



# PROSPECTUS 2020-21



**MNS-UNIVERSITY OF AGRICULTURE, MULTAN**

*Old Shujabad Road, Multan*



# ! Disclaimer

The information provided in this prospectus is for the guidance of newly admitted students. Every effort has been made to ensure accuracy of information contained in this prospectus. The University reserves the right in every case and for any reason to introduce changes to the given information including addition, omission, withdrawal or restructuring of degree programs, courses, rules, policies, fees, or other matters. The prospectus is published by the prospectus committee appointed by the University authorities.

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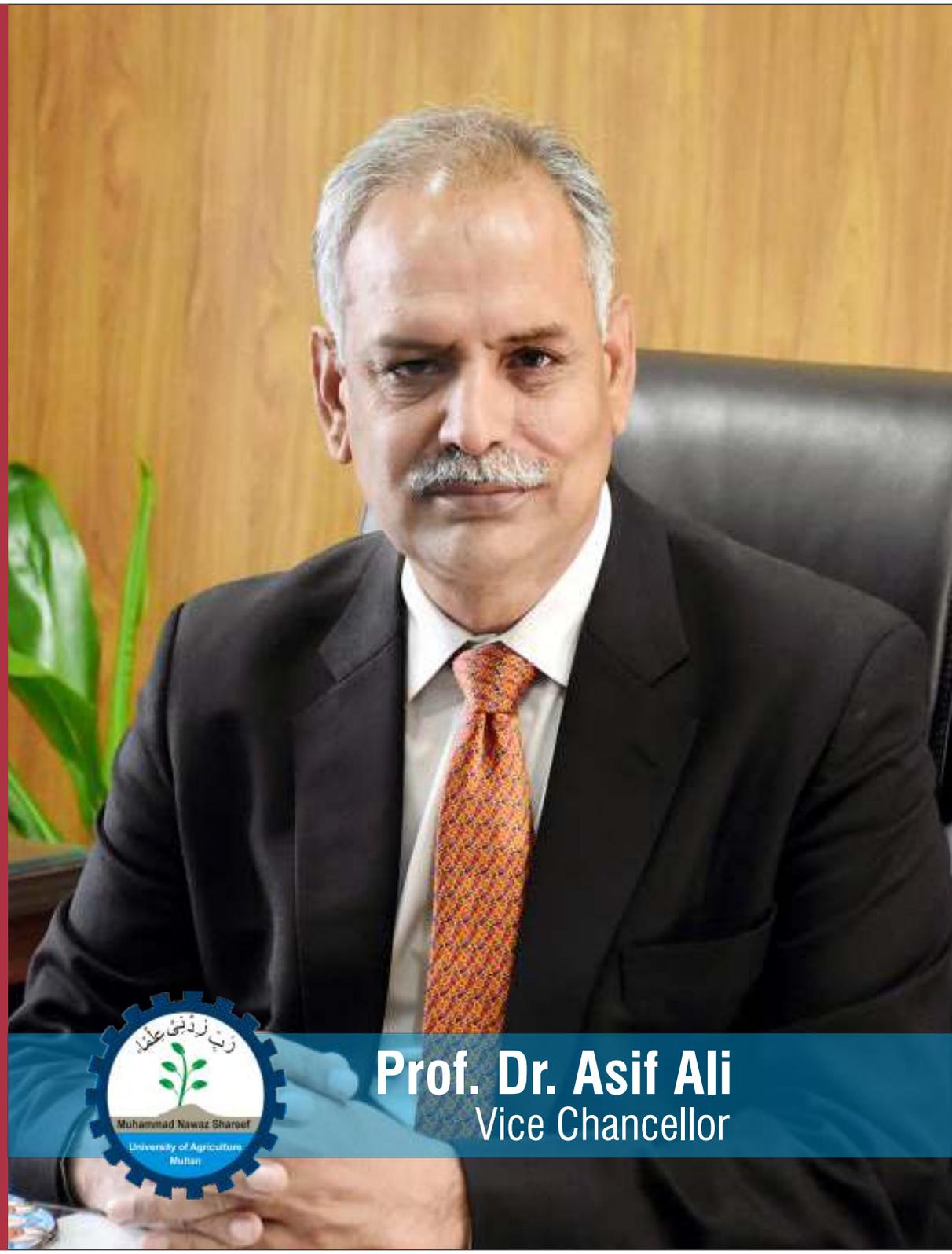
Convener  
Member  
Member  
Member  
Member  
Member  
Member / Secretary

