.50550 /-

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

6.1 Medium of Instruction

The Medium of Instructions for BS Physics will be English.

6.2 Study Material

The Department will provide course books

6.3 Mode of Teaching

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

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

6.4 Assessment and Evaluation

See page vi

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

BS Physics with DATA Science Minor (Programme Code 5069)

Degree Title: BS Physics

Transcript: BS Physics (Minor in DATA Science)

Duration 4 Years (8 Semester) 150 Credit Hours

Eligibility: Inter (Pre-medical/Pre-Engineering/Computer) A-Level/DAE with Physics as a course.

Admission: Selection on Merit Bases Based on Criteria laid down by the Department and University. Departmental Admission Committee to conduct an admission test/interview.

BS Physics with DATA Science (Minor)			
Code	**Title**	**Cr.H.**	**Category**
	Semester 1		
ENGL3505	Functional English	3(3+0)	GE/ENG
PKST3502	Ideology and Constitution of Pakistan	2(2+0)	GE/PKST
MATH3502	Calculus-I	3(3+0)	GE/QR-I
URD3503	Pakistani Adab-I	2(2+0)	GE/A&H
PHY3501	Mechanics	4(3+1)	MAJOR
ITHC3501/ HADH3501	Islamic Studies or Ethics (for non-Muslim students only)	2(2+0)	GE/IST

CS6505	Computer Programming: C&C++	3(3+0)	ID
	Total	**19 Credit Hours**	
Semester 2			
MATH3509	Calculus-II	3(3+0)	GE/QR-II
ENGL3504	Expository Writing	3(3+0)	GE/ENG
PHY3505	Electricity & Magnetism	4(3+1)	MAJOR
CS3503	Application of Information and Communication Technologies	3(2+1)	GE/ICT
SOC3506	Introduction to Sociology	2(2+0)	GE/SS
SOC3503 PKST 3501	Civics and Community Engagement Pak. Studies	2(2+0) 2(2+0)	GE GE
	Total	**19 Credit Hours**	
Semester 3			
MATH3512	Linear Algebra	3(3+0)	ID
PHY3509	Waves and Oscillations	3(3+0)	MAJOR
MGT3503	Entrepreneurship	2(2+0)	GE
PHY3507	Heat and Thermodynamics	3(3+0)	MAJOR
ENVS4501	Basics of Environmental Sciences	3(2+1)	GE/ID
PHY4504	Laboratory for Thermodynamics and Waves	2(0+2)	MAJOR
PHY4505	Modern Physics-I	3(3+0)	MAJOR
Total		**19 Credit Hours**	

Semester 4			
PHY4506	Modern Physics-II	3(3+0)	MAJOR
MATH3514	Ordinary Differential Equations	3(3+0)	ID
PHY4507	Classical Mechanics-I	3(3+0)	MAJOR
STAT3503	Introduction to Probability & Probability Distribution	3(3+0)	ID
PHY4508	Laboratory for Geometrical Optics and Spectroscopy	2(0+2)	MAJOR
PHY3506	Optics	3(3+0)	MAJOR
	Total	**17 Credit Hours**	
Semester 5			
PHY3512	Mathematical Methods in Physics-I	3(3+0)	MAJOR
PHY5507	Classical Mechanics-II	3(3+0)	MAJOR
PHY3516	Electronics	3(3+0)	MAJOR
PHY5503	Electromagnetic Theory-I	3(3+0)	MAJOR
PHY5504	Laboratory for Electronics	2(0+2)	MAJOR
PHY5502	Quantum Mechanics-I	3(3+0)	MAJOR
CS 5520	Introduction to DATA Science	3(3+0)	Minor
	Total	**20 Credit Hours**	
Semester 6			
PHY5501	Mathematical Methods in Physics-II	3(3+0)	MAJOR
PHY5508	Laboratory for General Physics	2(0+2)	MAJOR
PHY6501	Electromagnetic	3(3+0)	MAJOR

	Theory-II		
PHY5505	Computational Physics	3(3+0)	MAJOR
PHY6502	Quantum Mechanics-II	3(3+0)	MAJOR
PHY5509	Field Experience Internship	3(0+3)	INTERNSHIP
CS 5501	Machine Learning	3(2+1)	Minor
	Total	**20 Credit Hours**	
Semester 7			
PHY6503	Solid State Physics-I	3(3+0)	MAJOR
PHY6508	Nuclear Physics	3(3,0)	MAJOR
PHY6512	Laboratory for Nuclear Physics	3(0+3)	MAJOR
PHY6513	Capstone Project	3(0+3)	PROJECT
PHY5506	Thermal & Statistical Physics	3(3+0)	MAJOR
CS 6513	Artificial Neural Networks and Deep Learning	3(2+1)	Minor
TFSR3501	Fahm-e-Quran (Tajwid, translation and Tafsir)	NC	
	Total	**18 Credit Hours**	
Semester 8			
PHY6516	Solid State Physics-II	3(3+0)	MAJOR
PHY6505	Digital & Computer Hardware Electronics	3(3+0)	MAJOR
PHY3515	Atomic & Molecular Physics	3(3+0)	MAJOR
PHY6514	Laboratory for Solid State Physics	3(0+3)	MAJOR
PHY6515	Lasers Physics	3(3+0)	MAJOR
CS 6514	Data Visualization	3(2+1)	Minor
SERT3501	Seerat-e-Tayyaba	NC	
	Total	**18 Credit Hours**	

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 19	Rs. 53200/-
Total	Rs.56150 /-

7 Contact Details

Chairperson
Department of Physics,
New Science Block
Allama Iqbal Open University, H-8, Islamabad.
Contact Ph: 051-9057728
Email: raza.ali@aiou.edu.pk

BS Program Coordinator
Department of Physics,
New Science Block
Allama Iqbal Open University, H-8, Islamabad.
Contact Ph: 051-9575426
Email: tariq.jan@aiou.edu.pk

8 Faculty Members

1. Dr. Syed Raza Ali Raza
Associate Professor / Chairman
Ph: 051–9575418

2. Dr. Surayya Mukhtar
Assistant Professor
Ph: 051–9575423

3. **Mr. Ather Hassan**
Assistant Professor
Ph: 051-9575425

4. **Dr. Muhammad Tariq Jan**
Assistant Professor
Ph: 051-9575426

5. **Dr. Abdul Jalil**
Assistant Professor
Ph: 051-9575424

6. **Dr. Zulfiqar Ali Shah**
Assistant Professor
Ph: 051-9575427

7. **Ms. Hareem Mufti**
Lecturer
Ph: 051-9575433

8. **Dr. Uzma Nosheen**
Lecturer
Ph: 051-9057225

9. **Dr. Tayyaba Aftab**
Lecturer
Ph: 051-9575431

DEPARTMENT OF STATISTICS

The Department was established in 1988. Initially, Computer Science and Mathematics were also its parts, then in November, 1999, Computer Science was established as an independent department. Similarly, in May, 2014, Mathematics was also announced as an independent Department. Presently the Department is offering courses at Higher Secondary School Certificate (HSSC), Bachelor, Master, MPhil and PhD levels.

BS STATISTICS (Data Science)
(Program Code 5112)

1. Introduction

With the passage of time in the new era of globalization, significant changes have been made in almost all walks of life to keep in pace with the growing world. Among many other fields, improvement in the existing education system has become the topmost priority of many nations across the globe. Therefore, it is a need for time to modify our current education system to meet international standards. Having a vision of brighter future with compatible educated youth, the Department of Statistics is launching BS Statistics program from spring 2017. The BS Statistics would be sixteen years education equivalent to MSc Statistics and fulfilling the international standards of graduate degree.

2. Objectives

- To enhance the qualification of those potential candidates who have/do not have sufficient resources to continue their studies after intermediate.

- To enable the students to get a better insight regarding in-depth knowledge of Statistics.
- To produce quality teachers/ researchers of Statistics at all levels.
- To prepare well trained and skilled graduates to cater the future needs in the field of Statistics.
- To produce young and energetic minds in the field of Statistics to promote innovative research and critical thinking.

3. BS Statistics (4-Year Program) (Programme Code 5112)

3.1 Eligibility Criteria

Candidate having HSSC or equivalent exams approved/verified by Inter Board Committee of Chairmen (IBCC).

3.2 Duration of the Programme

For the award of BS Statistics (4 years) degree, the student will have to qualify the 128 credit hours consisting of 44 courses withing a minimum period of eight semesters (4 years) and maximum period of BS Statistics (4 years)

Scheme of Studies

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

Scheme of studies BS Statistics (4 years)

Semester I

Course Title	Code		CH
1. Functional English	ENGL3505	GE	3(3+0)
2. Quantitative Reasoning-I	MATH3508	GE	3(3+0)
3. Islamic Studies/Ethics	ITHC3501/HADH3501	GE	2(2+0)
4. Introductory Statistics	STAT3501	Major	3(3+0)
5. Statistical Mathematics for Beginners	STAT 3510	Maor	3(3+0)
6. Pakistani Adab-I	URD3501	GE	2(2+0)
7. Seerat -e-Tayyab	SERT3501	GE	2(2+0)

Total Credit 16

Semester-2

1. Expository Writing	ENGL3504	Gen. Edu.	3(3+0)
2. Civic and community Engagement	SOC3503	Gen. Edu.	2(2+0)
3. Calculus-I	MATH3502	IDS	3(3+0)
4. Introduction to Probability & Probability Distributions	STAT 3508	Major	3(3+0)

5. Application of Information Communication & Technologies	CS3503	Gen. Edu.	3(2+1)
6. Ideology and Constitution of Pakistan	PKST3502	Gen. Edu.	2(2+0)
7 Fahm-e-Quran (Tajwid, Translation and Tafsir)-I	TFSR3502	Gen. Edu.	1(0+1)

Total Credit 17

Semester-3

1	Basic Statistical Inference	STAT4501	Gen.edu.	3(3+0)
2	Sampling and Sampling Distributions	STAT3507	Major	3(3+0)
3	Introduction to Regression Analysis and Experimental Designs	STAT3502	Major	3(3+0)
4	Calculus-II	MATH3509	IDS	3(3+0)
5	Pakistan Studies	PKST3501	GE	2(2+0)
6	Fahm-e-Quran (Tajwid, Translation And Tafsir)-II	TFSR4501	GE	1(0+1)
7	Entrepreneurship	MGT3503	GE	2(2+0)

Total Credit 17

Semester-4

1	Data Wrangling	STAT4510	Major	3(2+1)
2	Data Analysis and Statistical Packages	STAT6508	Major	3(2+1)
3	Non-Parametric Methods	STAT5505	Major	3(3+0)
4	Regression Analysis	STAT5507	Major	3(3+0)
5	Basics of Environmental science	ENVS4501	GE/NS	3(2+1)
6	Quantitative Reasoning-II	MATH4505	GE	3(3+0)

Credit Hours 18

Semester-5

1	Mathematical Methods	MATH4504	IDS	3(3+0)
2	Biostatistics	STAT6513	Major	3(3+0)
3	Sampling Techniques	STAT5511	Major	3(3+0)
4	Design and Analysis of Experiments	STAT5512	Major	3(3+0)
5	Probability Distributions	STAT5513	Major	3(3+0)

Credit Hours 18

Semester-6

1	Linear Algebra	MATH3512	IDS	3(3+0)
2	Statistical Inference	STAT5514	Major	3(3+0)
3	Elective I		Major	3(3+0)
4	Electives II		Major	3(3+0)
5	Internship	STAT6514	FE	3(3+0)

Credit Hours 15

Semester-7

1	Statistical Programming using R and python	STAT6516	Major	3(2+1)
2	Total Quality Management	STAT6503	Major	3(3+0)
3	Elective III		Major	3(3+0)
4	Electives IV		Major	3(3+0)
5	Capstone Project	STAT6515	Project	3(0+3)

Credit Hours 15

Semester-8

1	Applied Multivariate Analysis	STAT6506	Major	3(3+0)
2	Research Methodology	STA6509	Major	3(3+0)
3	Elective V		Major	3(3+0)
4	Electives VI		Major	3(3+0)
5	Elective VII		Major	3(3+0)

Credit Hours 15

(I) List of Elective Course for BS Statistics (Data Science) Program

1	Statistical Tools for Data Science	STAT6517	3(2+1)
2	Statistics for Deep Learning	STAT6518	3(2+1)
3	Statistical Methods for Data mining	STAT6519	3(2+1)
4	Statistical Machine learning	STAT6520	3(2+1)
5	Statistical Artificial Intelligence	STAT6521	3(2+1)
6	Big Data Analytics	STAT6537	3(2+1)
7	Digital Analytics	STAT6536	3(2+1)
8	High Dimensional Data Analysis	STAT6522	3(2+1)

Summary of Program

Total Credit Hours: 128

Minimum Duration: 8 Semester (4 Years)

Maximum Duration: 12 Semester (6 Years)

Eligibility Criteria

Higher secondary school certificate (involving 12 years of schooling) or an IBCC equivalent qualification in any group of studies is the minimum eligibility requirement for admission to the Bachelor of Science in Statistics.

Admission Procedure

The Eligible candidates will be selected for admission to the program through online process as per university policy.

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 15	Rs. 42000/-
LAB CHARGES	Rs 1100/-
Total	Rs.46050 /-

BS STATISTICS
(Program Code 5121)

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.

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

i. PhD Statistics
ii. MPhil Statistics
iii. BS Statistics (4 years)
iv. BS Statistics (Data Science) (4 years)
v. BS Data analytics ((4 years)
vi. Associate Degree in Statistics (2 years)
vii. Associate Degree in Data Analytics (2 years)
viii. BS Statistics (2 years)(AD- Based)
ix. BS Statistics (2.5 years) (BSc Based)

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.

Objectives

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

1. BS Statistics (4-Year Program) (Programme Code 5121)

a. Eligibility Criteria

Candidate having HSSC or equivalent exams approved/verified by Inter Board Committee of Chairmen (IBCC).

