



# PROSPECTUS 2017-18



**Institute of Agricultural Sciences**  
University of the Punjab  
Lahore



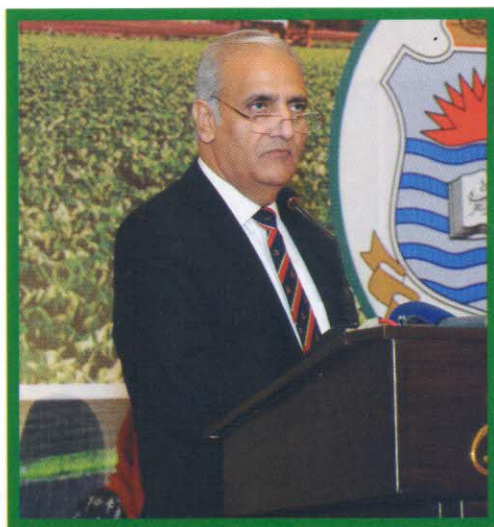
# OUR GOAL



To provide the best learning opportunities to the prospective Agricultural Scientists to ensure better crop quality and yield through modern agricultural technology and practices to meet the food requirement of fast growing population and to boost country's economy.



# A Message from the Vice Chancellor



The over and ever increasing population of Pakistan is continuously exerting a demand pressure over agriculture for their basic necessities. As a response it becomes the need of time to enhance agricultural production horizontally as well as vertically. Owing to soil, water and climatic problems, a further increase in cultivated area is almost impossible and the only option left behind is to increase yield per unit area. Such a production revolution is not possible without linking the agriculture with advanced knowledge of science and technology.

The faculty of this Institute has demonstrated its excellence and brilliance in teaching and research. The contribution of its faculty members in national development is the result of their exceptional dedication and commitment.

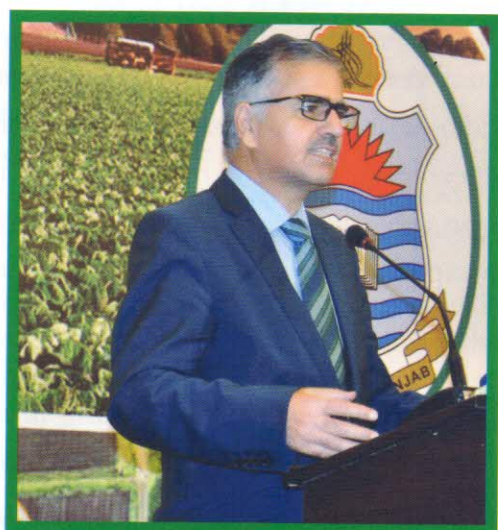
Students are always the most important community for the faculty. I wish our young scholars the very best in making active and worthy contribution at IAGS, so that the institute may continue to achieve new heights. For this purpose they should cultivate in themselves a spirit of mutual co-operation, dedication and responsibility, learn to display discipline, develop qualities of efficiency and consistency and make careful use of time.

I hope that they will nourish the zest for learning and develop their creativity under the watchful eyes of their teachers. I wish all of you a very promising future!

Dr. Zaffar Mueen Nasar  
Vice-Chancellor



# A Message from the Dean Faculty of Life Sciences



Pakistan is blessed with a variety of seasons, landforms and 20.43 million hectares of cultivated land. Owing to favorable soil and climatic conditions we are able to produce a variety of crops, fruits and vegetables. Agricultural production is not only fulfilling the food, feed and clothing demands of the population but also a primary supplier of raw materials to downstream industries. In this way the agriculture is continuously playing a central role in Pakistan's economy.

Despite difficult times for researches to acquire extramural funding, our scientists continue to thrive. IAGS is currently undergoing a period of unprecedented growth with several new faculty members joining the institute and additional searches currently in progress. In such a dynamic environment, the opportunities for graduate research in Agricultural Sciences are constantly growing.

I hope you will have the opportunity to visit our campus to experience a firsthand of this growing and dynamic Institute. The Institute of Agricultural Sciences represents the ideal learning place. We are large enough to provide you with exciting research opportunities, yet small enough to treat you as an individual. This allows us to design graduate and postgraduate programs consistent with your professional goals.

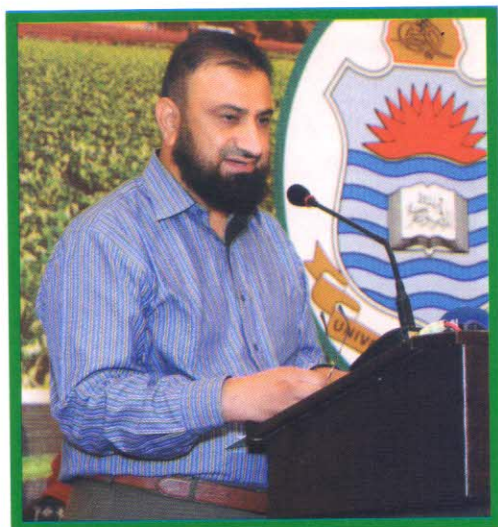
Selecting your academic environment is one of the most important professional decisions of your life; we hope IAGS can provide you the best environment.

I congratulate in advance to the candidates, who will be admitted in the institute.

(Prof. Dr. Muhammad Naeem Khan)  
Dean Life Sciences



# A Message of the Director



The Institute of Agricultural Sciences (IAGS) is an extraordinary blend of renowned faculty, laboratories and cooperative staff providing a unique environment for learning and technological advancements. The main building of today's IAGS is spread over an area of around seven acres with another 7 acres under experimental station behind the main building.

Despite of all the economic constraints prevailing in the country, the addition to IAGS faculty and funding is continuous. There is also a magnificent hike in the research and academic achievements of the faculty members. Our brilliant and trained academic staff has earned international fame in a short span of time. Being a part of IAGS you would find an opportunity to witness the growth and development taking place at the institute.

IAGS promises you state of the art academic and research facilities in the relevant fields. Highly qualified faculty and a very well equipped infrastructure welcome you and assures conducive learning environment to achieve your endeavors.