# Vice Chancellor's Message

Dear Students,

I warmly welcome you to this academic year in the MNS University of Agriculture, Multan. It was an extremely adventurous and rejuvenating journey for us to establish this university and to give it the structure it now has. The zeal and dynamism of my faculty fills me with optimism of our collective future. We have made pioneering efforts to bring discernible change in the infrastructure of the MNS-University campus, strengthening of the faculty to transform agricultural, research, education and services. The university has come a long way from its humble beginning in its overcrowded building to its current state to an expanded campus, well designed teaching Labs and well equipped postgraduate Labs Block

I am very conscious of the importance of the decision that you have made in terms of choosing your university. I am proud to proclaim that our experienced and highly qualified faculty, vigilant and profound administration, our well-established offices of research and innovation and quality enhancement is always there to facilitate the students. Apart from these offices, the plethora of opportunities we provide from the platform of business incubation center, co-curricular activities and character building programs such citizenship education, nurture and nourishes the well-being of our students.



**Prof. Dr. Asif Ali**  
Vice Chancellor

# Vice Chancellor's Message

During the COVID-19 crisis and the unforeseen lockdown, the communication from the MNS-University leadership has primarily aimed at reassuring the students and guiding them through the well-established online system of classes and the academic journey to the unexpected virtual road. The faculty and administration was intended to be with students in these uncertain times and was committed to fulfill their responsibilities of accompanying them to achieve their academic aspirations.

At the end, I hope that my address has clarified your apprehensions, dispel your doubts and allow your fears about future. In the process we hope to live to the trust you and your parents and society have reposed in the MNS-University. I ensure you that we are determined to convert the post pandemic new normal, a Better Normal in terms of quality education and environmental sustainability.

**Prof. Dr. Asif Ali**  
Vice Chancellor



Pro-Vice Chancellor's

# Message



Dear Students

I am privileged to share with you the prospectus of MNS University of Agriculture, Multan (MNS-UAM) for the academic year 2020-21. Since the inception of MNS-UAM, it has achieved several milestones in a short span of time due to commitment and dedication of its team of hardworking professionals. It has become a fast growing public sector HEC recognized university and first of its kind in the dynamic region of Southern Punjab. New degree programs have been launched with a perfect blend of curricula considering the recent developments in science and technology so that our graduates are able to compete nationally and internationally. The University believes in delivering excellence in teaching and learning. Our ability to add to your academic and communication skills will lead to best possible training in your chosen field whether you intend to become a teacher, a scientist, a professional or an entrepreneur. There is no better time to join the MNS-UAM when it is expanding its physical and technological infrastructure, and networking with rest of the world. University encourages critical thinking and creativity to ensure upper limits of academic standards and integrity. Besides academics, we also have an array of diverse co-curricular activities ranging from sports to cultural events, media, platform of clubs and societies etc. that will keep you engaged and entertained across the year. Be a part of dynamic community of teachers and students, and a learning ecology where students are the most valued asset. Let me remind that you have to strive hard to earn your degree at MNS-UAM but I assure you that your graduation will well worth the effort. I look forward to welcome you at MNS-UAM; so come and join us in an exciting journey towards knowledge based national economy and capacity building for a prosperous Pakistan.