1.2 Duration of the Programme

For the award of BS Statistics (4 years) degree, the student will have to qualify the 128 credit hours consisting of 44 courses withing a minimum period of eight semesters (4 years).

1.3 Scheme of Studies

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

1.4 Scheme of studies BS Statistics (4 years)

Semester I

Course Title	Code		CH
8. Functional English	ENGL3505	GE	3(3+0)
9. Quantitative Reasoning-I	MATH3508	GE	3(3+0)
10. Islamic Studies/Ethics	ITHC3501/HADH3501	GE	2(2+0)
11. Introductory Statistics	STAT3501	Major	3(3+0)
12. Statistical Mathematics for Beginners	STAT 3510	Maor	3(3+0)
13. Pakistani Adab-I	URD3501	GE	2(2+0)
14. Seerat -e-Tayyab (Non Credits)	SERT3501	GE	2(2+0)

Total Credit 16

Semester-2

7. Expository Writing	ENGL3504	Gen. Edu.	3(3+0)
8. Civic and community Engagement	SOC3503	Gen. Edu.	2(2+0)
9. Calculus-I	MATH3502	IDS	3(3+0)
10. Introduction to Probability & Probability Distributions	STAT 3503	Major	3(3+0)
11. Application of Information Communication & Technologies	CS3503	Gen. Edu.	3(2+1)
12. Ideology and Constitution of Pakistan	PKST3502	Gen. Edu.	2(2+0)
7 Fahm-e-Quran (Tajwid, Translation and Tafsir)-I	TFSR3502	Gen. Edu.	1(0+1)

Total Credit 17

Semester-3

1	Basic Statistical Inference	STAT4501	Major	3(3+0)
2	Sampling and Sampling Distributions	STAT3507	Major	3(3+0)
3	Introduction to Regression Analysis and Experimental Designs	STAT3502	Major	3(3+0)
4	Calculus-II	MATH3509	IDS	3(3+0)
5	Pakistan Studies	PKST3501	GE	2(2+0)

6	Fahm-e-Quran (Tajwid, Translation And Tafsir)-II	TFSR4501	GE	1(0+1)
7	Entrepreneurship	MGT3503	GE	2(2+0)

Total Credit 17

Semester-4

1	Data Wrangling	STAT4510	Major	3(2+1)
2	Data Analysis and Statistical Packages	STAT6508	Major	3(2+1)
3	Non-Parametric Methods	STAT5505	Major	3(3+0)
4	Regression Analysis	STAT5507	Major	3(3+0)
5	Basics of Environmental science	ENVS4501	GE/NS	3(2+1)
6	Quantitative Reasoning-II	MATH4505	GE	3(3+0)

Credit Hours 18

Semester-5

1	Mathematical Methods	MATH4504	IDS	3(3+0)
2	Biostatistics	STAT6513	Major	3(3+0)
3	Sampling Techniques	STAT5511	Major	3(3+0)
4	Design and Analysis of Experiments	STAT5512	Major	3(3+0)
5	Probability Distributions	STAT5513	Major	3(3+0)

Credit Hours 15

Semester-6

1	Linear Algebra	MATH3512	IDS	3(3+0)
2	Statistical Inference	STAT5514	Major	3(3+0)
3	Elective I		Major	3(3+0)
4	Electives II		Major	3(3+0)
5	Internship	STAT6514	FE	3(3+0)

Credit Hours 15

Semester-7

1	Statistical Programming using R and python	STAT6516	Major	3(2+1)
2	Total Quality Management	STAT6503	Major	3(3+0)
3	Elective III		Major	3(3+0)
4	Electives IV		Major	3(3+0)
5	Capstone Project	STAT6515	Project	3(0+3)

Credit Hours 15

Semester-8

1	Applied Multivariate Analysis	STAT6506	Major	3(3+0)
2	Research Methodology	STAT6506	Major	3(3+0)
3	Elective V		Major	3(3+0)
4	Electives VI		Major	3(3+0)
5	Elective VII		Major	3(3+0)

Credit Hours 15

(II)List of Elective Course for BS Statistics (Data Science) Program

1	Operation Research	STAT6507	3(3+0)
2	Bayesian Statistics	STAT6512	3(3+0)
3	Econometrics	STAT6502	3(3+0)
4	Statistical Tools for Data Science	**New**	3(3+0)
5	Statistics for Deep Learning	New	3(3+0)
6	Statistical Method for Data mining	new	3(3+0)
7	Statistical Machine Learning	new	3(3+0)
8	Statistical Artificial Intelligence	new	3(3+0)

Summary of Program

Total Credit Hours:	128
Minimum Duration:	8 Semester (4 Years)
Maximum Duration:	12 Semester (6 Years)

Eligibility Criteria

Higher secondary school certificate (involving 12 years of schooling) or an IBCC equivalent qualification in any group of studies is the minimum eligibility requirement for admission to the BS Statistics.

Admission Procedure

The Eligible candidates will be offered for admission to the program through online process as per university policy.

Fee Tariff for 1st semester

Item	
Registration Fee:	Rs.650/-
Admission Fee:	Rs.1300/-
Technology Fee (per semester):	Rs.800/-
Per 1 Credit Hour Course Fee 2800x16	Rs.44800/-
Lab fee (per semester)	Rs.1100/-
Total Semester Fee	Rs.48850/-

BS Statistics (2.5 Year Program) (Programme Code 5579)

(BSc/BA Based having less than 60 Credit Hours)

Eligibility Criteria

1. Student holding a BA/BSc degree with at least 45% marks shall be eligible for admission.
2. Student with an Associate Degree having less than 60 Credit Hours shall be eligible for admission.
3. Student with a discipline-Specific Associate Degree who wish to switch to another discipline shall also be eligible for admission.

TOTAL CREDIT HOURS 78

Bridging Semester		
1. Introductory Statistics	STAT3501	3(3+0)
2. Introduction to Probability and Probability Distributions	STAT3503	3(3+0)
3. Basic Design of Experiments	STAT4503	3(3+0)
4. Introduction to Regression and Time Series Analysis	STAT3508	3(3+0)
5. Calculus-I	MATH3502	3(3+0)
6. Sampling and Sampling Distributions	STAT 4507	3(3+0)
		18 Credit Hours
Course Title	**Code**	**CH**
Semester V		
1. Sampling techniques I	STAT5502	3(3+0)
2. Design and Analysis of Experiments-I	STAT5503	3(3+0)
3. Probability & Probability Distributions-I	STAT5504	3(3+0)
4. Mathematical		

Methods	MATH4504	3(3+0)
5. Fahm-e-Quran (Tajwid, translation and Tafsir)	TFSR3501	NC
6. Computer and Scientific Application	MATH3510	3(2+1)
		15 Credit Hours

Semester VI		
1. Data analysis and Statistical Packages	STAT5510	3(0+3)
2. Probability & Probability	STAT5506	3(3+0)
	STAT5507	3(3+0)
Distributions-II	STAT5508	3(3+0)
3. Regression Analysis	SERT3501	NC
	STAT5509	3(3+0)
4. Sampling Techniques-II		
5. Seerat -E-Tayyab		
6. Design and Analysis of Experiments-II		
		15 Credit Hours
Semester VII		
1. Statistical Inference-Estimation	STAT6501	3(3+0)
	STAT6502	3(3+0)
2. Econometrics		3(3+0)
3. Elective – I		3(3+0)
4. Elective-II	STAT6514	3(0+3)
Field Experience Internship		
		15 Credit Hours

Semester VIII		
1. Statistical Inference-Testing of Hypothesis	STAT6505	3(3+0)
2. Elective-III		3(3+0)
3. Elective-IV		3(3+0)
4. Capstone Project	STAT6515	3(0+3)
5. Operation research	STAT6507	3(3+0)

			15 Credit Hours
Elective Courses			
1	Reliability	STAT 6510	3(3+0)
2	Date Mining	STAT 6511	3(3+0)
3	Bayesian Statistic	STAT 6512	3(3+0)
4	Research Methodology	STAT 6509	3(3+0)
5	Total Quality Management	STAT 6503	3(3+0)
6	Applied Multivariate Analysis	STAT 6506	3(3+0)

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

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 18	Rs.50400/-
LAB CHARGES	Rs 1100/-
Total	Rs.54450 /-

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

BS Statistics (2 Year Program) (Programme Code 5588)

Eligibility Criteria: Associate degree in the relevant field with at least 60 Credit Hours securing at least 50% marks.

Scheme of Studies

Course Title	Code	CH
Semester V		
1. Sampling	STAT5502	3(3+0)

techniques I		
2. Design and Analysis of Experiments-I	STAT5503	3(3+0)
3. Probability & Probability Distributions-I	STAT5504	3(3+0)
4. Mathematical Methods	MATH4504	3(3+0)
5. Fahm-e-Quran (Tajwid, translation and Tafsir)	TFSR3501	NC
6. Computer and Scientific Application	MATH3510	3(2+1)
		15 Credit Hours
Semester VI		
1. Data analysis and Statistical Packages	STAT5510	3(0+3)
2. Probability & Probability Distributions-II	STAT5506	3(3+0)
3. Regression Analysis	STAT5507	3(3+0)
4. Sampling Techniques-II	STAT5508	3(3+0)
5. Seerat -E-Tayyab	SERT3501	NC
6. Design and Analysis of Experiments-II	STAT5509	3(3+0)
		15 Credit Hours
Semester VII		
1. Statistical Inference-Estimation	STAT6501	3(3+0)
2. Econometrics	STAT6502	3(3+0)
3. Elective – I	STAT6514	3(3+0)
4. Elective-II		3(3+0)
5. Field Experience Internship		3(0+3)
		15 Credit Hours
Semester VIII		
1. Statistical Inference-Testing of Hypothesis	STAT6505	3(3+0) 3(3+0) 3(3+0)
2. Elective-III	STAT6515	3(0+3)
3. Elective-IV	STAT6507	3(3+0)
4. Capstone Project		
5. Operation research		
		15 Credit Hours

Elective Courses			
1	Reliability Analysis	STAT 6510	3(3+0)
2	Date Mining	STAT 6511	3(3+0)
3	Bayesian Statistic	STAT 6512	3(3+0)
4	Research Methodology	STAT 6509	3(3+0)
5	Total Quality Management	STAT 6503	3(3+0)
6	Applied Multivariate	STAT 6506	3(3+0)

	Analysis		

7. Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 15	Rs. 42000/-
LAB CHARGES	Rs 1100/-
Total	Rs.46050 /-

BS DATA ANALYTICS (4 YEAR PROGRAM) (Program Code 5111)

Bs Data Analytics Program Objectives

The Program Aims to

- Develop students' expertise in statistical and machine learning tools for data analysis.
- Equip students with skills in data management, programming, and visualization.
- Teach students to solve real-world problems using analytical tools and statistical reasoning.
- Prepare students for careers in business intelligence, healthcare analytics, financial modelling, and public policy analysis.

BS Data Analytics Program Learning Outcomes

Graduates of this program will be able to

- Collect, preprocess, and manage large datasets using computing languages and statistical software.
- Apply statistical and machine learning models to derive insights from data.
- Design effective data visualizations to communicate insights to non-technical audiences.
- Use data analytics to support decision-making in a variety of fields.
- Work effective in cross-disciplinary terms to address complex problems.

SCHEME OF STUDIES

Semester-1

Sr. No.	Course Title	Course Code	Credit Hours	Category
1	Functional English	ENG 3505	3(3+0)	GE-1
2	Quantitative Reasoning-I	MATH3508	3(3+0)	GE-2
3	Pakistan Adab-I	URD3501	2(2+0)	GE-3
4	Islamic studies	ITHC3501/HADH3501	2(2+0)	GE-4
5	Statical Mathematics for Beginners	STAT3510	3(3+0)	Major-1
6	Seerat-e-Tayyab	SERT3501	NC	
7	Introduction to Data Analytics	STAT3511	3(20+1)	Major-II
8	Seerat-e-Tayyba	3501	NC	

Credit Hours 16

Semestert-2

Sr. No.	Course Title	Course Code	Credit Hours	Category
1	Expository Writing	ENGL 3504	3(3+0)	GE-5
2	Civics and Community Engagement	SOC3503	2(2+0)	GE-6
3	Calculus-I	MATH 3502	3(3+0)	IDS-1
4	Ideology and Constitution of Pakistan	PAKST3502	2(2+0)	GE-7
5	Applications of ICT	CS3501	3(2+1)	GE-8
6	Fundamentals of Programming	STAT3512	3(3+0)	Major-3
7	Fahm ul Quran-I	TFSR3502	1(0+1)	GE-9

Credit Hours 17

Semester-3

Sr. No.	Course Title	Course Code	Credit Hours	Category
1	Fahm ul Quran-I	TFSR4501	1(0+1)	GE-10
2	Calculus-ii	MATH3509	3(3+0)	IDS-2
3	Sampling and Sampling Distributions	STAT3507	3(3+0)	Major-4
4	Entrepreneurship	MGT3503	2(2+0)	GE-11
5	Data Visualization	STAT4511	3(2+1)	Major-5
6	Pakistan Studies	PKST3501	2(2+0)	GE-12
7	Introduction of Probability and Probability Distributions	STAT3503	3(3+0)	Major-6

Credit Hours 17

Semester-4

Sr. No.	Course Title	Course Code	Credit Hours	Category
1	Regression analysis	STAT5507	3(3+0)	Major-7
2	Basic Statistical Inference	STAT4501	3(3+0)	Major-8
3	Simulation techniques in data Analytics	STAT4512	3(3+0)	Major-9
4	Quantitative Reasoning-II	MATH4502	3(3+0)	GE-13
5	Data Wrangling	STAT4510	3(2+1)	Major-10
6	Basics of Environmental sciences	ENVS4501	3(2+1)	GE-14