(Prof. Dr. Muhammad Saleem Haider)  
Director



# University of the Punjab



Established in 1882 at Lahore, the University of the Punjab is the largest and the oldest seat of higher learning in Pakistan. It was the first to be established in the sub-continent in Muslim majority area. The fact that three Nobel laureates are from this University speaks volumes for its academic and research excellence. Located in the historical and culturally alive city of Lahore, this University has played a leading role in higher education in the country. The University strives to provide a conducive environment for the pursuit of the academic activities. On account of its quality degrees, pleasant environment and low tuition fees the University remains the institution of first choice for admission seeking students.



## The Quaid-i-Azam Campus

The activities of the University in Lahore are divided over the Allama Iqbal Campus (Old Campus) located in the middle of the busy city center, and the Quaid-i-Azam Campus (New Campus) that is located about twelve kilometers to the south. During a very short span of time three new campuses have been established at Gujranwala, Jehlum and Khanaspur to cater the needs of students of that region and to further enhance integrated research programs. Whereas the Allama Iqbal Campus boasts of buildings of great architectural significance, the Quaid-i-Azam Campus is spread over an area of more than 1,700 acres of lush green tract. With the construction of new blocks at the Quaid-i-Azam Campus the academic departments and administrative offices have gradually shifted here.



The vast Quaid-i-Azam Campus, surrounded by the busy city areas, has grown over the years into a comprehensive center of academic activity. It accommodates academic blocks, student hostels, staff residences, a Medical Complex, sports fields, swimming pool, a Boat Club and other facilities. It provides a peaceful and conducive environment for academic pursuits. A canal running through this Campus adds beauty to the surroundings. Various academic blocks are situated towards the north side of the canal whereas the student residence blocks lie to its south.

With the addition of academic and other blocks over the years, the facilities at the Quaid-i-Azam Campus have grown gradually to meet the expanding requirements of teaching and research. It was in 2002, when we came up as a new addition in the list of these departments and now in 2011, we have emerged as Institute of Agricultural Sciences.



# Institute of Agricultural Sciences



## We are here to help you

Department of Mycology & Plant Pathology was established in 2002. Today we are more than happy to see its very steep progress curve. Now the department has been granted the status of Institute. IAGS is an extraordinary blend of renowned faculty, state-of-the art laboratories and learning centers, and tremendous students and staff providing a unique environment for learning and technological advancement. We are strengthened by dedicated academic partners, industrial and governmental collaborators. This teamwork supports our mission to:

- Sustain a level of productivity to become a high impact department and aggressive innovator
- Use teaching technology to enhance student learning
- Facilitate the placement of students in jobs (undergraduate and graduate) immediately following graduation
- Provide resources to other areas of research concentration that might merit them
- Improve the visibility and recognition of the Institute in the geographic region and in the industry (academic and corporate)

## Learn More About Our History

The Department of Mycology & Plant Pathology (MPPL) took its start in 2002 in a small space provided by Department of Botany, University of the Punjab. Keeping in view future expansions we started struggle for its own independent edifice in its very early stage. MPPL entered into a new era of its development when university of the Punjab approved loan of 20M against our 1<sup>st</sup> PC-I submitted to HEC for the new building and the ground breaking ceremony was held on 8<sup>th</sup> Dec 2004.

First phase of the department completed in very first year of its ceremony and we shifted to this building on 21<sup>st</sup> Dec 2005. The main building of today's institute is spread over an area of around seven acres of land. Another 7 acres have been earmarked for development of experimental station behind the main building. Covered area of the main structure is 44,000 sq. ft. The building has 8 lecture rooms, each capable of accommodating sufficient number of students; 5 fully equipped general laboratories, 3 for B.Sc. (Hons), 1 each for M.Sc. (Hons) and Ph.D. students; Research laboratories, allocated for advanced research in the field of Molecular Plant Pathology, Seed/ Post-harvest Pathology, Industrial Biotechnology, Biofertilizers/ Biopesticides, Tissue Culture; Food Science & Technolgy; Food Safety & Nutrition; one Central Lab





# Institute of Agricultural Sciences



(Hi-Tech.); Faculty Offices; Faculty Lounge; Common rooms for Boys and Girls separately; Two Seminar room; Computer Lab; Publication Cell; Growth Room; 2 Culture Rooms, Conservatory, Library, Main Store, Administrative staff offices, and a captivating visitors lounge.

The building structure has been designed to make best use of fresh air and natural light. The architecture is at once artistic and practical. Well-designed landscaping has been done in front of the main building for aesthetic inspiration.

The building has an ample room for further vertical expansion in the subsequent phases of construction. The first floor after construction will be entirely allocated as the Research Wing.





# Academic Programs



IAGS is entertaining B.Sc. (Hons.), M.Sc. (Hons.), M.Sc. (Hons.) leading to Ph.D. and Ph.D. students. As the classes in the institute were started in 2003, the first batch of B.Sc. (Hons.) 4-year program completed their session in March 2007. In the area of teaching, attention remains focused on concept building. This goal is achieved by curriculum development based on national needs and as per international standards and specifications like judicious distribution of credit hours, compaction of curriculum and application of subject in the applied disciplines. Besides conceptual teaching, tutorials, quizzes and presentations are regular features of class activities. Research activities are of academic, applied and adaptive nature. Research projects assigned to Ph.D. students are focused on these aspects. Students are sent to other research institutions and industry for internship.



This provides them the opportunity to interact with other scientists and stake holders and helps in capacity building for future jobs. During internship they are closely monitored by the faculty for continuous guidance and necessary support.

## **B.Sc. (Hons.) Agriculture 4-year Program**

This program has been designed to develop basic understanding of the subject and to train students for advance degrees in the field. The program is designed in a way to provide trained corps of agriculturists as a source of information and expertise to the citizenry on matters relating to agricultural production and management, horticultural engineering, plant breeding, plant protection, plant biotechnology, food processing and preservation, genomics, food safety and nutrition and the sustainable utilization and stewardship of plant resources for the benefit of humankind.