**Prof. Dr. Ishtiaq Ahmad Rajwana**

Pro-Vice Chancellor

Chairperson, National Agriculture

Education Accreditation Council

[www.mnsuam.edu.pk](http://www.mnsuam.edu.pk)

# Multan:

*The Mango Capital*

Mango in Multan Division

617834

Tons of Mangoes

119395

Acres



# MULTAN

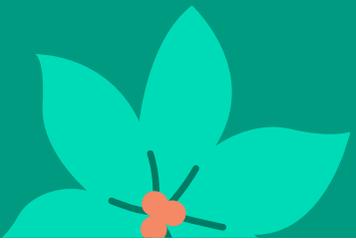
Multan has remained a center of learning, culture and civilization from ancient times. It is one of the oldest living cities in the world. A Chinese traveler, Hiuen Tsang, visited this city in 641 A.D. and mentioned its name as 'Mu-lo-san-pu-lu', a translation of 'Mulasthana-Pura'. The famous Iranian scholar, Al-Beruni came to this city with his master, Sultan Mahmud Ghaznavi, in 1015 A.D., and referred to it as 'Mulatana'. Other historians namely Masudi (915 A.D.) and Ibn-e-Batuta (1334 A.D.) also wrote about the city in their travelogues. For centuries, Multan has served as a trade hub between South and Central Asia. The city now stands as a combination of old and new Pakistan culture and has developed into a commercial and industrial center.

Multan is also known as "Mandina-tu-Aulya", the city of saints. Several tombs and "Khanqahs" (hospices) of sufi scholars and saints have become the architectural landmark of this city. Some eminent saints buried here are Hazrat Bahauddin Zakariya, Shah Rukn-e-Alam, Shamsuddin Sabzwari (also known as Shah Shams), Shah Yousaf Gardez and Musa Pak Shaheed. Their shrines are beautifully decorated and ornamented with blue tiles, mosaic work and delightful Kashi Gari and Naqashi work, for which Multan is famous. The tomb of Shah Rukn-e-Alam is on the list of UNESCO World Heritage Site.

The city is located at 740 ft. above sea level and spread over an area of 3,721 square kilometers. Positioned almost in the center of Pakistan, Multan is at an approximate distance of 950 km from Karachi, 630 km from Islamabad and 356 km from Lahore. The river Chenab is flowing in the west of Multan at a distance of six kilometers. The City is well connected with other parts of the country via excellent road and rail network and an International Airport. The vast plain of Multan is dissected by numerous canals and water channels, which make its soil ideal for agriculture, cultivation of crops and growing fruits and vegetables. The major crops of Multan include wheat, cotton, sugarcane, rice, maize, sunflower, fodder crops etc., minor crops involve rapeseed and mustard, pulses i.e. chickpea, lentil, mung bean and mush bean etc., whereas mango, citrus, guava, date-palm, pomegranate, falsa, jujube, banana, strawberry and grapes are among popular fruits grown in the area.

Multan is called the city of Mangoes for a reason, as its stiflingly hot climate provides the fruit a perfect environment to ripen into juiciest, thickest and the most aromatic mangoes in the world. Some popular varieties of Multani mangoes are 'Anwar Ratole', 'Langra', 'Dusehri' and 'Chaunsa'. Each of them is different in taste, size and quality of pulp. Multani Sohan Halwa, made of sugar, desi ghee and wheat flour and garnished with nuts and pistachios, is a special dessert, that every visitor to Multan takes with him as a compulsory item. Beautiful blue tiles, blue pottery, Multani Khussa (shoes), embroidered clothes for men and women and camel skin wares and camel bone jewelry are some other designated products of Multan.

The reminiscence of old Multan city around the fort with its six gates give a glimpse to the visitors of its past glory. The new city has all hustle and bustle of a modern habitat, with wider roads, overhead bridges, glass showcased shops of electronics, furniture and clothes, busy markets, desi and fast food restaurants etc. All facilities like hospitals, schools, colleges, universities, banks, parks and other public utilities are available in the city. Majority of Multani people speak Saraiki language, but Punjabi and Urdu are also widely spoken.