Total Credit Hours 18

Semester-5

Sr. No.	Course Title	Course Code	Credit Hours	Category
1	Big Data Analytics	STAT6537	3(2+1)	Major-11
2	Design and analysis of Experiments	STAT5512	3(3+0)	Major-12
3	Predictive Modelling	STAT6534	3(2+1)	Major-13
4	Statical Methods for Data Mining	STAT6519	3(2+1)	Major-14
5	Mathematical Methods	MATH4504	3(3+0)	IDS-3

Total Credit Hours 15

Semester-6

Sr. No.	Course Title	Course Code	Credit Hours	Category
1	Linear Algebra	MATH3512	3(3+0)	IDS-4
2	Computing Tools for Data Analytics	STAT5515	3(2+1)	Major-15
3	Statistical Artificial Intelligence	STAT6521	3(2+1)	Major-16
4	Analysis and Design of Algorithms	STAT5516	3(2+1)	Major-17
5	Internship	STAT6514	3(0+3)	FE

Total Credit Hours 15

Semester-7

Sr. No.	Course Title	Course Code	Credit Hours	Category
1	Time Series Analysis and Forecasting	STAT6538	3(3+0)	Major-18
2	Statistical Machine Learning	STAT6520	3(2+1)	Major-19
3	Digital Analytics	STAT6536	3(2+1)	Major-20
4	Statistical Programming Using R and Python	STAT6516	3(2+1)	Major-21
5	Capstone Project	STAT6515	3(0+3)	Project

Credit Hours 15

Semester-8

Sr. No.	Course Title	Course Code	Credit Hours	Category
1	Cloud Computing for Data Analytics	STAT6539	3(2+1)	Major-22
2	Statistics for Deep Learning	STAT6518	3(2+1)	Major-23

3	Geospatial Analyties	STAT6540	3(2+1)	Major-24
4	High Dimensional Data Analysis	STAT6522	3(2+1)	Major-25
5	Applied Multivariate Analysis	STAT6506	3(3+0)	Major-26

Credit Hours 15

Summary of the Program:

Total Credit Hours: 128
Minimum Duration: 8 Semester (4 Years)
Maximum Duration: 12 Semester (6 Years)

Eligibility Criteria:

Higher secondary school certificate (involving 12 years of schooling) or an IBCC equivalent qualification in any group of studies is the minimum eligibility requirement for admission to the Bachelor of Science in Statistics.

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 16	Rs. 44800/-
LAB CHARGES	Rs 1100/-
Total	Rs.48850 /-

Mode of Study

6.1 Medium of Instruction

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

6.2 Study Material

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

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

6.3.1 Assessment and Evaluation

a. Continuous Assessment

Classes/Workshops Schedule:

The classes/workshops will be arranged at Main Campus, AIOU, Islamabad only. However, the schedule is prepared according to the availability of qualified teaching faculty and convenience of the students.

Assessment:

See page vi

7. Guidelines for online Application

- Visit AIOU Website www.aiou.edu.pk

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

Note: Please use your own mobile no. in login so that you receive SMS from university and updates throughout 4 years.

8. Contact details

Chairman office

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

BS Program Coordinator

Dr. Muhammad Yameen Danish
Assistant Professor
Ph: 051-9575631
Email: yameen.danish@aiou.edu.pk

9. Faculty Members

1. **Prof. Dr. Irshad Ahmad Arshad**
   Chairman /Dean
   Ph: 051-9057163, 9250062
   Email: irshad.ahmad@aiou.edu.pk
2. **Dr. Zahid Iqbal**
   Associate Professor
   Ph: 051-9575617
   Email: zahid.iqbal@aiou.edu.pk
3. **Dr. Muhammad Yameen Danish**
   Assistant Professor
   Ph: 051-9575631
   Email: yameen.danish@aiou.edu.pk
4. **Mr. Mustansar Aaitazaz Amjad**
   Lecturer
   Ph: 051-9575332
   Email: mustansar.aatizaz@aiou.edu.pk
5. **Mr. Sajid Hassan Shah**
   Research Associate
   Ph: 051-9057209
   Email: sajid.shah@aiou.edu.pk
6. **Ms. Lubna Naz**
   Research Assistant
   Ph: 051-9575641
   Email: lubna.naz@aiou.edu.pk

DEPARTMENT OF NUTRITIONAL SCIENCES & ENVIRONMENTAL DESIGN

Pakistan is a developing country, and it is the need of the hour to improve standard of education in all disciplines especially in science and technology to better cope with the challenges of 21st century. The Department was first established in 1981. During last few decades the Department has developed a range of professional programs in Health and Nutrition, Environmental Design and Home Economics. Multipurpose teaching/ research labs for Environmental Design and Food and Nutrition programs have been set up to provide a comprehensive environment for imparting practical training and research at the main campus.

Health care in the whole world has changed substantially in the new millennium. New disciplines have emerged, and role of traditional health disciplines has broadened to keep pace with the changing emphasis from curative to preventive health care. The focus from curing nutritional deficiencies has shifted to searching the role of diet in the cause of chronic diseases and examining the importance of nutrients in maintaining good health. The objectives of department includes:

Aims and Objectives

1. To upgrade and update the skills & knowledge of professionals in various fields of applied sciences, engineering & architecture
2. To prepare learners for the career related disciplines considering the professional interests of individuals in the areas of Environmental Design, Engineering & Architecture, Health, Food Science, Nutrition, Dietetics, and Home Economics
3. To prepare the individuals/professionals for the development and up gradation of community & sustainable environment
4. To enable the individuals to integrate and apply knowledge and skills of Basic Sciences, Home Economics & Applied Sciences for their professional development.

The Department has produced scientific/value added and professional programs/courses in the areas of Environmental Design, Health, Food & Nutrition and Home Economics. The courses are being offered at undergraduate, postgraduate, MS and PhD level programs.

BS HUMAN NUTRITION AND DIETETICS (Programme Code 5053)

The Bachelor of Science (BS) program in Human Nutrition and Dietetics is designed to provide students with a comprehensive understanding of the science of nutrition and the role of diet in health and disease prevention. Here are some salient features of this program:

- The program offers a blend of courses in nutrition, food and health sciences and general education.
- Laboratory sessions and practical classes to develop skills in diet planning, nutritional assessment and food analysis.
- Emphasis on research methodologies and evidence-based practices in nutrition.
- Curriculum aligned with standards of relevant accrediting bodies.
- Internship opportunities in hospitals, clinics, community health centres, and food industries to gain real-world experience
- Final year capstone project to demonstrate acquired knowledge and skills

OBJECTIVES

The program objectives are:

- To equip students with a deep understanding of nutrition, food science, and dietetics
- To develop their abilities to assess nutritional needs and create effective dietary plans
- To prepare students for clinical practice in dietetics, including medical nutrition therapy, and for planning and evaluating public health nutrition programs
- To foster research skills and the application of evidence-based practices in nutrition and dietetics

Eligibility Criteria

F.Sc (Pre-medical) OR Equivalent "A" Level qualification with Biology as major subject. Foreign certificate holders will need to produce equivalence certificate from IBCC to seek admission in 4 years BS Human Nutrition and Dietetics.

Duration of the Programme

In order to be eligible for the award of BS in Human Nutrition and Dietetics, the student will have to earn a total of 138 credit hours within a minimum period of 4 years (8 semesters) failing which, a student can be given an extension of upto 2 years in maximum after completion of initial period.

Scheme of studies (BS Human Nutrition and Dietetics)

Sr. No.	Title of Course	Course Code	Course Contents	Credit Hours
1st Semester				
1	Fundamentals of Human Nutrition	EDHN 3502	APPROVED	3(3-0) Major
2	Functional English	ENGL 3505	NEW	3(3-0) General
3	Islamic studies/ Ethics	ITHC3501 HADH3501	NEW	2(2-0) General
4	Ideology and constitution of	PKST 3502		2(2-0) General

	Pakistan			
5	Quantitative reasoning	MATH 3508	NEW	3(3-0) General
6	Pakistan Adab-1	URD 3503	NEW	2(2-0) General
7	Biostatistics	STAT 3506	APPROVED	3(3-0) Interdisciplinary
			Credit Hours	**18**
2nd semester		**Course Code**	**Course Contents**	
1	Human Anatomy	EDHN 3503	APPROVED	3(2-1) Major
2	Expository writing	ENGL 3504	NEW	3(3-0) General
3	Quantitative reasoning-II	MATH 4505	NEW	3(3-0) General
4	Application of Information and Communication Technologies	CS3503	NEW	3(2-1) General
5	Civic and community engagement	SOC3503	NEW	2(2-0) General
6	Introduction to Sociology	SOC3506	NEW	2(2-0) General
7	Pak. Studies	PKST 3501		2(2-0)
			Credit Hours	**18**
3rd Semester		**Course Code**	**Course Contents**	
1	Macronutrient	EDHN	APPROVED	3(3-0)

	s in Human Nutrition	4501		Major
2	Dietetics-I	EDHN 4502	APPROVED	3(2-1) Major
3	Entrepreneurship	MGT 3503	NEW	2(2-0) General
4	Essentials of Food Science & Technology	EDHN 4503	APPROVED	3(2-1) Major
5	Basics of Environmental Sciences	ENVS 4501	APPROVED	3(2-1) Major
6	Food Toxins & Allergens	EDHN 4504	APPROVED	3(3-0) Major
			Credit Hours	**17**
4th semester		**Course Code**	**Course Contents**	
1	Food and Dairy Microbiology	BIO5527	APPROVED	3(2-1) Interdisciplinary
2	Dietetics-II	EDHN 4505	APPROVED	3(2-1) Major
3	Nutrition Through the Life Cycle	EDHN 4506	APPROVED	3(3-0) Major
4	Assessment of Nutritional Status	EDHN 4507	APPROVED	3(2-1) Major
5	Food Analysis	EDHN 4508	APPROVED	3(2-1) Major
6	Micronutrients in Human Nutrition	EDHN 4509	APPROVED	3(3-0) Major

			Credit Hours	**18**
5th semester		**Course Code**	**Course Contents**	
1	Physiology-I	EDHN 5501	APPROVED	3(2-1) Major
2	Nutrition and Psychology	EDHN 5502	APPROVED	3(3-0) Major
3	Nutritional Education and Awareness	EDHN 5503	APPROVED	3(2-1) Major
4	Dietetics-III	EDHN 5504	APPROVED	3(2-1) Major
5	Public Health Nutrition	EDHN 5505	APPROVED	3(2-1) Major
6	Food and Drug Laws	EDHN 5506	APPROVED	2(2-0) Major
7	Fahm-e-Quran (tajwid, translation and tafseer)	TFSR 3501	NEW	Non-credit course
			Credit Hours	**17**
6th semester		**Course Code**	**Course Contents**	
1	Physiology-II	EDHN 5507	APPROVED	3(2-1) Major
2	Functional Foods and Nutraceuticals	EDHN 5508	APPROVED	3(3-0) Major
3	Drug-Nutrient Interactions	EDHN 5509	APPROVED	2(2-0) Major
4	Sports Nutrition	EDHN 5510	APPROVED	3(2-1) Major
5	Infant and Young Child Feeding	EDHN 5511		3(2-1) Major
6	Meal Planning and Management	EDHN 5512	APPROVED	3(2-1) Major
7	Seerat-e-Tayyaba	SERT 3501	NEW	Non-credit course
			Credit Hours	**17**
7th semester		**Course Code**	**Course Contents**	
1	Nutritional Biochemistry	BIO5531	APPROVED	3(2-1) Interdisciplinary
2	Global Food Issues	EDHN 6501	APPROVED	3(3-0) Major
3	General Pathology	EDHN 6502	APPROVED	3(3-0) Major
4	Nutritional Practices in Clinical Care	EDHN 6503	APPROVED	3(2-1) Major
5	Epidemiology	BIO6527	APPROVED	3(2-1) Interdisciplinary
6	Internship	EDHN6504		3(0-3)
			Credit Hours	**18**
8th semester		**Course Code**	**Course Contents**	
1	Research Methods	EDHN 6505	APPROVED	3(3-0) Major
2	Nutrition Through	EDHN 6506	APPROVED	3(3-0) Major

	Social Protection			
3	Nutrition in Emergencies	EDHN 6507	APPROVED	3(3-0) Major
4	Nutrition policies and programs	EDHN 6508	APPROVED	3(3-0) Major
5	Capstone project	EDHN 6509		3(0-3)
			Credit Hours	**15**

Total credit hours: 138

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 18	Rs.50400 /-
LAB CHARGES	Rs4200/-
Total	Rs. 57550/-

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

Mode of Study:

i. **Medium of Instruction**

The Medium of Instructions for BS Human Nutrition and Dietetics will be English.

ii. Study Material

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

iii. Mode of Teaching

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

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

2.5 years BS Human Nutrition and Dietetics

Program code: 5582

Students with B.Sc. or Associate degree in Human Nutrition and Dietetics with less than 60 credit hours will be offered bridging semester which will fulfill their credit hours deficiency, after which they will be inducted to 5th semester of BS program. The scheme of studies of bridging semester and other 4 semesters are attached below.