### **Eligibility Criteria**

- i) The applicants with F.Sc. (Pre-Medical) or equivalent recognized qualification with Biology and Chemistry are eligible for admission to B.Sc. (Hons.) Agriculture degree programme
- ii) Total number of seats, their allocation and procedure for admission are decided by the admission committee of undergrad each year.
- iii) Maximum age limit for admission in B.Sc (Hons.) programme is 24 years.

## **M.Sc. (Hons.) Agriculture 2-year Program**

M.Sc (Hons) Agriculture is being offered in the following subject:

Plant Pathology  
Food Science and Technology  
Horticulture  
Entomology

### **Eligibility Criteria**

- i) 1<sup>st</sup> Division/ CGPA = 2.5 in B.Sc. (Hons.) Agriculture 4 years or its equivalent in the relevant subject from a recognized University (At least 16 years of education; 130 credit hours).
- ii) Only those candidates will be considered who have qualified GAT.



# Scheme of Studies



## Scheme of Studies for B. SC. (Hons.) Agriculture (Four Years Program)

1 <sup>st</sup> Semester B.Sc. (Hons) Agriculture		
Course No.	Title of the Course	Credit Hours
Agr-101	Basic Agriculture	3(2-1)
SS-101	Introduction to Soil	3(2-1)
Hort-101	Introductory Horticulture	3(2-1)
Eng-101	Exercise in Reading, Writing & Comprehension	3(3-0)
CS-101	Introduction to Information and Communication Technologies	3(2-1)
Math-101	Elementary Mathematics	3(3-0)
IS-101	Islamic Studies	2(2-0)
	<b>Total Credit Hours</b>	<b>20</b>

2 <sup>nd</sup> Semester B.Sc. (Hons) Agriculture		
Course No.	Title of the Course	Credit Hours
Hort-102	Horticultural Crop Production	3(2-1)
AH-102	Introduction to Animal Husbandry	3(2-1)
AE-102	Introduction to Agricultural Economics	3(3-0)
Stat-102	Introductory Statistics	3(3-0)
FRW-102	Introduction to Forest and Watershed Management	2(1-1)
CP-102	General Crop Physiology	2(1-1)
ID-102	Irrigation and Drainage Practices	2(1-1)
PS-102	Pakistan Studies	2(2-0)
	<b>Total Credit Hours</b>	<b>20</b>

3 <sup>rd</sup> Semester B.Sc. (Hons) Agriculture		
Course No.	Title of the Course	Credit Hours
PBG-201	Elementary Genetics & Plant Breeding	3(2-1)
FST-201	Introduction to Food Science and Technology	3(2-1)
Ento-201	Introductory Entomology	3(2-1)
MAB-201	Agribusiness Management	3(3-0)
FRW-201	Introduction to Rangeland and Wildlife Management	2(1-1)
VMD-201	Introduction to Veterinary Preventive Medicines	2(1-1)
FMP-201	Farm Mechanization and Practices	2(1-1)
Agr-201	Field Crop Production - I	2(1-1)
	<b>Total Credit Hours</b>	<b>20</b>



# Scheme of Studies



4 <sup>th</sup> Semester B.Sc. (Hons) Agriculture		
Course No.	Title of the Course	Credit Hours
PP-202	Introductory Plant Pathology	3(2-1)
FST-202	Food Processing & Preservation	3(2-1)
Ento-202	Applied Entomology	3(2-1)
AEE-202	Introduction to Agriculture Extension	3(3-0)
Eng-202	Communication Skills & Leadership Development	3(3-0)
FRW-202	Introduction to GIS and RS	3(2-1)
Agr-202	Field Crop Production - II	2(1-1)
	<b>Total Credit Hours</b>	<b>20</b>

## List of additional Supporting Courses\*

Course No.	Title of the Course	Credit Hours
MB-102	Basics of Molecular Biology	2(2-0)
RS-202	Rural Sociology & Development	2(2-0)
FRW-204	Biodiversity and Climate change	2(2-0)
AE-201	Economics of Climate Change	3(3-0)
RS-204	Agriculture and Rural Development	3(3-0)
Biotech-201	Recombinant DNA Techniques	2(2-0)
Biotech-202	Biosafety and Bioethics	1(1-0)
Biotech-204	Introductory Bioinformatics	2(0-2)
Biotech-206	Agricultural Biotechnology	3(2-1)
SS-202	Agricultural Chemistry	3(2-1)
FST-204	Principles of Food Security	2(2-0)
ES-202	GIS and its Applications	3(2-1)
ES-204	Ecosystem and environment	3(2-1)

\*Courses to be offered in addition/replacement of existing supporting courses in the scheme of studies.

## PLANT PATHOLOGY

### 5<sup>th</sup> Semester B.Sc. (Hons) Agriculture (Plant Pathology)

Course No.	Title of the Course	Credit Hours
PP-301	Introductory Mycology	3(2-1)
PP-303	Introduction to Plant Parasitic Nematodes	3(2-1)
PP-305	Introduction to Plant Prokaryotes	3(2-1)
PP-307	Introduction to Plant Viruses	3(2-1)



# Scheme of Studies



PP-309	Introduction to Plant Pathogens	3(2-1)
PP-311	Abiotic diseases of Plants	3(2-1)
PP-313	Methods and Techniques in Plant Pathology	3(1-2)
PP-315	Plant Quarantine and SPS Measures	3(2-1)
<b>Total Credit Hours</b>		<b>24</b>

## 6<sup>th</sup> Semester B.Sc. (Hons) Agriculture (Plant Pathology)

Course No.	Title of the Course	Credit Hours
PP-302	Beneficial Microorganisms for Sustainable Agriculture	3(2-1)
PP-304	Diseases of Field Crops	3(2-1)
PP-306	Introductory Range and Forest Pathology	3(2-1)
PP-308	Plant Resistance to Diseases	3(2-1)
PP-310	Seed & Post Harvest Pathology	3(2-1)
PP-312	Plant Disease Epidemiology	3(2-1)
PP-314	Biotechnology and its Application in Plant Pathology	3(2-1)
<b>Total Credit Hours</b>		<b>21</b>