# MNS University of Agriculture, Multan



**Students Enrollment**  
(416)



**Degree Programs**  
(21)



**Faculty Strength**  
(101)



**Research Projects**  
(64)



**MoUs / Agreements**  
National: (29)  
International: (28)



**Conferences/Seminar/workshops**  
National: (30)  
International: (16)



**Faculty Development**  
National: (10)  
International: (05)



**Competitive Grants**  
Amount in Millions Rs.  
(448)



**Skill Development**  
Amount in Millions Rs.  
(219)



**Scholarships/Stipends**  
Amount in Millions Rs.  
(16.414)



**Research Publications**  
150



**UI Green Metric Ranking**  
Country: (5)  
World: (361)

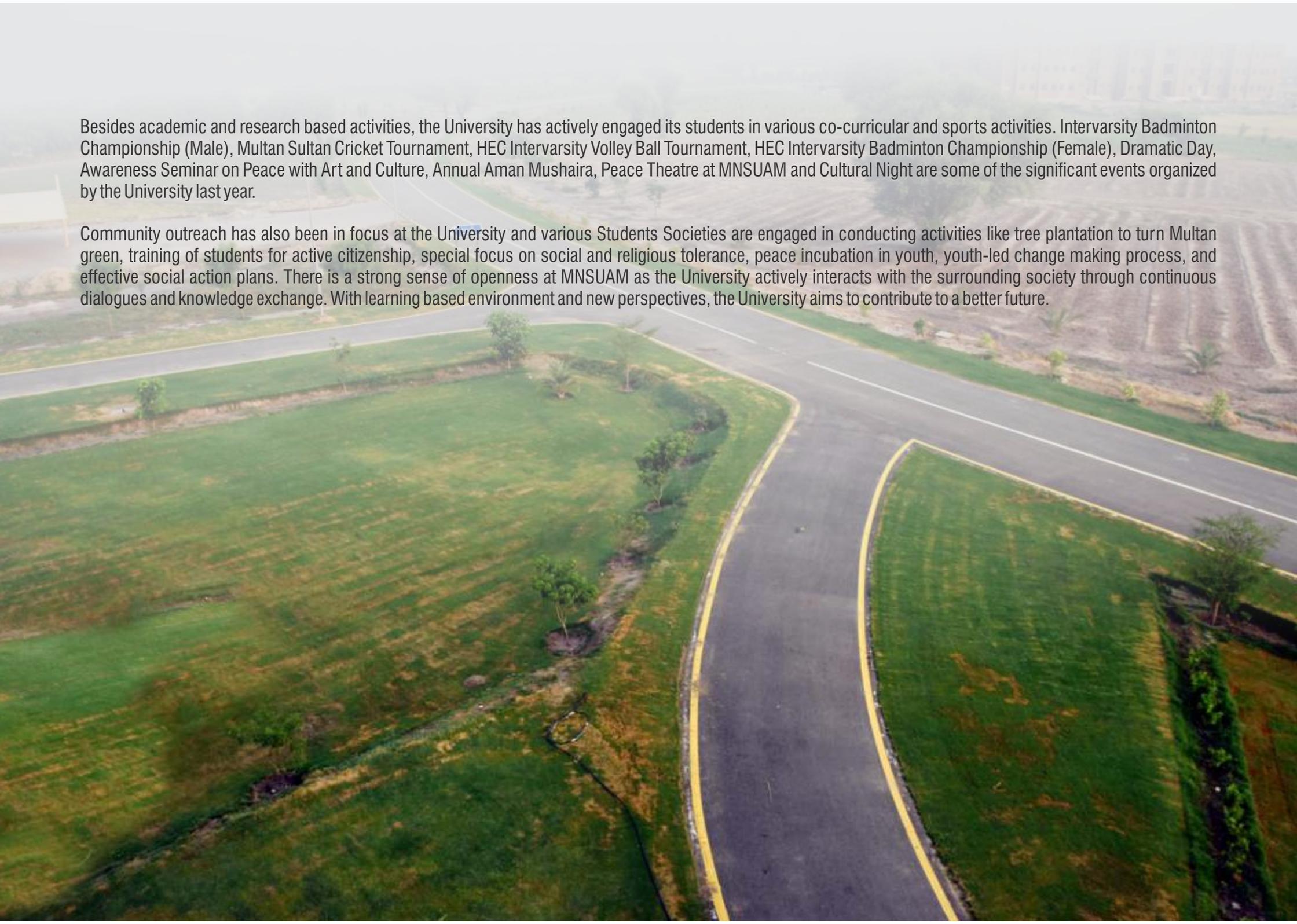


MNS University of Agriculture, Multan (MNSUAM) is an HEC recognized higher education institution that started its academic activities in 2012. Since then, the University has made rapid progress in terms of expansion of its academic programs, students enrolment, physical infrastructure, campus network, and hiring of highly qualified and experienced academic and administrative staff. As a matter of fact, MNSUAM is one of the fastest growing academic institutions of Pakistan, which is evident in the reports and comments made by officials from HEC, NAEAC, Agriculture Department, Govt. of the Punjab and other local and foreign experts, who have visited the varsity in recent time. The main campus of the University is located at Agriculture Complex, Old Shujabad Road, Multan, neighboring several different wings and formations of Punjab Agriculture Department located within a radius of 2-3 kilometers. These include Mango Research Institute, Central Cotton Research Institute, Cotton Research Station, Agricultural Mechanization Research Institute, Soil and Water Testing Laboratory, Directorate of Water Management, Agricultural Extension Wing, Pest Warning and Quality Control of Pesticides, Fisheries Department, Federal Seed Certification and Registration Department. Since all departments have a common agenda of facilitating the farmers, it has been decided that all offices and the University be combined under the ambit of "Agriculture Complex".

After successfully getting possession of the 180 acres of allotted land at Multan, the construction work of University buildings including Academic Block, Administration Block, Girls and Boys hostels, Faculty and Staff residences etc., has been completed. For carrying out agricultural research activities, the University has established agricultural farms at the main campus as well as at Jalalpur Pirwala comprising 500 acres.