Bridging semester		**Course Code**	**Course Contents**	
1	Food and Dairy Microbiology	BIO5527	APPROVED	3(2-1) Interdisciplinary
2	Dietetics-II	EDHN 4505	APPROVED	3(2-1) Major
3	Nutrition Through the Life Cycle	EDHN 4506	APPROVED	3(3-0) Major
4	Assessment of Nutritional Status	EDHN 4507	APPROVED	3(2-1) Major
5	Food Analysis	EDHN	APPROVED	3(2-1)

		4508		Major
6	Micronutrients in Human Nutrition	EDHN 4509	APPROVED	3(3-0) Major
			Credit Hours	**18**

5th semester		**Course Code**	**Course Contents**	
1	Physiology-I	EDHN 5501	APPROVED	3(2-1) Major
2	Nutrition and Psychology	EDHN 5502	APPROVED	3(3-0) Major
3	Nutritional Education and Awareness	EDHN 5503	APPROVED	3(2-1) Major
4	Dietetics-III	EDHN 5504	APPROVED	3(2-1) Major
5	Public Health Nutrition	EDHN 5505	APPROVED	3(2-1) Major
6	Food and Drug Laws	EDHN 5506	APPROVED	2(2-0) Major
7	Fahm-e-Quran (tajwid, translation and tafseer)	TFSR 3501	NEW	Non-credit course
			Credit hours	17

6th semester		**Course Code**	**Course Contents**	
1	Physiology-II	EDHN 5507	APPROVED	3(2-1) Major
2	Functional Foods and Nutraceuticals	EDHN 5508	APPROVED	3(3-0) Major
3	Drug-Nutrient Interactions	EDHN 5509	APPROVED	2(2-0) Major
4	Sports Nutrition	EDHN 5510	APPROVED	3(2-1) Major
5	Infant and Young Child Feeding	EDHN 5511	APPROVED	3(2-1) Major
6	Meal Planning and Management	EDHN 5512	APPROVED	3(2-1) Major
7	Seerat-e-Tayyaba	SERT 3501	NEW	Non-credit course
			Credit Hours	**17**

7th semester		**Course Code**	**Course Contents**	
1	Nutritional Biochemistry	BIO5531	APPROVED	3(2-1) Interdisciplinary
2	Global Food Issues	EDHN 6501	APPROVED	3(3-0) Major
3	General Pathology	EDHN 6502	APPROVED	3(3-0) Major
4	Nutritional Practices in Clinical Care	EDHN 6503	APPROVED	3(2-1) Major
5	Epidemiology	BIO6527	APPROVED	3(2-1) Interdisci

				plinary
6	Internship	EDHN6504		3(0-3)
			Credit Hours	**18**
8th semester		**Course Code**	**Course Contents**	
1	Research Methods	EDHN 6505	APPROVED	3(3-0) Major
2	Nutrition Through Social Protection	EDHN 6506	APPROVED	3(3-0) Major
3	Nutrition in Emergencies	EDHN 6507	APPROVED	3(3-0) Major
4	Nutrition policies and programs	EDHN 6508	APPROVED	3(3-0) Major
5	Capstone project	EDHN 6509		3(0-3)
			Credit Hours	**15**

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 18	Rs.50400 /-
LAB CHARGES	Rs4200/-
Total	Rs. 57550/-

Contact Details

Chairperson
Department of NS&ED,
Block no 06
Allama Iqbal Open University, H-8, Islamabad.
Contact Ph: 051-9575500

BS Programme Coordinator
Department of NS&ED,
Block no 06
Allama Iqbal Open University, H-8, Islamabad.
Contact Ph: 051-9575581

DEPARTMENT OF COMPUTER SCIENCE

The Department of Computer Science (DCS) was established in 2000 and has earned nationwide recognition for its commitment to quality education, research, and innovation. The department offers academic programs at various levels, including PhD in Computer Science, MS in Computer Science, BS in Computer Science, Postgraduate Diploma (PGD) in Computer Science, PGD in Cybersecurity, and PGD in Data Science. These programs are designed in accordance with national and international standards prescribed by the Higher Education Commission (HEC) and relevant accreditation bodies, while addressing emerging industry requirements.

The department is equipped with modern computing facilities, including digital classrooms, multimedia courseware development laboratories, and a dedicated

departmental library in addition to the University's central library. It adopts a flexible and technology-enhanced teaching approach, offering face-to-face instruction for BS and MS programs, while utilizing online and blended learning methodologies for PGD programs and other specialized courses. Video conferencing and teleconferencing facilities are also used to support teaching, supervision, and consultation in research-oriented programs.

In addition to its academic programs, the department actively promotes research and development. To support these activities, the Multimedia Centre and the Open Learning Institute of Virtual Education (OLIVE) operate under the department's umbrella. The Multimedia Centre develops high-quality digital learning resources and multimedia courseware, while OLIVE provides the technological framework for the online delivery of academic programs and courses.

The department's research interests span software engineering, computer networks, multimedia systems, e-learning technologies, instructional design, web-based education, mobile learning, course management systems, e-assessment, and technology-enhanced learning environments. Through these initiatives, the department contributes to the advancement of computing education and information technology in Pakistan.

The University has also established academic and research collaborations with international institutions, including San José State University (USA) and Kent State University (USA), facilitating knowledge exchange, research cooperation, and academic development.

Objectives of the Department

The principal aim of the Department of Computer Science is to produce competent graduates, advance quality research, and contribute to the development of computing and information technology. The department seeks to:

1. Maintain academic excellence and professional accreditation of its degree programs.
2. Promote awareness of current and emerging trends in Computer Science, Information Technology, and digital learning technologies.
3. Equip students with the knowledge, skills, and professional competencies required to address contemporary social, economic, scientific, and technological challenges.
4. Develop innovative platforms and systems for technology-enhanced and distance learning to

expand educational access, particularly in remote and underserved areas.

5. Conduct high-quality research in Computer Science, Information Technology, Software Engineering, e-learning, multimedia systems, and related disciplines.
6. Support other academic units in the effective adoption and integration of modern ICT technologies in teaching and learning.
7. Provide leadership and contribute to the advancement of ICT-enabled education and digital transformation initiatives in Pakistan.

BS Computer Science
(Programme Code 5117)

Program Features:

1. The BSCS is a 130 credit hours program and may be completed in minimum four years (eight semesters).
2. Two semesters are offered in a year, Spring and Autumn.
3. The duration of each semester is 18 weeks.
4. The program is in-line with HEC.

Mode of Teaching:

The program is offered in Face-to-Face Mode.

Merit/non-merit:

The BSCS program is a non-merit-based program.

Assessment Criteria:

For Theory Courses:

Continuous (Pass percentage is 50%)		Final (Pass percentage is 50%)
Assignment	**Midterm**	
20%	30%	50%

For Lab Courses:

Continuous (Pass percentage is 50%)			Final (Pass percentage is 50%)
Assignment	**Midterm**	**Lab Practical**	
20%	15%	15%	50%

The 70% percent attendance is mandatory in each course.

Eligibility:

Minimum 50% marks in Intermediate/12 years schooling/A- Level (HSSC) or Equivalent with Mathematics are required for admission in BSCS with Specialization. An equivalence certificate by IBCC will be required in case of education from some other country or system. The students who have not studied Mathematics at intermediate level have to pass deficiency courses of Mathematics (non-credit) in the first two semesters.

Scheme of Study:

Code	Course Title	Domain	Credit Hours		
Theory				**Lab**	**Total**
CS3504	Computer Programming	Core	3	1	4
CS3503	Applications of Information & Communication Technologies	GER	2	1	3
MATH3516	Discrete Mathematics	GER	3	0	3
ENGL3505	Functional English	GER	3	0	3
MATH3502	Calculus-I (IDS I)	IDS	3	0	3
MGT3504	Introduction to Management	GER	2	0	2
			16	**2**	**18**
Code	**Semester 2**	**Domain**	**Theory**	**Lab**	**Total**
CS3506	Object Oriented Programming	Core	3	1	4
MATH3512	Linear Algebra (IDS II)	IDS	3	0	3
CS3509	Digital Logic Design	Core	3	1	4
MATH3509	Calculus-II	GER	3	0	3
URD3503	Pakistani Adab-1	GER	2	0	2
TFSR3502	Fehm e Quran I	GER	1	0	1
PKST3501	Pakistan Studies	GER	2	0	2
			17	**2**	**19**
Code	**Semester 3**	**Domain**	**Theory**	**Lab**	**Total**
CS4521	Data Structures and Algorithms	Core	3	1	4
CS4523	Artificial Intelligence	Core	2	1	3
CS4524	Computer Networks	Core	2	1	3
CS4525	Software Engineering	Core	3	0	3
SOC3503	Civics and Community Engagement	GER	2	0	2
TFSR4501	Fehm e Quran II	GER	1	0	1
ENVS4501	Basics of Environmental Science	GER	2	1	3
15				**4**	**19**
Code	**Semester 4**	**Domain**	**Theory**	**Lab**	**Total**
CS4542	Computer Organization & Architecture	Core	3	1	4
ITHD3501/ HADH3501	Islamic Studies/Ethics	GER	2	0	2
CS4527	Theory of Automata	Core	3	0	3
PKST3502	Ideology and Constitution of Pakistan	GER	2	0	2
ENGL3504	Expository Writing	GER	3	0	3
MGT3503	Entrepreneurship	GER	2	0	2
CS5502	Operating Systems	Core	2	1	3
17				**2**	**19**

Code	Semester 5	Domain	Theory	Lab	Total
CS3507	Database Systems	Core	3	1	4
	Domain Elective 1	Elective	-	-	3
PHY4509	Applied Physics (IDS III)	IDS	2	1	3
STAT4509	Statistics and Probability (IDS IV)	IDS	3	0	3
CS6507	Internship/Field Experience		0	3	3
10				**6**	**16**
Code	**Semester 6**	**Domain**	**Theory**	**Lab**	**Total**
CS4522	Information Security	Core	2	1	3
	Domain Elective 2	Elective	-	-	3
	Domain Elective 3	Elective	-	-	3
	Domain Elective 4	Elective	-	-	3
SERT3501	Seerat-e-Tayyaba		Non-Credit		
8				**4**	**12**
Code	**Semester 7**	**Domain**	**Theory**	**Lab**	**Total**
CS5515	Cloud Computing	Core	2	1	3
	Domain Elective 5	Elective	-	-	3
	Domain Elective 6	Elective	-	-	3
CS6525	Mobile Application Development	Core	2	1	3
CS6501	Final Year Project – I		0	2	2
8				**6**	**14**
Code	**Semester 8**	**Domain**	**Theory**	**Lab**	**Total**
CS6504	Final Year Project – II		0	4	4
CS6502	Analysis and Design of Algorithm	Core	3	0	3
	Domain Elective 7	Elective	-	-	3
	Domain Elective 8	Elective	-	-	3
7				**6**	**13**
130					

Specializations:

i. Software Engineering

Sr. No.	Code	Course Title	Credi Hour
1.	CS5529	Software Requirement Engineering	3(2+1)
2.	CS5528	Software Construction and Development	3(2+1)
3.	CS5532	Software Re-Engineering	3(2+1
4.	CS5533	Software Quality and Testing	3(2+1
5.	CS5534	DevOps Principles and Practices	3(2+1)
6.	CS6524	Software Project Management	3(2+1)
7.	CS5531	Software Design and Architecture	3(2+1)
8.	CS5535	Formal Methods and Design	3(3+0)
9.	CS5506	Parallel and Distributed Computing	3(2+1)
10.	CS6526	Advanced Topics in Software Engineering	3(2+1)
11.	CS6512	Human Computer Interaction	3(2+1)

12.	CS5501	Machine Learning	3(2+1)
13.	CS6527	Internet of Things and Its Applications	3(2+1)
14.	CS6528	Green Software Engineering	3(3+0)
15.	CS6529	Cross-platform Application Developmen	3(3+0)

Data Science

Sr. No.	Code	Course Title	Credit Hour
1.	CS4538	Introduction to Data Science	3(2+1)
2.	CS5536	Computational Statistics	3(3+0)
3.	CS5537	Data Engineering	3(3+0)
4.	CS5521	Big Data Analytics	3(2+1)
5.	CS4516	Data Mining	3(2+1)
6.	CS5538	Information Retrieval	3(2+1)
7.	CS6514	Data Visualization	3(2+1)
8.	CS5539	Business Intelligence	3(3+0)
9.	CS5501	Machine Learning	3(2+1)
10.	CS6530	Tools & Techniques in Data Scienc	3(2+1)
11.	CS6531	Deep Learning	3(2+1)
12.	CS6532	Generative AI	3(2+1)
13.	CS6521	Natural Language Processing	3(2+1)
14.	CS6516	Computer Vision	3(2+1)
15.	CS6533	Data Ethics & Security	3(2+1)

iii. Artificial Intelligence

Sr. No.	Code	Course Title	Credit Hours
1.	CS4540	Programming for AI	3(2+1)
2.	CS5522	Knowledge Representation and Reasoning	3(2+1)
3.	CS5501	Machine Learning	3(2+1)
4.	CS4516	Data Mining	3(2+1)
5.	CS6531	Deep Learning	3(2+1)
6.	CS6519	Reinforcement Learning	3(2+1)
7.	CS6516	Computer Vision	3(2+1)
8.	CS6521	Natural Language Processing	3(2+1)
9.	CS6532	Generative AI	3(3+0)
10.	CS5540	Agentic AI	3(3+0)
11.	CS5541	Optimization Techniques	3(3+0)
12.	CS6534	Stochastic Processes	3(3+0)
13.	CS6535	Machine Learning Operations (MLOps)	3(3+0)
14.	CS6536	Speech Processing	3(3+0)
15.	CS6537	Evolutionary Computing & Swarm Intelligence	3(3+0)

iv. Cyber Security

Sr. No.	Code	Course Title	Credit Hours
	CS4541	Information Assurance	3(2+1)
2.	CS6509	Network Security	3(2+1)
3.	CS5542	Ethics in Cyber Security	3(2+1)
4.	CS5523	Secure Software Design and Development	3(2+1)
5.	CS5543	Cloud Security	3(2+1)
6.	CS5544	Embedded Systems Security	3(2+1)
7.	CS5545	Applied Cryptography	3(2+1)
8.	CS5546	Quantum Security	3(2+1)