## 7<sup>th</sup> Semester B.Sc. (Hons) Agriculture (Plant Pathology)

Course No.	Title of the Course	Credit Hours
PP-401	Soil Born Plant Pathogen & their Management	3(2-1)
PP-403	Diseases of Fruits & Ornamentals	3(2-1)
PP-405	Pesticides, their Action & Application	3(2-1)
PP-407	Plant Disease Diagnostic	3(2-1)
PP-409	Diseases of veg. Crops	3(2-1)
PP-411	Introduction to Molecular Plant Pathology	3(2-1)
PP-413	Histopathology of Diseased Plants	3(2-1)
PP-415	Biology and Cultivation of Edible Fungi	3(2-1)

## 8<sup>th</sup> Semester B.Sc. (Hons) Agriculture (Plant Pathology)

Course No.	Title of the Course	Credit Hours
PP-422	Internship / Study Project	5(0-5)
PP-424	Seminar	1(1-0)
<b>Total Credit Hours</b>		<b>06</b>



# Scheme of Studies



## HORTICULTURE

### 5<sup>th</sup> Semester B.Sc. (Hons) Agriculture (Horticulture)

Course No.	Title of the Course	Credit Hours
Hort-301	Principles of Fruit Production	4(3-1)
Hort-303	Principles of Vegetable Production	4(3-1)
Hort-305	Principles of Ornamental Crop Production	3(2-1)
Hort-307	Nursery Management and Certification System	4(2-2)
Hort-309	Medicinal and Aromatic Plants	3(2-1)
	<b>Total Credit Hours</b>	<b>18</b>

### 6<sup>th</sup> Semester B.Sc. (Hons) Agriculture (Horticulture)

Course No.	Title of the Course	Credit Hours
Hort-302	Commercial Fruit Production	4(3-1)
Hort-304	Commercial Vegetable Production	4(3-1)
Hort-306	Introductory Landscape Gardening	3(2-1)
Hort-308	Protected Horticulture	3(2-1)
Hort-310	Breeding of Horticultural Crops	3(2-1)
Hort-311	Indoor Plant Culture	2(1-1)
Hort-312	Business Management in Horticulture	3(3-0)
	<b>Total Credit Hours</b>	<b>22</b>

### 7<sup>th</sup> Semester B.Sc. (Hons) Agriculture (Horticulture)

Course No.	Title of the Course	Credit Hours
Hort-401	Research Methods and Techniques in Horticulture	4(2-2)
Hort-403	Minor Fruits	3(2-1)
Hort-405	Commercial Flower Production	3(2-1)
Hort-407	Post-Harvest Horticulture	4(3-1)
Hort-409	In Vitro Propagation	2(1-1)
Hort-411	Vegetable and Flower Seed Production	3(2-1)
	<b>Total Credit Hours</b>	<b>19</b>

### 8<sup>th</sup> Semester B.Sc. (Hons) Agriculture (Horticulture)

Course No.	Title of the Course	Credit Hours
Hort-422	Internship / Study Project	5(0-5)
Hort-424	Seminar	1(1-0)
	<b>Total Credit Hours</b>	<b>06</b>



# Scheme of Studies



## FOOD SCIENCE & TECHNOLOGY

### 5<sup>th</sup> Semester B.Sc. (Hons) Agriculture (Food Sci. & Tech.)

Course No.	Title of the Course	Credit Hours
FST-301	Principles of Human Nutrition	3(3-0)
FST-303	General Microbiology	3(2-1)
FST-305	Fruit and Vegetable Processing	3(2-1)
FST-307	Dairy Technology	3(2-1)
FST-309	Food Analysis	3(1-2)
FST-317	Unit Operations in Food Processing	3(3-0)
	<b>Total Credit Hours</b>	<b>18</b>

### 6<sup>th</sup> Semester B.Sc. (Hons) Agriculture (Food Sci. & Tech.)

Course No.	Title of the Course	Credit Hours
FST-304	Food Microbiology	3(2-1)
FST-306	Meat Technology	3(2-1)
FST-308	Food Product Development	3(1-2)
FST-310	Beverage Technology	3(2-1)
FST-312	Food Chemistry	3(3-0)
FST-314	Food Plant Layout and Sanitation	2(2-0)
FST-320	Sugar Technology	3(2-1)
	<b>Total Credit Hours</b>	<b>20</b>

### 7<sup>th</sup> Semester B.Sc. (Hons) Agriculture (Food Sci. & Tech.)

Course No.	Title of the Course	Credit Hours
FST-401	Food Laws and Regulations	3(3-0)
FST-403	Bakery Products Technology	3(2-1)
FST-405	Technology of Fats and Oils	3(2-1)
FST-407	Food Biotechnology	3(2-1)
FST-409	Food Safety and Toxicology	3(3-0)
FST-415	Milk and Meat Hygiene and Public Health	3(2-1)
	<b>Total Credit Hours</b>	<b>18</b>

### 8<sup>th</sup> Semester B.Sc. (Hons) Agriculture (Food Sci. & Tech.)

Course No.	Title of the Course	Credit Hours
FST-422	Internship / Study Project	5(0-5)
FST-424	Seminar	1(1-0)
	<b>Total Credit Hours</b>	<b>06</b>



# Scheme of Studies



## ENTOMOLOGY

### 5<sup>th</sup> Semester B.Sc. (Hons) Agriculture (Entomology)

Course No.	Title of the Course	Credit Hours
Ento-301	Insect Morphology	3(2-1)
Ento-303	Principles of Insect Taxonomy	3(2-1)
Ento-305	Insect Ecology	3(2-1)
Ento-307	Insect Pests of Household, Man and animals	3(2-1)
Ento-309	Insect Behavior	3(2-1)
Ento-311	Apiculture	3(2-1)
	<b>Total Credit Hours</b>	<b>18</b>

### 6<sup>th</sup> Semester B.Sc. (Hons) Agriculture (Entomology)

Course No.	Title of the Course	Credit Hours
Ento-302	Insect Physiology	3(2-1)
Ento-304	Insect Classification and Biodiversity	3(2-1)
Ento-306	Agricultural Pests and their Management	4(3-1)
Ento-308	Stored Product Pests and their management	3(2-1)
Ento-310	Beneficial Insects	3(2-1)
Ento-312	Integrated Pest Management	4(3-1)
	<b>Total Credit Hours</b>	<b>20</b>