Over the years, the University has introduced several new degree programs to provide multidisciplinary education to the students with innovative approaches. Besides bachelor's level degree programs in Agriculture, Agribusiness, Computer Science and Information Technology; the University also offers F.Sc. Pre-Agriculture, M.Sc. and Ph.D in various disciplines of Agricultural Sciences. The University has also started B.Sc. (Hons.) Human Nutrition and Dietetics, B.Sc. (Hons.) Poultry Science, B.Sc. (Hons.) Fisheries and Aquaculture, B.Sc. AgroIndustrial Engineering Technology. Moreover, six more MS/M.Sc./PhD programs are being initiated this year.

The University has strengthened its teaching resources by hiring new qualified faculty through regular, TTS and IPFP appointments through a transparent and rigorous process of recruitment. The administrative offices have also been manned with qualified and experienced staff members to provide necessary support to the University for carrying out its functions. The Office of Research, Innovation and Commercialization (ORIC) is working for capacity building of the faculty for enhancing research activities. The Quality Enhancement Cell (QEC) is mandated to ensure quality teaching and research through continuous assessment for better outcomes. The Directorate of Students Affairs provide all necessary support to students with respect to their admission, selection of subjects, registration, financial support etc., whereas the Career Development Center help them find suitable jobs after completion of their degrees. The University regularly conducts national and international events including conferences, seminars, workshops and festivals. Some activities have now become the trademark of this University such as Sino-Pak International Cotton Conference, Spring Festival, Kisan Mela, Fish Mela, Annual Cotton Seminar and Mango Festival. The University also got the privilege of becoming first ever institution of Pakistan to organize an International Mango exhibition in a foreign country i.e. Uzbekistan. With a vision to highlight a positive image of our country onto the canvas of the world and lure international markets for bilateral trade, investment and business, MNSUAM is actively playing its part to explore new horizons for economic betterment of Pakistan.