9.	CS5547	Blockchain and Web 3 Security	3(2+1)
10	CS5548	Cyber Threat Intelligence	3(2+1)
11	CS5549	Open-Source Intelligence Techniques	3(2+1)
12	CS5550	Artificial Intelligence for Cyber Security	3(2+1)
13	CS5551	Digital Forensics and Incident Response	3(2+1)
14	CS6538	Vulnerability Assessment and Penetration Testing	3(2+1)
15	CS6539	Malware Analysis and Reverse Engineering	3(2+1)
16	CS6540	IoT Security	3(2+1)
17	CS5527	Wireless and Mobile Security	3(2+1)
18	CS6541	Security Orchestration, Automation and Response	3(2+1)
19	CS6542	Security Analytics and DevSecOps	3(2+1)
20	CS6543	Cyber Security Policy and Governance	3(3+0)
21	CS6544	Usable Security and Privacy	3(2+1)

v. Information Technology

Sr. No.	Code	Course Title	Credit Hours
1.	CS5552	Data Communication	3(2+1)
2.	CS5553	Wireless and Mobile Networks	3(2+1)
3.	CS5512	Cyber Security	3(2+1)
4.	CS6509	Network Security	3(2+1)
5.	CS5554	Ethical Hacking and Penetration Testing	3(2+1)
6.	CS6545	Security Policies and Compliance	3(3+0)
7.	CS5519	System & Network Administration	3(2+1)
8.	CS6546	Email Systems and Server	3(2+1)
		Management	
9.	CS6508	Information Technology Infrastructure	3(2+1)
10.	CS6547	Cloud Infrastructure and Services	3(2+1)
11.	CS5518	Database Administration & Management	3(2+1)
12.	CS5507	Web Technologies	3(2+1)
13.	CS6548	Technology Lifecycle Planning	3(3+0)
14.	CS6549	IT Project Management	3(3+0)
15.	CS6550	Systems Analysis and Design	3(3+0)

Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 18	Rs.50400 /-
LAB CHARGES	Rs7000/-
Total	Rs. 60350/-

FACULTY MEMBERS:

Contact Addresses (Academics):

a) **Dr. Saleem Iqbal**
Chairman
Ph: 051-9575350
Email: saleem.iqbal@aiou.edu.pk

b) **Dr. Aftab Khan**
Associate Professor
Ph: 051-9575361
Email: aftab.khan@aiou.edu.pk

c) **Dr. Moiz Uddin Ahmed Siddiqui**
Assistant Professor, Coordinator PhD (CS) Program
Ph: 051-9575376
Email: moiz.ahmed@aiou.edu.pk

d) **Mr. Muhammad Qasim Khan**
Assistant Professor, Coordinator BS Cybersecurity & PGD (CS/DS/ Cybersecurity) Program
Ph: 051-9575373
Email: qasim@aiou.edu.pk

e) **Dr. Muhammad Arshad Awan**
Assistant Professor, Coordinator MS (CS) Program
Ph: 051-9575375
Email: arshad.awan@aiou.edu.pk

f) **Mr. Tahir Javed**
Lecturer, Coordinator BS (CS) & BS (IT) Programs
Ph: 051-9575383
Email: tahir@aiou.edu.pk

g) **Ch. Muhammad Shahbaz Anjum**
Lecturer, Coordinator
Ph: 051-9575382
Email: shahbaz.anjum@aiou.edu.pk

h) **Mr. Basit Ismail**
Lecturer, Coordinator BS (CS) ODL & BS (DS)
Ph: 051-9575381
Email: basit.ismail@aiou.edu.pk

i) **Ms. Kashia Riaz**
Lecturer, Coordinator BS (SE) & BS (AI)
Ph: 051-9575385
Email: kashia.riaz@aiou.edu.pk

j) **Ms. Yusra Rehmat**
Research Assistant
Ph: 051-9575391
Email: yusra.rehmat@aiou.edu.pk

BS Computer Science (WDC)
(Programme Code 5118)

Program Features:

1. The BSCS is a 130 credit hours program and may be completed in minimum four years (eight semesters).
2. Two semesters are offered in a year, Spring and Autumn.
3. The duration of each semester is 18 weeks.
4. The program is in-line with HEC.

Mode of Teaching:

The program is offered in Face-to-Face Mode.

Merit/non-merit:

The BSCS program is a non-merit-based program.

Assessment Criteria:

For Theory Courses:

Continuous (Pass percentage is 50%)		Final (Pass percentage is 50%)
Assignment	**Midterm**	
20%	30%	50%

For Lab Courses:

Continuous (Pass percentage is 50%)			Final (Pass percentage is 50%)
Assignment	**Midterm**	**Lab Practical**	
20%	15%	15%	50%

The 70% percent attendance is mandatory in each course.

Eligibility:

Minimum 50% marks in Intermediate/12 years schooling/A- Level (HSSC) or Equivalent with Mathematics are required for admission in BSCS with Specialization. An equivalence certificate by IBCC will be required in case of education from some other country or system. The students who have not studied Mathematics at intermediate level have to pass deficiency courses of Mathematics (non-credit) in the first two semesters.

Scheme of Study:

S#	Code	Course Title	Domain	Credit Hours		
Semester 1				**Theory**	**Lab**	**Total**
1.	CS3504	Computer Programming	Core	3	1	4
2.	CS3503	Applications of Information & Communication Technologies	GER	2	1	3
3.	MATH3516	Discrete Mathematics	GER	3	0	3
4.	ENGL3505	Functional English	GER	3	0	3
5.	MATH3502	Calculus-I (IDS I)	IDS	3	0	3
6.	MGT3504	Introduction to Management	GER	2	0	2
7.	MATH3517	Pre-Calculus-I	Def. Course	Non-Credit		
			Total	**16**	**2**	**18**
S#	**Code**	**Semester 2**	**Domain**	**Theory**	**Lab**	**Total**
1.	CS3506	Object Oriented Programming	Core	3	1	4
2.	MATH3512	Linear Algebra (IDS II)	IDS	3	0	3
3.	CS3509	Digital Logic Design	Core	3	1	4
4.	MATH3509	Calculus-II	GER	3	0	3
5.	MATH3518	Pre-Calculus-II	IDS	Non-Credit		
6.	URD3503	Pakistani Adab-	GER	2		2

					0	
7.	TFSR3502	Fehm e Quran I	GER	1	0	1
8.	PKST3501	Pakistan Studies	GER	2	0	2
			Total	**17**	**2**	**19**
S#	**Code**	**Semester 3**	**Domain**	**Theory**	**Lab**	**Total**
1.	CS4521	Data Structures and Algorithms	Core	3	1	4
2.	CS4523	Artificial Intelligence	Core	2	1	3
3.	CS4524	Computer Networks	Core	2	1	3
4.	CS4525	Software Engineering	Core	3	0	3
5.	SOC3503	Civics and Community Engagement	GER	2	0	2
6.	TFSR4501	Fehm e Quran II	GER	1	0	1
7.	ENVS4501	Basics of Environmental Science	GER	2	1	3
			Total	**15**	**4**	**19**
S#	**Code**	**Semester 4**	**Domain**	**Theory**	**Lab**	**Total**
1.	CS4542	Computer Organization & Architecture	Core	3	1	4
2.	ITHD3501/ HADH3501	Islamic Studies/Ethics	GER	2	0	2
3.	CS4527	Theory of Automata	Core	3	0	3
4.	PKST3502	Ideology and Constitution of Pakistan	GER	2	0	2
5.	ENGL3504	Expository Writing	GER	3	0	3
6.	MGT3503	Entrepreneurshi	GER	2	0	2
7.	CS5502	Operating Systems	Core	2	1	3
			Total	**17**	**2**	**19**
S#	**Code**	**Semester 5**	**Domain**	**Theory**	**Lab**	**Total**
1.	CS3507	Database Systems	Core	3	1	4
2.		Domain Elective 1	Elective	-	-	3
3.	PHY4509	Applied Physics (IDS III)	IDS	2	1	3
4.	STAT4509	Statistics and Probability (IDS IV)	IDS	3	0	3
5.	CS6507	Internship/Field Experience		0	3	3
			Total	**10**	**6**	**16**
S#	**Code**	**Semester 6**	**Domain**	**Theory**	**Lab**	**Total**
1.	CS4522	Information Security	Core	2	1	3
2.		Domain Elective 2	Elective	-	-	3
3.		Domain Elective 3	Elective	-	-	3

4.		Domain Elective 4	Elective	-	-	3
5.	SERT3501	Seerat-e-Tayyaba		Non-Credit		
			Total	**8**	**4**	**12**
S#	**Code**	**Semester 7**	**Domain**	**Theory**	**Lab**	**Total**
1.	CS5515	Cloud Computing	Core	2	1	3
2.		Domain Elective 5	Elective	-	-	3
3.		Domain Elective 6	Elective	-	-	3
4.	CS6525	Mobile Application Development	Core	2	1	3
5.	CS6501	Final Year Project – I		0	2	2
			Total	**8**	**6**	**14**
S#	**Code**	**Semester 8**	**Domain**	**Theory**	**Lab**	**Total**
1.	CS6504	Final Year Project – II		0	4	4
2.	CS6502	Analysis and Design of Algorithm	Core	3	0	3
3.		Domain Elective 7	Elective	-	-	3
4.		Domain Elective 8	Elective	-	-	3
			Total	**7**	**6**	**13**
			Grand Total	**130**		

Specializations:

ii. Software Engineering

Sr. No.	Code	Course Title	Credi Hour
1.	CS5529	Software Requirement Engineering	3(2+1)
3.	CS5528	Software Construction and Development	3(2+1)
4.	CS5532	Software Re-Engineering	3(2+1
5.	CS5533	Software Quality and Testing	3(2+1
6.	CS5534	DevOps Principles and Practices	3(2+1)
7.	CS6524	Software Project Management	3(2+1)
7.	CS5531	Software Design and Architecture	3(2+1)
9.	CS5535	Formal Methods and Design	3(3+0)
10.	CS5506	Parallel and Distributed Computing	3(2+1)
11.	CS6526	Advanced Topics in Software Engineering	3(2+1)
12.	CS6512	Human Computer Interaction	3(2+1)
13.	CS5501	Machine Learning	3(2+1)
14.	CS6527	Internet of Things and Its Applications	3(2+1)
15.	CS6528	Green Software Engineering	3(3+0)
16.	CS6529	Cross-platform Application Developmen	3(3+0)

ii. Data Science

Sr. No.	Code	Course Title	Credit Hours
1.	CS4538	Introduction to Data Science	3(2+1)

2.	CS5536	Computational Statistics	3(3+0)
3.	CS5537	Data Engineering	3(3+0)
4.	CS5521	Big Data Analytics	3(2+1)
5.	CS4516	Data Mining	3(2+1)
6.	CS5538	Information Retrieval	3(2+1)
7.	CS6514	Data Visualization	3(2+1)
8.	CS5539	Business Intelligence	3(3+0)
9.	CS5501	Machine Learning	3(2+1)
10.	CS6530	Tools & Techniques in Data Science	3(2+1)
11.	CS6531	Deep Learning	3(2+1)
12.	CS6532	Generative AI	3(2+1)
13.	CS6521	Natural Language Processing	3(2+1)
14.	CS6516	Computer Vision	3(2+1)
15.	CS6533	Data Ethics & Security	3(2+1)

iv. Artificial Intelligence

Sr. No.	Code	Course Title	Credit Hours
1.	CS4540	Programming for AI	3(2+1)
2.	CS5522	Knowledge Representation and Reasoning	3(2+1)
3.	CS5501	Machine Learning	3(2+1)
4.	CS4516	Data Mining	3(2+1)
5.	CS6531	Deep Learning	3(2+1)
6.	CS6519	Reinforcement Learning	3(2+1)
7.	CS6516	Computer Vision	3(2+1)
8.	CS6521	Natural Language Processing	3(2+1)
9.	CS6532	Generative AI	3(3+0)
10.	CS5540	Agentic AI	3(3+0)
11.	CS5541	Optimization Techniques	3(3+0)
12.	CS6534	Stochastic Processes	3(3+0)
13.	CS6535	Machine Learning Operations (MLOps)	3(3+0)
14.	CS6536	Speech Processing	3(3+0)
15.	CS6537	Evolutionary Computing & Swarm Intelligence	3(3+0)

v. Cyber Security

Sr. No.	Code	Course Title	Credit Hours
	CS4541	Information Assurance	3(2+1)
	CS6509	Network Security	3(2+1)
	CS5542	Ethics in Cyber Security	3(2+1)
	CS5523	Secure Software Design and Development	3(2+1)
	CS5543	Cloud Security	3(2+1)
	CS5544	Embedded Systems Security	3(2+1)
	CS5545	Applied Cryptography	3(2+1)
	CS5546	Quantum Security	3(2+1)
	CS5547	Blockchain and Web 3 Security	3(2+1)
	CS5548	Cyber Threat Intelligence	3(2+1)
	CS5549	Open-Source Intelligence Techniques	3(2+1)
	CS5550	Artificial Intelligence for Cyber Security	3(2+1)
	CS5551	Digital Forensics and Incident Response	3(2+1)
	CS6538	Vulnerability Assessment and Penetration Testing	3(2+1)
	CS6539	Malware Analysis and Reverse Engineering	3(2+1)

	CS6540	IoT Security	3(2+1)
	CS5527	Wireless and Mobile Security	3(2+1)
	CS6541	Security Orchestration, Automation and Response	3(2+1)
	CS6542	Security Analytics and DevSecOps	3(2+1)
	CS6543	Cyber Security Policy and Governance	3(3+0)
	CS6544	Usable Security and Privacy	3(2+1)

vi. Information Technology

Sr. No.	Code	Course Title	Credit Hours
1.	CS5552	Data Communication	3(2+1)
2.	CS5553	Wireless and Mobile Networks	3(2+1)
3.	CS5512	Cyber Security	3(2+1)
4.	CS6509	Network Security	3(2+1)
5.	CS5554	Ethical Hacking and Penetration Testing	3(2+1)
6.	CS6545	Security Policies and Compliance	3(3+0)
7.	CS5519	System & Network Administration	3(2+1)
8.	CS6546	Email Systems and Server Management	3(2+1)
9.	CS6508	Information Technology Infrastructur	3(2+1)
10.	CS6547	Cloud Infrastructure and Services	3(2+1)
11.	CS5518	Database Administration & Management	3(2+1)
12.	CS5507	Web Technologies	3(2+1)
13.	CS6548	Technology Lifecycle Planning	3(3+0)
14.	CS6549	IT Project Management	3(3+0)
15.	CS6550	Systems Analysis and Design	3(3+0)