### 7<sup>th</sup> Semester B.Sc. (Hons) Agriculture (Entomology)

Course No.	Title of the Course	Credit Hours
Ento-401	Scientific writing and Presentation	3(2-1)
Ento-403	Plant Resistance to Insect Pests	3(2-1)
Ento-405	Insecticides and their Application	3(2-1)
Ento-407	Range and Forest Entomology	3(2-1)
Ento-409	Agriculture and Environmental Pollution	3(2-1)
Ento-411	Biological Control of Insect Pests	3(2-1)
	<b>Total Credit Hours</b>	<b>18</b>

### 8<sup>th</sup> Semester B.Sc. (Hons) Agriculture (Entomology)

Course No.	Title of the Course	Credit Hours
Ento-422	Internship / Study Project	5(0-5)
Ento-424	Seminar	1(1-0)
	<b>Total Credit Hours</b>	<b>06</b>



# Scheme of Studies



## Scheme of Studies for M. SC. (Hons.) Agriculture (Two Years Program)

Courses for M.Sc. (Hons) Agriculture (Plant Pathology)		
Course No.	Title of the Course	Credit Hours
PP - 701	Mycology-I	3(2-1)
PP - 702	Mycology-II	3(2-1)
PP - 703	Fungal systematics	3(2-1)
PP - 704	Fungal Plant Pathology*	3(2-1)
PP - 705	Plant Virology*	3(2-1)
PP - 706	Plant Bacteriology*	3(2-1)
PP - 707	Plant Nematology*	3(2-1)
PP - 708	Ecology and Epidemiology of Plant Diseases	3(2-1)
PP - 709	Biochemistry and Physiology of Diseased Plants	3(2-1)
PP - 710	Genetics of Plant Pathogens	3(3-0)
PP - 711	Seed Pathology	3(2-1)
PP - 712	Integrated Plant Disease Management	3(2-1)
PP - 713	Post-harvest Pathology	3(2-1)
PP - 714	Insects in relation to plant diseases	3(2-1)
PP - 715	Forest and Shade Tree Pathology	3(2-1)
PP - 716	Advances in Plant Pathology	3(3-0)
PP - 717	Molecular Plant Virology	3(2-1)
PP - 718	Molecular Plant Microbe Interactions	3(2-1)
PP - 719	Plant Pathology and International Obligations	3(3-0)
PP - 720	Biological Control of Plant Pathogens	3(2-1)
PP - 721	Bioinformatics in Plant Pathology	3(2-1)
PP - 722	Plant Pathology and Environmental Concerns	3(3-0)
PP - 723	Vector Transmission of Plant Diseases	3(2-1)
PP - 736	Special Problem	1(1-0)
PP - 738	Seminar	1(1-0)
PP-740	Research and Thesis	10 (0-10)

\*Core courses for MSc (Hons) Specialization in Plant Pathology



# Scheme of Studies



## Courses for M.Sc. (Hons) Agriculture (Food Science & Technology)

Course No.	Title of the Course	Credit Hours
FST-701	Advanced Food Biotechnology	3(2-1)
FST-702	Food Enzymology	3(2-1)
FST-703	Advanced Food Microbiology	3(2-1)
FST-704	Baking Science and Technology	3(2-1)
FST-705	Food Additives	3(2-1)
FST-706	Milling of Cereals	3(2-1)
FST-707	Food Quality Assurance Management	3(3-0)
FST-708	Advanced Beverage Technology	3(2-1)
FST-709	Dairy Processing-I	3(2-1)
FST-710	Dairy Processing-II	3(2-1)
FST-711	Advanced Food Chemistry	3(2-1)
FST-712	Industrial Processing Technology of Edible Oils and Fats Products	3(2-1)
FST-713	Chemistry of Edible Oils and Fats	3(2-1)
FST-714	Technology of Processed Meat	3(2-1)
FST-715	Physical Properties of Food	3(2-1)
FST-716	Starch Chemistry and Technology	2(2-0)
FST-717	Postharvest Management	3(3-0)
FST-718	Advanced Food Packaging	3(2-1)
FST-719	Meat Science	3(2-1)
FST-720	Food Toxicology	3(3-0)
FST-721	Recent Advances in Food Science and Technology	3(3-0)
FST-722	Food Industrial Waste Management	3(3-0)
FST-723	Functional Foods and Nutraceuticals	3(2-1)
FST-724	Technology of Spices and Condiments	3(3-0)
FST-725	Prebiotics and probiotics	3(3-0)
FST-726	New Trends in Fruits and Vegetables Processing	3(3-0)
FST-727	Advances in Food Safety	3(3-0)
FST-728	Food Supply Chain Management	3(3-0)
FST-736	Special Problem	1(1-0)
FST-738	Seminar	1(1-0)
FST-740	Research and Thesis	10(0-10)



# Scheme of Studies



## Courses for M.Sc. (Hons) Agriculture (Entomology)

Course No.	Title of the Course	Credit Hours
ENT-701	Research Methods in Entomology	3(2-1)
ENT-702	Origin and Phylogeny of Insects	3(3-0)
ENT-703	Environmental Entomology	2(2-0)
ENT-704	Advanced Insect Morphology	3(2-1)
ENT-705	Advanced Insect Ecology	3(2-1)
ENT-706	Numerical Taxonomy	3(2-1)
ENT-707	Advanced Insect Physiology and Embryology	3(2-1)
ENT-708	Molecular Entomology	3(2-1)
ENT-709	Insecticide Resistance and Management	3(2-1)
ENT-710	Insects in Relation to Plant Diseases	3(2-1)
ENT-711	Medical and Veterinary Entomology	3(2-1)
ENT-712	Acarology	3(2-1)
ENT-713	Classification of Immature Insects	3(2-1)
ENT-714	Insecticide Toxicology	3(2-1)
ENT-715	Insect Nutrition	3(2-1)
ENT-716	Insecticides and Public Health	3(2-1)
ENT-717	Advances in Biological Control of Insect Pests	3(2-1)
ENT-718	Advances in Insect Behavior	3(2-1)
ENT-721	Pesticides Application Equipments	3(1-2)
ENT-722	Advances in Pest Management Research	3(2-1)
ENT-723	Insect Cytogenetics and Cytotaxonomy	3(2-1)
ENT-724	Insect Pathology	3(2-1)
ENT-725	Insect Biochemistry	3(2-1)
ENT-726	Chemical Ecology of insects	3(3-0)
ENT-727	Forensic Entomology	3(2-1)
ENT-728	Insect Neurobiology	3(2-1)
ENT-729	Insect Rearing Techniques	3(2-1)
ENT-730	Advanced Stored-Product Entomology	3(2-1)
ENT-736	Special Problem	1(1-0)
ENT-738	Seminar	1(1-0)
Ento-740	M.Sc. (Hons.) Thesis	10(0-10)