An aerial photograph showing a paved road with yellow curbs, winding through a green, grassy area. The road is the central focus, curving from the bottom center towards the top right. The surrounding area is lush green with some small trees and patches of brown grass. In the background, there are some buildings and a hazy sky.

Besides academic and research based activities, the University has actively engaged its students in various co-curricular and sports activities. Intervarsity Badminton Championship (Male), Multan Sultan Cricket Tournament, HEC Intervarsity Volley Ball Tournament, HEC Intervarsity Badminton Championship (Female), Dramatic Day, Awareness Seminar on Peace with Art and Culture, Annual Aman Mushaira, Peace Theatre at MNSUAM and Cultural Night are some of the significant events organized by the University last year.

Community outreach has also been in focus at the University and various Students Societies are engaged in conducting activities like tree plantation to turn Multan green, training of students for active citizenship, special focus on social and religious tolerance, peace incubation in youth, youth-led change making process, and effective social action plans. There is a strong sense of openness at MNSUAM as the University actively interacts with the surrounding society through continuous dialogues and knowledge exchange. With learning based environment and new perspectives, the University aims to contribute to a better future.

**MNS University of Agriculture, Multan**



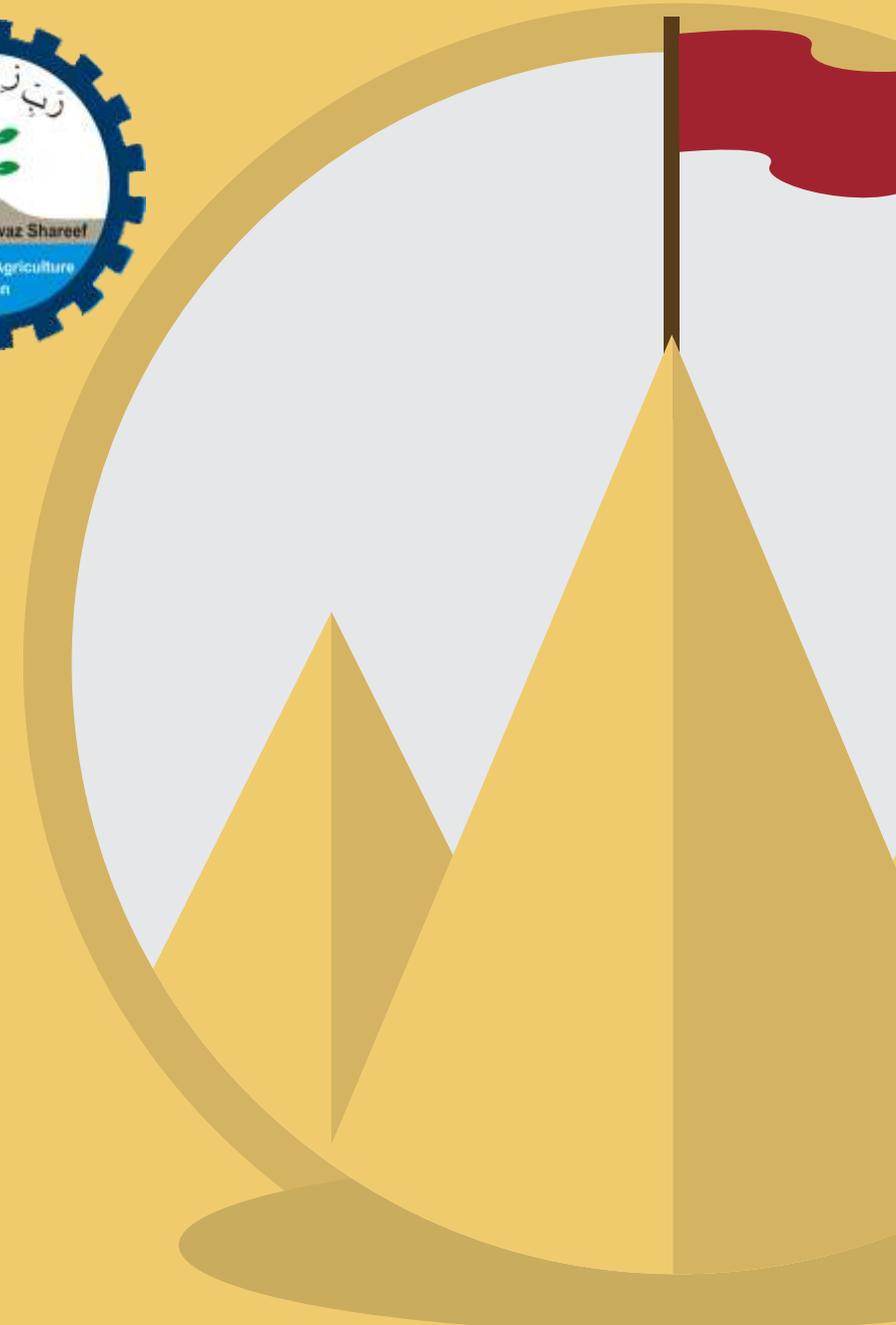
# VISION

To develop a world class university in agricultural and allied sciences by providing effective systems and leadership for professional learning, research, entrepreneurship and community service.



# MISSION

To provide food security and build knowledge based economy through intellectual and social transformation.





# GOALS

1. Building infrastructure and environment conducive for professional learning.
2. Instituting critical thinking, skills and professional attitude through internationally competitive programs and using advanced pedagogical techniques.