2. Fee Tariff

Item	Rates
Registration Fee (Once at time of admission)	Rs.700/-
Admission Fee (Once at time of admission)	Rs.1400/-
Technology Fee	Rs.850/-
Per 1 Credit course 2800 x 18	Rs.50400 /-
LAB CHARGES	Rs7000/-
Total	Rs. 60350/-

3. FACULTY MEMBERS:

Contact Addresses (Academics):

a) Dr. Saleem Iqbal
Chairman
Ph: 051-9575350
Email: saleem.iqbal@aiou.edu.pk

b) Dr. Aftab Khan
Associate Professor
Ph: 051-9575361
Email: aftab.khan@aiou.edu.pk

c) Dr. Moiz Uddin Ahmed Siddiqui
Assistant Professor, Coordinator PhD (CS) Program
Ph: 051-9575376

Email: moiz.ahmed@aiou.edu.pk

d) **Mr. Muhammad Qasim Khan**
Assistant Professor, Coordinator BS Cybersecurity & PGD (CS/DS/ Cybersecurity) Program
Ph: 051-9575373
Email: qasim@aiou.edu.pk

e) **Dr. Muhammad Arshad Awan**
Assistant Professor, Coordinator MS (CS) Program
Ph: 051-9575375
Email: arshad.awan@aiou.edu.pk

f) **Mr. Tahir Javed**
Lecturer, Coordinator BS (CS) & BS (IT) Programs
Ph: 051-9575383
Email: tahir@aiou.edu.pk

g) **Ch. Muhammad Shahbaz Anjum**
Lecturer, Coordinator
Ph: 051-9575382
Email: shahbaz.anjum@aiou.edu.pk

h) **Mr. Basit Ismail**
Lecturer, Coordinator BS (CS) ODL & BS (DS)
Ph: 051-9575381
Email: basit.ismail@aiou.edu.pk

i) **Ms. Kashia Riaz**
Lecturer, Coordinator BS (SE) & BS (AI)
Ph: 051-9575385
Email: kashia.riaz@aiou.edu.pk

j) **Ms. Yusra Rehmat**
Research Assistant
Ph: 051-9575391
Email: yusra.rehmat@aiou.edu.pk

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 later renamed as Distance, Non Formal and Continuing Education This department offers PhD, MPhil, Masters and specialized courses in B.Ed 1.5 program. The department also offers certificate courses in literacy and non-formal education.

Educational Planning, Policy Studies and Leadership (EPPSL)

The department was established in 1976 was renamed as EPPSL in 2008. It offers programs in educational planning management and leadership. These programs are aimed at producing a managerial cadre of professionals for the educational institutions and organizations in the country. Programs of EPPSL include B.Ed, Postgraduate Diploma, MA (EPM), MPhil and PhD in Educational Planning and Management as well as online courses. The courses of these programs are in accordance with the field requirements of target personnel in the areas of educational planning, management and leadership.

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 programs aim at imparting academic and professional knowledge and training to in-services and pre service teachers and scholars.

The programs/courses of this department comprise MA, MEd BEd (4 years) and BS Instructional Design and Technology as professional degree programs. The department also offers MPhil and PhD in Education, which are aimed to prepare highly skilled professionals and 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 program, it also offers "Education" as subject at Matric, Intermediate and Graduate level. The department is planning to launch, BS (ECCE) and Certificate of Entrepreneurship in ECCE. 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 programs 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 offers BEd (4 year) BEd (2.5 year) and specialization of Science Education in BEd (1.5 year) and MEd. MPhil and PhD programs; in science education are also offered at the department.

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, intellectual disabilities, physical disabilities and mental retardation with particular emphasis to facilitate inclusive education. Parents of the special children are also admitted to these programs. Present programs/courses of this department comprise B.Ed (4 years), MEd, MA, MPhil and PhD in the field of Special Education.

BS HEALTH AND PHYSICAL EDUCATION (5063)

Program Name:	BS Health and Physical Education
Duration of Program:	4 Years (8 Semesters)
Admission Criteria	FA/F.Sc or equivalent
Semester Duration:	16-18 Weeks
Total Credit Hours:	136 (Theory= 113 & Practical= 23)
Medium of Instruction:	English
Mode of Delivery:	Face to Face
Passing Marks (Assignment/Exam):	50% / As per AIOU policy

Rationale

The Program in BS Health and Physical Education is an essential need of Pakistan in the current socio-political scenario. The program will indirectly contribute to promoting tolerance and mutual co-existence in society. Therefore, the government of Pakistan has introduced the program as per National Policy and one compulsory seat of physical education instructor/ teacher has also been created in every school and college.

Allama Iqbal Open University in collaboration with the Pakistan Sports Board had already successful experience of offering the diploma, graduate, and postgraduate programs in Physical Education in 2006, which were accordingly approved by all the Statutory bodies of AIOU. The program provided face-to-face education and intensive practical training at the multifarious sports infrastructure spread over the vast Pakistan sports complex.

STED plans to launch BS Health and Physical Education, initially, the program was approved on blended mode and the scheme of studies was approved by all statuary bodies. Based upon HEC Undergraduate Policy 2023 Scheme of Studies has been revised.

All the modalities related to admission, fee structure, hiring study center (human and physical resources), formative and summative assessment, and certification will be as per the BS policy of AIOU.

Objectives of the Program

In the era of the educational revolution, the main objective of the BS (4-Years) program in Health and Physical Education is to prepare graduates to have a deep knowledge of the subjects as well as the ability to analyze a given situation and draw conclusions. The program aims to produce a broad base of graduates able to face the challenges of the modern world.

The Educational objectives of the program are:

- BS Health and Physical Education is designed to produce graduates with sound knowledge of the theoretical and practical subject matter.
- Along with the knowledge of the subject they would also have a broader view of other disciplines of social as well as physical sciences. It will enable the students to interact with other branches of knowledge and strengthen their understanding of society.
- The graduates are equipped with essential tools and techniques of research. It will enable them to analyze any given situation/ issue and suggest possible solutions.
- The graduates are to be empowered to establish and develop a viable and forceful line between theory/concepts and practice in Physical Education and Sport Sciences.

- The collective efforts behind this course are to create cohesiveness among the institutions and personnel of sports and physical education.
- The similarity among the outlines has been developed to interrelate the discipline in the global perspective creating an environment of healthy competition and equal opportunities for all at national and international levels.

Modus Operandi:

The program will be offered initially in collaboration with PSB/Regional Directors/Relevant Institutions.

- Physical classes of practical courses will be held at the institutions/ practical centers with indoor and outdoor sports facilities.
- Regional directors may arrange the study centers with the availability of sports infrastructures to run the program in their regions.
- The department will monitor classes/practicals to ensure and maintain program quality.

Entry Qualification and Selection Criteria for Admission

FA/F.Sc or Equivalent is the eligibility criteria.

Semester-wise Break-up of Scheme of Studies

Course Code	Course Title	Credit Hours	Nature
SEMESTER 1			
ENGL3505	Functional English	3+0	GC
MATH3508	Quantitative Reasoning-I	3+0	GC
5950	Philosophical Basis of Physical Education	3+0	MC
5951	Rules And Techniques of Games	3+0	MC
5952	Games-I	1+1	MC
5953	Athletics-I	1+1	MC
Total Credit Hours (Theory + Practical) 14+2 =16			
SEMESTER 2			
ENGL3504	Expository Writing	3+0	GC
ITHC3501/ HADH3501	Islamic Studies/Ethics	2+0	GC
ENVS4501	Basics of Environmental Sciences	2+1	GC
5955	Sports Bio Mechanics	3+0	MC
5956	Games-II	1+1	MC
5957	Athletics-II	1+1	MC
5958	Gymnastic-I	0+1	MC
Total Credit Hours (Theory + Practical) 12+4 =16			
SEMESTER 3			
PKST3502	Ideology and Constitution of Pakistan	3+0	GC
CS3503	Application of Information and Communication	2+1	GC

	Technologies		
5959	Talent Identification in Sports	3+0	MC
5961	Games-III	1+1	MC
5962	Athletics-III	1+1	MC
MATH4505	Quantitative Reasoning II	3+0	GC
URD3503	Urdu Adab-1	2+0	GC
Total Credit Hours (Theory + Practical) 15+3=18			
SEMESTER 4			
SOC3503	Civics and Community Engagement	2+0	GC
5976	Sport Psychology	3+0	MC
5964	Administration and Management in Sports	3+0	MC
SOC3506	Introduction to Sociology	3+0	GC
5967	Games IV	0+1	MC
5968	Practical Athletics-IV	0+1	MC
MGT3503	Entrepreneurship	2+0	GC
PKST 3501	Pak. Studies	2+0	
Total Credit Hours (Theory + Practical)13+2=15+2=17			
SEMESTER 5			
5969	Science of Sports	3+0	MC

	Training		
6413	Introduction to Inclusive Education	3+0	IDC
5971	Physical Education for Special Population	3+0	MC
5970	Sports Nutrition	3+0	MC
5966	Basics of Human Physiology	3+0	MC
5963	Gymnastic-II	1+1	MC
TFSR3501	Fahm-e-Quran (Tajwid, Translation and Tafsir)	-	Non-Credit
Total Credit Hours (Theory + Practical) 16+ 1 =17			
SEMESTER 6			
5972	Specialization in one group of Track and Field	1+2	MC
9452	Introduction to Social Work	3+0	IDC
5973	Research Methodology in Physical Education	3+0	MC
5954	Biochemistry	3+0	MC
5975	Test, Measurement, and Evaluation in Sports	3+0	MC
SERT3501	Seerat-e-Tayyaba	-	Non-Credit
5947	Internship	0+3	Internship
Total Credit Hours (Theory + Practical) 13+5=18			

SEMESTER 7			
5978	Common Sports Injuries & Common Treatment and Rehabilitation	3+0	MC
5980	Role of Media in Sports	3+0	MC
5974	Planning Sports Facilities	3+0	MC
8611	Critical Thinking & Reflective Practices	3+0	IDC
5981	Scientific Sport Coaching	3+0	MC
5982	Specialization in one game	1+2	MC
Total Credit Hours (Theory + Practical) 16+2=18			
SEMESTER 8			
5984	Sports Medicines	3+0	MC
5979	Exercise Physiology	2+1	MC
8255	Organizational Behavior	3+0	IDC
5985	Curriculum Development in Physical Education	3+0	MC
5986	Wellness and Fitness /Fitness	3+0	MC
5948	Capstone Project	0+3	CP
Total Credit Hours (Theory + Practical) **14+4=18**			

GC= General Education Cluster = 12 Courses offered in first 4 semesters

MC= Major Course= 33 Courses (15 in first 4 semesters and 18 in the last 4 semesters)

IDC= Interdisciplinary Course= 4
Courses offered in last 4 semesters

Non Credit= 2
Courses offered in 5th and 6th Semesters

Internship
Offered in 6th Semester

CP= Capstone Project
Offered in 8th Semester

Assessment Criteria

Fee Tariff

Registration Fee	Rs.700/-
Admission Fee	Rs. 1400/-
Technology Fee	Rs. 850/-
Fee for per 1 credit hour 2800*16	Rs. 44800/-
Total Fee	**Rs. 47750/-**

GENERAL INFORMATION

i. The certificates/degrees of AIOU are equivalent to any other recognized Board/University.

ii. A candidate is required to submit complete admission form and upload scan documents through online system before or on the closing date.

iii. If an applicant of post-graduate/research level programme does not receive any information regarding admission within three months from submission of application, he/she should presume non-selected.

iv. A course taken by any student cannot be changed during the semester.

v. The address of a student will not be changed during the semester.

vi. Admission to courses for both the Spring and Autumn semesters are generally being offered in the months of January and July, respectively, whereas, examinations commenced in November and May respectively. The and deposit fee within due date.

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

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

ix. Rules and regulations framed, enhanced and changed from time to time by the authorities, bodies of the university will be effective as deemed necessary. The student will have to abide by all such rules and regulations from the date of their implementation.

x. A student who fails in continuous assessment component is not eligible to reappear but will be allowed to re-enroll for the same course at its next offering semester by the university.

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

xii. A student already admitted to a programme or a specialization of a programme shall not be allowed to transfer or to get admission to another programme unless he/she formally postpones, it till the completion of the new programme or withdraw from the previous programme.

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

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

xv. In case of discrepancies in the name of student/ Father's name of the student or difference in name mentioned in his/her other educational certificates, the name on the Matric certificate of the student will be considered as correct name. The Examination Department shall also issue certificate/ degree on the said name.

xvi. In case provision of forged documents for admission, not only the admission will be refused to the applicant but the fee deposited by him/her will also be forfeited. The university may proceed further in the matter.

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

xviii. If any candidate found ineligible for a degree/diploma/certificate during the cross verification

process of result and documents at any stage.

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

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

PROCEDURE FOR DEPOSITING FEE

- **BANKS OR THROUGH TELCOS.**
- Eligible candidates are required to deposit admission fee in any branch of the following banks:

1. First Women Bank Limited (FWBL)
2. Allied Bank Limited (ABL)
3. Muslim Commercial Bank (MCB)
4. National Bank of Pakistan (NBP)

- Fee can also be Deposited through Jazz Cash, Easy Paisa and Upaisa Mobile App/USSD String *786#, Retailer Agent, Franchise and Branches of Mobilink, Telenor and Ubank. For more detail please visit university website.
- The Banks/Mobile App/Retailer Agents/Franchise/Branches will provide Transaction ID of deposited fee.