# Teaching & Research Facilities



## Institutional Library

We at the Institute of Agricultural Sciences work to enrich the institutional library and strengthen it as a vital center for scholarly life. We have an enthusiasm for books and learning, as well as an appreciation of the library's importance to the institute and the University. During last years, 357 books and 39 more research journals were added in the library of the institute whose details are listed on the library catalogue. Library has been automated digitally and the books can be searched from anywhere in the world through Online Public Access Catalogue (OPAC) at Punjab University Website ([www.pu.edu.pk/opac/index.aspx](http://www.pu.edu.pk/opac/index.aspx)).

Acquisition, cataloguing / classification & circulation sections are also automated and provision of SDI (Selective Dissemination of Information) service to the faculty members, research scholars and students is available while surfing through the HEC e-databases of online Journals.



## Punjab University Main Library

The Punjab University Library is the largest resource-centre of knowledge and information in Pakistan. The main library of the University is located at the Quaid-i-Azam Campus. It has valuable collection of books on a wide range of subjects. It preserves 35000 rare manuscripts, research theses, books, and microfilms. At present the main library has books, journals, and manuscripts in 18 languages. The total collection of the library has reached over 500,000 volumes. It is a depository library for the United Nations Publication and is regularly used by the research scholars and students. Over 100 research journals in various disciplines are subscribed. It has been provided the facility of 18,000 online journals. The library is on wide area net-work.

## Laboratories

IAGS faculty welcome electronic technology as a potentially effective tool to expand and to enhance instructions. However, it can neither duplicate nor replace learning experiences afforded to students through hands-on lab and field activities. These experiences engage students in open-ended investigative processes, using scientific problem solving. has Five working general labs to accommodate research and course practicals. Beside this, lab equipments like PCR, spectrophotometer, centrifuge, UV illuminator, Rotary. evaporator, Incubator, High performance liquid





# Teaching & Research Facilities



chromatography (HPLC) and research microscopes etc., are added in the research laboratories to enhance professional research on industrial mycology, molecular pathology, phytovirology, seed and post harvest pathology, food science and technology, food safety and nutrition, and tissue culture etc. For isolation and purification of bacterial and fungal strains Institution has adequately facilitated culture and growth rooms. Conservatories have several low temperature refrigerators.

## Central lab

Institute of Agricultural Sciences has developed a central lab that was inaugurated on 27th of March 2008 by Prof. Dr. Mujahid Kamran, Vice chancellor, University of the Punjab. This is a step towards promotion of science culture practically. The lab is equipped with sophisticated scientific equipment specifically related to molecular sciences, chromatography, microscopy, and microbial preservation etc.

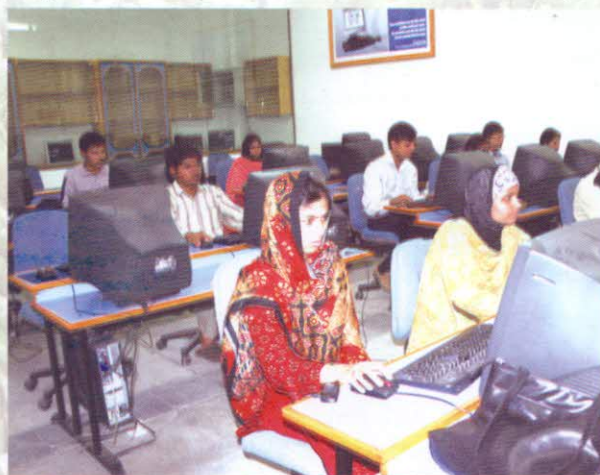
## Computer lab

No one can refute importance of computers as a tool for self directed learning, research, exploration and collaborative project work. The Institutional computer laboratory is equipped with 30 computers connected with internet. The facility is available to students and teaching staff six days a week from 8.00am – 6.00pm. Beside that six other systems are also available to PhD students and teaching staff. Computer lab is also facilitated with multimedia projector.



## Audio-visual aids

IAGS is fully equipped with modern audio-visual equipment. Multimedia projectors, automated screens, document cameras, overhead projectors and audio system help in making great presentations both for the presenters as well as the audience. Our conviction is that audio-visual mode is the most effective way of delivering information and knowledge. That is why we have allocated considerable funds for development of this facility and plan to keep it upgraded with time.



## Experimental Station

An area of seven acres at the back of the institution has been provided by the university, for development of experimental station. The facility is being developed for the faculty and students field experiments. Presently, it has one growth tunnel and green house for simulating and controlling environmental parameters. Further funds have been requested for erecting more green houses and other infrastructure.



# Agriculture Jobs & Careers in Pakistan



Agriculture and its allied professions are not merely source of employment but a complete way of life. Pakistan basically is an agricultural country and the future of a career in agriculture in Pakistan is very bright. One can find agriculture jobs very easily after successful completion of agriculture degree.