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

PROCEDURE OF FEE DEPOSIT THROUGH TELECOS

Easypaisa

Through Easypaisa App

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

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

Upaisa

Through Upaisa App

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

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

Through USSD String *786#

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

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

Jazz Cash (Through Jazzcash App)

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

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

Through USSD String *786#

The Jazzcash mobile wallet account may be created by dialing *786#. For using this mode, student must have balance equal to

his/her payable fee in Jazzcash mobile account. There are **no transactions charges**, if student use this mode to pay his/her fee. Following is the procedure of fee payment through USSD string *786#

1. Dial *786#
2. Select "Payments"
3. Select "Education Payments"
4. Select "AIOU"
5. Enter Challan No.
6. Screen will show the payable amount
7. Enter MPIN
8. Fee will be Paid &student will receive confirmation SMS
9. Student will write **Transaction ID** and **"Paid via Jazzcash786 String"** on the challan and admission form. Students are advised to keep the confirmation SMS save in phone until the receipt of intimation of admission confirmation from AIOU.

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

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

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

Through 1-Link Modes/Channels

In addition to the existing fee payment modes, fee can also be paid through below mentioned 1-Link modes/channels.

Note:

For fee payment through 1- Link banks, website, digital banking and outlets, please enter **1Bill Prefix: 10004717950** before challan number.

Fee payment through IBFT/ RAAST/ Funds Transfer Mode is not allowed

Over the Counter

In addition to over the counter fee payment facility through ABL, MCB, FWBL and NBP, the fee can also be paid by visiting any branch of the banks mentioned below.

- 1 Link Banks (Al Barka, Askari Bank, Bank Islami, Meezan Bank, Faysal, Bank, JS Bank, Habib Metro, NRSP bank)

Web-Based

- Credit/Debit Card

All Master/VISA/Pay Pak/ Union Pay Credit/Debit Cards

For web-based fee payments, please click on PAY button available on OAS/CMS/AIOU website or directly go to ***aiou.kuickpay.com***

Digital Banking

Mobile Banking, Internet Banking and ATM of banks

Note:

For payment through digital banking, select 1Bill option from the Bank app, internet banking or ATM.

Outlets

TCS, Leopard, NADRA e Sahulat, HBL Konnect

ہدایات برائے درستگی نام طالب علم / والد / تاریخ پیدائش

☆ درخواست بذریعہ CMS Student Service Request یا فارم ہذا کے ذریعے جمع کروائی جاسکتی ہے۔ دونوں صورتوں میں طالب علم کی درخواست کی منظوری ڈائریکٹر شعبہ داخلہ سے لی جائے گی اور ان کا فیصلہ حتمی ہو گا۔ منظوری کے بعد متعلقہ اہلکار چالان فارم Generate کرے گا اور طالب علم کو مطلع کرے گا اس کے بعد طالب علم فیس جمع کروا کر ترمیم حاصل کر سکے گا۔

☆ منظوری سے قبل ہر گز فیس جمع نہ کروائیں جمع کروائی گئی فیس واپس نہ ہو گی۔

☆ گورنمنٹ کے نوٹیفکیشن اور یونیورسٹی قوانین کے مطابق سرکاری و نیم سرکاری اداروں کے ملازمین کی تاریخ پیدائش جو کہ ملازمت ریکارڈ میں درج ہے تبدیل نہیں ہو گی۔

☆ اگر کسی طالب علم کو ایک سے زائد پروگرامز میں تصحیح درکار ہے تو طالب پہلے رجسٹرڈ پروگرام کے مطابق صرف ایک بار فیس جمع کروائے گا اور اگلے پروگرامز میں تصحیح کی فیس وصول نہیں کی جائے گی۔

☆ اگر کوئی طالب علم اپنے نام اور ولدیت کی درستگی / تبدیلی ایک ہی درخواست میں کروانا چاہتا ہے تو وہ یونیورسٹی سے جاری کردہ چالان کے مطابق صرف ایک ہی فیس جمع کروائے گا۔

☆ فیس کی تفصیل درج ذیل ہے۔

Sr. No.	Time Frame	Amount (Rs)			
		Correction in Name Spelling	Change in Name	Correction in Father's Name	Correction in Date of Birth
1	Within 2 years of Passing Program	Rs.1500/-	Rs.3000/-	Rs.3000/-	Rs.4000/-
2	After 2 to 5 years	Rs.3500/-	Rs.4500/-	Rs.4500/-	Rs.5500/-
3	After 5 to 10 years	Rs.5000/-	Rs.6000/-	Rs.6000/-	Rs.7500/-
4	After 10 years	Rs.10000/-	Rs.12000/-	Rs.12000/-	Rs.14000/-

1. نوٹ: پروگرام پاس کرنے سے پہلے نام یا تاریخ پیدائش میں درستگی کے لیے فیس نہیں لی جائے گی۔

REGULATIONS FOR REFUND OF ADMISSION FEE

i. The Applicant/candidate/student who has submitted his/her

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

ii. The Applicant/Candidate who was not eligible but deposited the fee for admission and applied for refund within one year from the date of fee deposit, the fee shall be refunded after deduction @15% of total fee.

iii. The student who has deposited his/her fee in excess of due fee that total excess amount shall be refunded or adjusted as the case may be.

iv. The Treasurer Department shall verify the fee of students and shall send the case to the Audit Department for pre-audit.

v. The cheque will be issued to the candidate by the Campus Payment Section (CPS), Treasurer's Department.

vi. In the case of death, the full fee will be refunded through crossed cheque in favour of the Blood Relative of deceased student, after fulfilling all the codal formalities. The refund case must be submitted within one year of fee deposit.

vii. In case the students who are not allowed/granted admission to a program offered by the University due to less enrollment/non formation of viable group/non offering of courses, full fee will be refunded to them.

viii. If the admission of an Applicant/Candidate is not matured due to any reason beyond the control of the

ix. University or due to unforeseen issues, the whole paid fee, without any deductions shall be refunded to the respective applicant/candidate. The refund case must be submitted within one year of fee deposit.

DISABILITY COORDINATORS:

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

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

IMPORTANT TELEPHONE NUMBERS

Sr.#	Name	Telephone Nos.
1.	Director Admissions	051-9250043 051-9250162 (Fax)
2.	Controller of Examinations	051-9250012
3.	Director Students Affairs	051-9250174
4.	Admission (Postgraduate)	051-9571547
Helpline: (051) 111 112 468 **Help Desk: support.aiou.edu.pk**		

ADDRESSES OF PTRC(S) ACROSS PAKISTAN

S. #	Province	Region	Regional Coordinators	Mobile #
1	AJK	Muzaffarabad	Mr. Naseer Ahmed, Part Time Regional Coordinator, Allama Iqbal Open University, SST, C/O Zahoor Shopkeeper, Main Bazar,Pattika P/O & Tehsil Patika, Muzaffarabad	0343-5791465
2	AJK	Muzaffarabad	Mr. Zia Arif Awan, Part Time Regional Coordinator, Allama Iqbal Open University, Headmaster, C/O Hamdani Block Depot, Huttian Bala, Tehsil & District Huttian Bala	0333-2333327
3	AJK	Muzaffarabad	Mr. Naqaash Mehmood, Part Time Regional Coordinator, Allama Iqbal Open University, SST, Govt. Boys High School, Chakothi P/o Chakothi, Tehsil Huttian Bala,Distt.Jhelum Valley	0312-8600098
4	AJK	Muzaffarabad	Malik Mushtaq Ahmed, Part Time Regional Coordiantor, Allama Iqbal Open University, AP,Govt.Boys Degree College,Leepa Tehsil Leepa,District Jhelum Valley	0355-8155551
5	AJK	Muzaffarabad	Mr.Mushtaq Ahmed Mughal, Part Time Regional Coordinator, Allama Iqbal Open University, Librarian, Govt. Boys Degree College, Authmuqam, Tehsil Authmuqm,District Neelum	0355-8152453
6	AJK	Muzaffarabad	Mr. Muhammad Iqbal, Part Time Regional Coordinator, Allama Iqbal Open University, Senior Teacher, Govt. Boys High School, Sharda,Tehsil Sharda District Neelum	0355-8111812
7	AJK	Muzaffarabad	Mr. Sajid Qayyum, Part Time Regional Coordinator, Allama Iqbal Open University, Lecturer, Govt Boys Inter College,Kel,Tehsil Sharda District Neelum	0355-8129706
8	AJK	Muzaffarabad	Mr. Abdul Hameed, Part Time Regional Coordinator, Allama Iqbal Open University, SST, Village Sardari, P/O Halmat Tehisl, Sharda, District Neelum	0355-7179695
9	AJK	Rawalakot	Mr. Muhammad Naseer, Part Time Regional Coordinator, Allama Iqbal Open University, Headmaster, Govt. Boys High School, Trarkhel, District Sundhnoti	0344-6868224
10	AJK	Rawalakot	Mr. Zahoor Hussain, Part Time Regional Coordinator, Allama Iqbal Open University, SST, Govt.Pilot High School, Palandri, District Sundhnoti	0346-5019324
11	AJK	Rawalakot	Mr. Muhammad Shafiq, Part Time Regional Coordinator, Allama Iqbal Open University, Principal, Govt. Pilot High School, Abbaspur, District Pooch	0345-4453210
12	AJK	Rawalakot	Sheikh Fazal Hussain, Part Time Regional Coordinator, Allama Iqbal Open University, SST, Govt. Pilot High School, Kahuta Tehsil & District Haveli	0355-7302262
13	AJK	Rawalakot	Mr. Muhammad Khalil Khan, Part Time Regional Coordinator, Allama Iqbal Open	0346-5424249

			University, SST(Rtd), C/O Shafiq Boot House near Khan Chowk, Tehisl & District Bagh	
14	Balochistan	Quetta	Mr. Abdullah, Part Time Regional Coordinator, Allama Iqbal Open University, SST, Govt.Boys High School, Killi Khudai Rahim, Tehsil Dalbandin, District Chaghai	0333-3324312
15	GB	Gilgit	Mr. Niamatullah, Part Time Regional Coordinator, Allama Iqbal Open University, SST, Govt. Boys High School Tehsil & District **Astore**	0315-7331152
16	GB	Gilgit	Mr. Mahfuzullah, Part Time Regional Coordinator, Allama Iqbal Open University, Principal, Govt.Higher Secondary School, Tehsil **Darel**, District **Diamir**	0355-5355009
17	GB	Gilgit	Mr. Ahmad Raza, Part Time Regional Coordinator, Allama Iqbal Open University, SST, Govt.Girls High School, Tehsil **Chalt**, District **Nagar**	0346-9239995
18	GB	Gilgit	Mr. Javed Iqbal, Part Time Regional Coordinator, Allama Iqbal Open University, Assistant Headmaster, Village & Post Office Gupis Tehsil Gupis District Ghizar	0355-5204808
19	GB	Gilgit	Mr. Khurshid Alam, Part Time Regional Coordinator, Allama Iqbal Open University, AEO, Village & Post Office Yasin Tehsil Yasin District Ghizer	0312-9784772
20	GB	Gilgit	Mr. Khush Wali Khan, Part Time Regional Coordinator, Allama Iqbal Open University, AEO, Village Silpi, Post Office Gahkuch Tehsil Punial District Ghizer	0344-6779985
21	GB	Gilgit	Mr. Abdul Nazir, Part Time Regional Coordinator, Allama Iqbal Open University, TGT, Village Hasis, Tehsil Punial, District Ghizer	0335-9153990
22	GB	Gilgit	Mr. JamaL Ud Din, Part Time Regional Coordinator, Allama Iqbal Open University, SSt, Govt.Boys Model High School, Tehsil Chilas, District Diamer	0341-0471246
23	GB	Gilgit	Mr.Shahid Hussain, Part Time Regional Coordinator, Allama Iqbal Open University, Teacher, Post Office Pakora Teshil Shounter, District Astore	0355-5114440
24	GB	Skardu	Mr. Muhammad, Part Time Regional Coordinator, Allama Iqbal Open University, SST, Govt. Girls High School, Shigri Bala Gamba, District Skardu	0346-9556550
25	GB	Skardu	Mr. Mehboob Ali Abbas, Part Time Regional Coordinator, Allama Iqbal Open University, SST, Govt. Boys Model High School, District Shigar	0340-5700098
26	GB	Skardu	Mr. Muhammad Ilyas Noori, Part Time Regional Coordinator, Allama Iqbal Opn University, SST, Govt. High School Keris, District, Ghanche	0312-9905901
27	GB	Skardu	Mr. Inayat Hussain, Part Time Regional Coordintor, Allama Iqbal Open University, Principal, Govt. Higher Secondary School, Daghoni District Ghanche	0346-5066334