## Future outlook of jobs in agriculture in Pakistan

Nobody can refuse the importance of agriculture and its allied fields. More than 80 % people in our country are directly or indirectly connected to this field. Numerous industries which depend on the agriculture raw materials have been set up. Trained agricultural scientists are always required for such industries. A united nation sister organization i.e. Food and Agriculture Organization is working on the research for the prosperity in the field of agriculture. The regional office of this organization offers Openings for Pakistani agriculture scientists time by time. Grade 17 job in government organizations is offered to the B.Sc. (Hons.) Agriculture degree holders. Agriculture graduates have opportunities to work in the following organization:

Agriculture services, forests, WAPDA, Seed Corporation of Pakistan, Water Management Project, Agriculture Development Bank, Agricultural Research Council, PCSIR Labs, Central Cotton Committee, Military Food Laboratory, CDA, Malaria Prevention Programme, Rural Development Programme, Agriculture allied industries, Livestock growth centers, Dairy Farms, Personal Business, Agricultural Development Corporation, Feed of Livestock, Feed Making Industries. Federal & Provincial Plant Protection Department, Food Department, Food Industries, Pesticides & Seed Companies, Punjab Food Authority, Health Department and Food Testing Labs etc.





# Activities in Publication Cell



IAGS is also playing a vital role in development of scientific culture and to enhance this capacity institution has established a publication cell catering newsletters, student magazine, scientific journal and research bulletins. The cell ensures the circulation of these publications in other universities and research institutes nationwide. Those who are interested in getting copies of any of these publications can contact through e-mail on [director.iags@pu.edu.pk](mailto:director.iags@pu.edu.pk)



## Mycopath

The MYCOPATH is a biannual scientific journal that publishes original research articles dealing with fundamental and applied aspects of agriculture. Thus, in addition to bacteriological, mycological, and virological topics, entomological, horticultural, nematological and plant protection studies in general are also included. We are trying our best to augment its standards and to regularize its publication.

## Agricultural News

A quarterly newsletter Agricultural News has successfully completed many years of its regular publication. A part from news, views and research notes, the most important regular feature of the newsletter is the list of new additions of fungal and bacterial cultures under the title of "current inventory of FCBP (first fungal culture bank of Pakistan)".

## Food and Phytochemistry Updates

Keeping in view the national development strategies and following the latest trends, the Food Science and Technology at IAGS is aiming at achieving the goal of "food science and human health, as well as high value utilization of food resources". Herbal heritage garden is another national level project being run here to conserve the precious flora of this region and to use their chemistry for diverse benefits. The updates of activities in this regard are being regularly published in a yearly newsletter entitled "Food and Phytochemistry Updates".

## Agrimag

To inculcate healthy activity of mind and spirit students are involved in various academic & extracurricular committees, encouraged to join scientific societies. Write research articles besides that to improve their communication skills they are asked to share their creative thinking in form of short stories, poetry, interviews, scientific notes etc. To compile & publish student magazine, faculty is participating and facilitating the students in this venture. Student Magazine 'AGRIMAG' is also being published annually.



# First Fungal Culture Bank of Pakistan



The destruction of natural habitats has motivated scientists and environmentalists to collect, measure, and—one hopes—ultimately preserve as much of this planet's diverse biota as possible. Simultaneously, growing human populations have impelled research into how components of this biota can be manipulated to avert a crisis in human food, shelter, and health. In addition, living collections also strongly contribute to the basic sciences, including systematics.

It was in 2003 when first culture collection bank started its working in Pakistan. The initiative was taken by Prof. Dr. Rukhsana Bajwa, Ex-Director of this Institute. The project started with small seed money provided by the worthy Vice Chancellor, University of the Punjab was soon taken up by Prof. Dr. J.H. Mirza, a dedicated professor and the best mycologist in Pakistan, as incharge with two research associates and two more research associates have recently joined FCBP. The bank is now registered with the World Data Centre for Microorganisms (WDCM); World Federation of Culture Collection (WFCC) and Microbial Research Centre (MIRCEN).

Few people in Pakistan can correctly identify microbial cultures. Many researchers and research students isolate fungi and other microorganism but they can't identify them. FCBP is providing facility to identify such cultures up to species level. Installation of clean room technology and provision of bio-safety cabinets in FCBP will bring it at par with prescribed international standards.

The main activity of FCBP is isolation of pure cultures, identification and preservation of fungi of Pakistan. The bank has about 840 fungal accessions. On excessive demand of researchers for cultures of bacterial species, the bank has also initiated isolation and conservation of bacteria. Now bank holds inventory of around 120 isolates of bacteria as well. The bank is providing authentic cultures on demand and also offers training to researchers for the period of internships and through arranging workshops. For updates, regarding new inventory a regular newsletter by the name of 'AGRICULTURAL NEWS' is in countrywide circulation.





# Herbal Heritage Garden



The prestigious project entitled “Herbal Heritage Garden” was launched on 30<sup>th</sup> October 2004 with the aim of conservation and production of precious herbs. The seed money for the project was awarded by the University of the Punjab. Later on a PC-I was submitted to HEC in response to which the grants were allocated to Institute for the construction of an independent research wing for HHG. It took about a year for construction and wood work to get completed. Lt. Gen. (R) Arshad Mahmood Ex-Vice-Chancellor, University of the Punjab, inaugurated the building on 20<sup>th</sup> August, 2007.



The number of medicinal herb species collected/preserved/raised under HHG project have reached to 200. An extraction unit for future research on active components was developed in cooperation with PCSIR laboratories Pakistan.





# Facilities at Punjab University



## Health Facilities

Punjab University provides medical support to both resident and day scholars. The University Health Centre has its own Clinical Laboratory, Radiology Department, Ophthalmology Unit and Dental Clinic. In addition to this, preventive aspects of medicine are being given prime importance. A vaccination centre under the Government's EPI (expanded program for immunization) has been established at Quaid-e-Azam Campus.

## Transport

The University has a big fleet of buses to provide transport facility to university students and employees. There are 17 routes within the city and a whole day half hourly service between the two campuses and runs from 6 am to 9 pm daily. To meet the running cost of these buses a nominal is charged from different categories of students and employees. Institute also avail the facility of buses during study tours.

## Hostels

There are twenty six student hostels including seven separate hostels for female students. The residential accommodation comprises cubicles and three bed dormitories. The application for allotment of seats in hostels is submitted to the Director of the Institute who forwards it to the Chairman Hall Council. The allotment committee make procession to accommodate maximum students and informs both the student and Director of the Institute.