28	GB	Skardu	Mr. Ghulam Nabi, Part Time Regional Coordinator, Allama Iqbal Open University, SST, Govt. Model School, Halchi, P.O Khaplu, District Ghanche	0355-5657393
29	GB	Skardu	Mr. Ghulam Nabi, Part Time Regional Coordinator, Allama Iqbal Open University, SST, Govt. High School, Thagas, District Mashbrum	0355-4118899
30	GB	Skardu	Mr. Kacho Shabbir Hussain, Part Time Regional Coordinator, Allama Iqbal Open University, TGT, Govt. boys Higher/Sec. School, Tolti District Kharmang	0355-4226199
31	GB	Skardu	Mr. Liaqat Ali, Part Time Regional Coorditor, Allama Iqbal Open University, EST, Govt. High School, Dambodas Runds, District Skardu	0355-5108844
32	KPK	Peshawar	Dr. Sher Zaman, Part Time Regional Coordinator , Allama Iqbal Open University, SDEO, Gul Public School, Bara SDEO Office, Tehsil Bara, Ditrict Khyer	033-9446469
33	KPK	Peshawar	Mr. Muhammad Yaseen, Part Time Regional Coordinator, Allama Iqbal Open University, SST, Govt. Higher Sec. School No.1, Jamrud, Tehsil Landi Kotal District Khyber	0306-5966620
34	KPK	Peshawar	Mr. Muhammad Altaf, Part Time Regional Coordinator, Allama Iqbal Open University, SS, Govt. Higher Sec. School, Shaidu Tehsil Jahangira District Nowshera	0334-2244155
35	KPK	Peshawar	Dr. Zar Gull, Part Time Regional Coordiantor, Allma Iqbal Open University, SST, Govt. High School, Khatki Sharif, District Mohmand	0302-8353862
36	KPK	Peshawar	Mr. Kausar Khan, Part Time Regional Coordinator, Allama Iqbal Open University, Assistant Professor, Govt. Degree College, Lakarai District Mohmand	0302-5955100
37	Punjab	Rawalpindi	Mr. Muhammad Raza Vaince, Part Time Regional Coordinator, Allama Iqbal Open University, Senior Headmaster (Rtd.), Rakh Printing Press, Pindi Road, Tehsil **Kallar Syedan**, District Rawalpindi.	0300-9700563
38	Punjab	Rawalpindi	Mr. Rashid Shahzad, Part Time Regional Coordinator, Allama Iqbal Open University, S.S.S., KRL Model College for Boys Tehsil **Kahuta** District Rawalpindi	0300-9143860
39	Punjab	Rawalpindi	Mr. Ayaz Qureshi, Part Time Regional Coordinator, Allama Iqbal Open University, Incharge/Headmaster, Govt. High School PAF Base Lower Topa, Tehsil **Murree** District **Murree**.	0314-9517902
40	Punjab	Rawalpindi	Mr. Danish Majeed, Part Time Regional Coordinator, Allama Iqbal Open University, Incharge/Headmaster, Govt. High School,Anwali, Tehsil **Kotli Sattian**, District Rawalpindi	0334-5097767

41	Punjab	Rawalpindi	Dr. Muhammad Anwar, Part Time Regional Coordinator, Allama Iqbal Open University, Headmaster, Govt. High School, Bhabra Tehsil **Wah Cantt** District Rawalpindi.	0300-5363883
42	Punjab	Rawalpindi	Mr. Shakeel Ahmed, Part Time Regional Coordinator, Allama Iqbal Open University, EST, Village & Post Office Rupper Kalan, Sub Tehsil **Chakbeli Khan**, District Rawalpindi.	0334-5290864
43	Punjab	Rawalpindi	Mr. Arshad Mehmood, Part Time Regional Coordinator, Allama Iqbal Open University, Principal, Govt. MC Higher Secondary School, Tehsil Gujar Khan district Rawalpindi	0336-5355163
44	Punjab	Bahawalnagar	Mr. Khawar Mahmood, Part Time Regional Coordinator, Allama Iqbal Open University, SST, Govt. Elementary School, Model Town, Tehsil & District Bahawalnagar	0334-2273767
45	Punjab	Bahawalnagar	Mr. Abdul Sattar Niazi, Part Time Regional Coordinator, Allama Iqbal Open University, Lecturer, H.No.172/A, Muslim Town, Tehsil Chistian District Bahawalnagar	0333-6345517
46	Punjab	Bahawalnagar	Mr. Abdul Rehman Faisal, Part Time Regional Coordinator, Allama Iqbal Open University, SST, Govt. Model High School, Tehsil Forabbass, District Bahawalnagar	0345-1682227
47	Punjab	Bahawalnagar	Mr. Muhammad Asif Ramzan, Part Time Regional Coordinator, Allama Iqbal Open University, Govt.R.I Graduate College, Tehsil Haroonabad, District Bahawalnagar	0346-4904247
48	Punjab	Bahawalnagar	Mr. Mahfooz Ul Haq, Part Time Regional Coordinator, Allama Iqbal Opn University, S.S, Ward No.11, Mohallah Mansafi Wala C/o Faran Public School, Minchanabad, District Bahawalnagar	0301-7683853
49	Sindh	Hyderabad	Mr. Rasheed Ahmad, Part Time Regional Coordinator, Allama Iqbal Open University, HST, Govt. Shah Abdul Latif High School Tando Adam Tehsil **Tando Adam**	0333-2881340
50	Sindh	Sukkur	Mr. Imran Bux, Part Time Regional Coordinator, Allama Iqbal Open University, Headmaster, Govt. Boys High School, Colony No.1, District Kashmore	0333-7367874
51	Sindh	Sukkur	Mr. Hafeez U Rahman, Part Time Regional Coordinator, Allama Iqbal Open University, Govt. Boys Higher Secondary School, Dari, Kandhkot	0302-3688039

ALLAMA IQBAL OPEN UNIVERSITY, REGIONAL NETWORK

ISLAMABAD CAPITAL TERRITORY (ICT)

ISLAMABAD
Regional Center, AIOU,
Block No 27, Services Block, Sector H-8
Ph: 051-9250171, 051-9057219
Email: rd_islamabad@aiou.edu.pk

PUNJAB

ATTOCK
Regional Center, AIOU,
Street No.5, Major Tahir Sadiq
Road, Dar-ul-Salam Colony
Ph: 057-9316418
Email: rd_attock@aiou.edu.pk

BAHAWALPUR
Regional Center, AIOU,
Chak No. 12-A/BC, Near Airport
Hasilpur By Pass Road
Ph: 0341-2727744
Email: rd_bahawalpur@aiou.edu.pk

CHAKWAL
Regional Center, AIOU,
Opposite Allied Park, Near Food Godam
Railway, By Pass Road
Ph: 0543-553577
Email: rd_chakwal@aiou.edu.pk

DERA GHAZI KHAN
Regional Center, AIOU,
Railway Road, Near Veterinary Hospital
Ph: 064-9260387
Email: rd_dgkhan@aiou.edu.pk

FAISALABAD
Regional Center, AIOU,
F-Block, Millat Town
Ph: 041-9330790
Email: rd_faisalabad@aiou.edu.pk

GUJRANWALA
Regional Center, AIOU,
10-X Block, Peoples Colony
Ph: 055-9230253
Email: rd_gujranwala@aiou.edu.pk

JHANG
Regional Center, AIOU,
Toba Road, Opposite Officers Colony
Ph: 0477-631166
Email: rd_jhang@aiou.edu.pk

JHELUM
Regional Center, AIOU,
Mujahid Abad, Near Jada,
Main G. T. Road
Ph: 0544-273378
Email: rd_jhelum@aiou.edu.pk

KASUR
Regional Center, AIOU,
H. No. 607-B, Gulberg Colony
Ph: 049-2723723
Email: rd_kasur@aiou.edu.pk

LAHORE
Regional Center, AIOU,
346 - Raza Block, Allama
Iqbal Town
Ph: 042-99333580
Email: rd_lahore@aiou.edu.pk

MANDI BAHA UD DIN
Model Study Center, AIOU,
Near Sat Sira Chowk
Marala Road
Ph: 0546-571171
Email: msc_mbdin@aiou.edu.pk

MIANWALI
Regional Center, AIOU,
Near Under Pass
Ph: 0459-920026
Email: rd_mianwali@aiou.edu.pk

MULTAN
Regional Center, AIOU,
CF-7, Shah Rukn-e-Alam Colony
Ph: 061-6772499
Email: rd_multan@aiou.edu.pk

NAROWAL
Regional Center, AIOU,
Main Ransiwal Phatak Chowk,
Lahore Road
Ph: 0542-413122
Email: rd_narowal@aiou.edu.pk

RAHIM YAR KHAN
Regional Center, AIOU,
Hidayat Center, Near Sheikh
Zaid Air Port
Ph: 0321-9259429
Ph: 0331-6783360
Email: rd_rykhan@aiou.edu.pk

RAWALPINDI
Regional Center, AIOU,
Block No. 26, First Floor,
Sector H-8, ISLAMABAD
Ph: 051-9334265
Email: rd_rawalpindi@aiou.edu.pk

SAHIWAL
Regional Center, AIOU,
COMSATS University Road
Ph: 0409-330457
Email: rd_sahiwal@aiou.edu.pk

SARGODHA
Regional Center, AIOU,
House No.145, Muradabad Colony,
Near Daewoo Terminal, University Road
Ph: 0483-211217
Email: rd_sargodha@aiou.edu.pk

SHEIKHUPURA
Regional Center, AIOU,
Street No.03, Jamil Town,
Lahore Road
Ph: 056-3543041
Email: rd_sheikhupura@aiou.edu.pk

SIALKOT
Regional Center, AIOU,
Mohallah Mumtaz Pura,
Haji Pura, Daska Road
Ph: 052-3241400
Email: rd_sialkot@aiou.edu.pk

SINDH

HYDERABAD
Regional Center, AIOU,
Bungalow No.46, B1-8,
Unit No.02, Railway Employee Housing
Society, Autobahn Road Latifabad
Ph: 022-9330053
Email: rd_hyderabad@aiou.edu.pk

KARACHI
Regional Center, AIOU,
ST-6, D-I, Block No.14, Federal 'B' Area
Ph: 021-99246099
Email: rd_karachi@aiou.edu.pk

LARKANA
Regional Center, AIOU,
Bungalow No. 43, Al-Noor Housing
Society, Near OPF Colony Naudero Road
Ph: 074-4752263
Email: rd_larkana@aiou.edu.pk

MALIR
Model Study Center, AIOU,
Plot No. R-240, Block-C, Bagh E Malir
Ph: 021-99333846
Email:msc_malir@aiou.edu.pk

MITHI
Regional Center, AIOU,
Near Session Court Mai Bhaghi Chowk
Ph: 0232-920089
Email: rd_mithi@aiou.edu.pk

MORO
Regional Center, AIOU,
National Highway N-5
Ph: 0300-3267178
Email: rd_moro@aiou.edu.pk

SUKKUR
Regional Center, AIOU,
Main National Highway,
Arore Taluka Rohri
Email: rd_sukkur@aiou.edu.pk

THATTA
Regional Center, AIOU,
H. No. 74, Main Ghulam Ullah
Road Makli Society
Ph: 0298-920201
Ph: 0298-920202
Email: rd_thatta@aiou.edu.pk

UMERKOT
Noor Model Study Center, AIOU,
Old Girls College Hostel
Ph: 0238-920016
Email: msc_uk@aiou.edu.pk

KHYBER PAKHTUNKHWA

ABBOTTABAD
Regional Center, AIOU,
Murree Road
Ph: 0992-390927
Ph: 0992-390925
Email: rd_abbottabad@aiou.edu.pk

CHITRAL
Regional Center, AIOU,
Chitral Town, District Lower
Ph: 0943-413419
Ph: 0943-412138
Email: rd_chitral@aiou.edu.pk

DERA ISMAIL KHAN
Reginal Center, AIOU,
Neli Kothi
Ph: 0966-9280427
Ph: 0966-9280178
Email: rd_dikhan@aiou.edu.pk

KOHAT
Regional Center, AIOU,
House No.43, Sector A/2,
Phase No. II, KDA
Ph: 092-2513882
Email: rd_kohat@aiou.edu.pk

MARDAN
Regional Center, AIOU,
House No.39, Sector-I EW/3,
Ghulam Nabi Road,
Sheikh Maltoon Town
Ph: 0937-841020
Ph: 0937-841030
Email: rd_mardan@aiou.edu.pk

PESHAWAR
Regional Center, AIOU,
Plot No.14, Sector A-3,
Phase-V, Hayatabad
Ph: 091-9217606
Ph: 091-9217603
Email: rd_peshawar@aiou.edu.pk

SWAT
Regional Center, AIOU,
College Colony,
Saidu Sharif
Ph: 0946-9240205
Email: rd_swat@aiou.edu.pk

TIMERGARA
Regional Center, AIOU,
Bungalow No. 02
Village Andheri,
Link Road, Balambat
Ph: 094-9250070
Email: rd_timergara@aiou.edu.pk

BALOCHISTAN

DERA MURAD JAMALI
Regional Center, AIOU,
Gola Chowk
Ph: 0838-710375
Email: rd_dmjamali@aiou.edu.pk

GWADAR
Regional Center, AIOU,
Pishkan Road
Ph: 0333-7622445
Email: rd_turbat@aiou.edu.pk

KALAT
Regional Center, AIOU,
Near B & R Rest House
Ph: 0844-210569
Email: rd_kalat@aiou.edu.pk

QUETTA
Regional Center, AIOU,
Eastern By Pass Takhtani Road
Ph: 081-2674429, 081-2674398
Email: rd_quetta@aiou.edu.pk

ZHOB
Regional Center, AIOU,
H. # 34, Street No. 26, Muhala
Khudaidad Imambara Road
Circular No. 01
Ph: 0822-413018
Email: rd_zhob@aiou.edu.pk

AZAD JAMMU & KASHMIR

MIRPUR
Regional Center, AIOU,
House No.1-A, Sector, F-1,Kotli Road
Mirpur
Ph: 0582-7960029, 0582-7960030
Email: rd_mirpur@aiou.edu.pk

MUZAFFARABAD
Regional Center, AIOU,
Zero Point, Jalalabad
Ph: 058-22960539, 058-22960540
Email: rd_muzaffarabad@aiou.edu.pk

RAWALAKOT
Regional Center, AIOU,
D-156, Bank Road
Ph: 05824-960241
Email: rd_rawalakot@aiou.edu.pk

GILGIT BALTISTAN

Regional Center, AIOU,
Sh
ahra-i-Quaid-i- Azam,
Khumer Cantt
Ph: 058-11960378, 058-11960087
Email: rd_gilgit@aiou.edu.pk

NAGAR
Model Study Center, AIOU,
Mohallah Cina Khan Tehsil Ali
Abad District Hunza
Ph: 0312-0864072
Email: msc_nagar@aiou.edu.pk

SKARDU
Regional Center, AIOU,
Sundus Road
Ph: 05815-960915
Ph: 05815-960258
Email: rd_skardu@aiou.edu.pk