## IT Centre

The Punjab University has established an IT Centre to manage all the activities of IT Infrastructure like network development, software development, website development and other growing areas in IT such as ISP setup. Punjab University is the first public university in the field of IT to lay more than 28 Kms. long Fiber Optic Cable Network. All the Departments are connected through local area network and e-mail correspondence is being facilitated. Over 5000 state of the art computers have been provided to Departments. Bandwidth has been gradually increased from 64Kb to 9Mb, highest in any university in Pakistan.

## Khanspur Campus

The Khanspur Campus of the Punjab University, now named as the Sir Syed Campus, is a unique field facility in the country to support study tours, field research projects and skill promoting workshops. It is under the management responsibility of the Center for Integrated Mountain Research (CIMR). Khanspur, a major settlement in Ayubia, is about 23 km (14miles) westwards from Murree, between 14km and 16km on the Murree-Nathigali-Abbottabad Road, a 7km long metalled road branches off from Kuza Gali leading to Khanspur.



# Extramural Activities



Specific activities help with specific goals. Participation in extracurricular activities augments in personality building process in many ways. You get to explore your physical, creative, social, political, and career interests with like-minded people. You find friends, trying something different may bring you in contact with people you didn't know who share your interests and curiosity.

IAGS provides all possible avenues to make your student life more fruitful and to enhance some mental capabilities. It organizes Welcome, Eid Milan and Iftar parties. Students enjoy and participate in Annual Sports Week both at university and institutional level. Number of indoor and outdoor events like cricket, football, athletics, chess, badminton and musical chair for girls add colour during sports week. Students and faculty also organize special days and walks for noble causes.



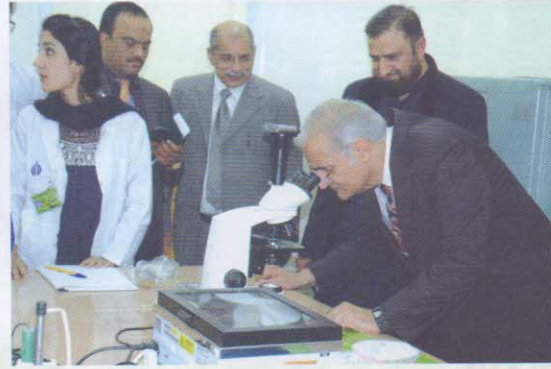


# Extramural Activities





# Extramural Activities





# Staff Directory



IAGS faculty comprises of highly qualified, young people who share the institutional vision and strive hard to fulfill it. They provide education and training on and off classes and try to develop students on an overall basis. They make continuous effort to maintain atmosphere conducive for learning and development. Faculty members have floated several research projects for sponsorship from HEC, EPD, PSF and Punjab University.

## **Prof. Dr. M. Saleem Haider**

Professor

Qualifications: Ph.D. DIC (London), Post Doc. Canada (Plant Pathology / Molecular Plant Virology)

Experience: 21 years

Publications: 122

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## **Dr. Salik Nawaz Khan**

Associate Professor (TTS)

Qualifications: Ph.D. Agriculture (Plant Pathology)

Experience: 28 years

Publications: 70

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## **Dr. Arshad Javaid**

Associate Professor (TTS)

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Experience: 24 years

Publications: 306

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## **Dr. Tehmina Anjum**

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## **Dr. Uzma Bashir**

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# Staff Directory



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## **Dr. Shazia Shafique**

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## **Dr. Muhammad Ashfaq**

Assistant Professor (TTS)

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Experience: 09 years

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## **Dr. Rashid Mahmood**

Assistant Professor (TTS)

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## **Mr. Malik Fiaz Hussain Ferdosi**

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## **Mr. Hameed Ullah Malik**

Assistant Professor (On Leave)

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## **Dr. Shinawar Waseem Ali**

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## **Dr. Shahbaz Ahmad**

Assistant Professor (TTS)

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## **Mr. Muhammad Nasir Subhani**

Assistant Professor

Qualifications: Ph.D. (Plant Pathology) UAF

Experience: 14 years

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## **Dr. Naureen Akhtar**

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Post Doc. UK (Nitrate Metabolism)

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Publications: 67

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## **Dr. Nasir Ahmed**

Assistant Professor (TTS)

Qualifications: Ph.D. Food Biotechnology

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# Staff Directory



## **Dr. Muhammad Ali**

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## **Dr. Hafiz Azhar Ali Khan**

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## **Dr. Zill-e-Huma**

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## **Ms. Zahida Qadeer**

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Publications: 02

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## **Dr. Sajid Ali (Silver Medalist - 1st Position)**

Assistant Professor (On Contract)

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## **Dr. Zaheer Hussain**

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Publications: 06

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# Staff Directory



## **Dr. Muhammad Shafiq**

Assistant Professor (On Contract)

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Experience: 07 years

Publications: 22

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## **Mr. Nadeem Shad**

Lecturer

Qualifications: M.Sc. (Hons.) Agriculture Plant Pathology

Experience: 13 years

Publications: 10

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## **Ms. Sana Hanif (Gold Medalist)**

Lecturer (On Leave)

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Experience: 6 years

Publications: 08

E.mail: sana.hanif10@gmail.com



## **Ms. Qurat-ul-Ain Farooq**

Lecturer

Qualifications: M.Sc. (Hons.) Agri. (Horticulture)

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## **Mr. Adnan Zahid (Gold Medalist)**

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## **Ms. Mehreen Hassan (Gold Medalist)**

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Publications: 06

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## Mr. Moazzam Anees

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## Mr. M. Tariq Manzoor

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## Dr. Waheed Anwar

Research Officer (On Contract)  
Qualifications: Ph.D. Agriculture (Plant Pathology), PU  
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## Dr. Adnan Akhter

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Publications: 04  
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## Dr. Mubeen Sarwar

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## Administrative Staff

### Mr. Muhammad Aslam

P.S. to Director  
Qualifications: F.A  
Experience: 39 years



### Mr. Tafique Asghar

Admin Officer  
Qualifications: B.Com  
Experience: 29 years







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