3. Providing enabling and cooperative environment for collaborative R&D, entrepreneurial ecosystem and social mobilization through competition, innovation and business development.
4. Promoting a culture of creativity, openness and responsibility where elective University-Industry-Community linkages are established and nurtured.
5. Establishing strategic collaborations with reputable national and international institutions to align capacity building, research and outreach with local and global paradigms.
6. Developing a diversified rural economy that is dynamic, technologically advanced and globally competitive to support farming system and agro-industry

# GREATER AGENDA



FOCUSED



PROFESSIONALISM



ACCOUNTABILITY



COLLABORATION



COMPREHENSIVE



RESULT  
ORIENTATION



SERVICE



SCHOLARSHIP



SKILLS



INTEGRITY



ENTREPRENEURSHIP  
& OUTREACH



LEARNING

# CORE VALUES



## Focused in direction and execution

Delivering programs that address the diverse needs of farming community, agro-industries and the economy of country.



## Comprehensive

Providing learning opportunities for inter and cross disciplinary areas encompassing the whole science of agriculture from basic and engineering sciences to growing crop plants and rearing livestock and from rural sociology to agricultural business & marketing



## Excellence in learning (ecology)

Promoting learning, research and creative activity that fuels discovery process, advance knowledge, and enlightened service that guild citizenship



## Success through collaboration

Working cooperatively with the stakeholders, domestically and internationally, on strategic issues of national and global importance.



## Accountability

Ensuring that the performance of all the employees is measured against the achievements of the strategic goals set by MNS-UAM



## Professionalism

Building and maintaining a highly skilled, diverse and motivated workforce.



## Result orientation

Measuring performance and making management decisions that direct resources to priority areas.



## Entrepreneurship and outreach

Promoting agri-entrepreneurship and incubating new agri-businesses for social transformation.

# UNIVERSITY ADMINISTRATION

The Syndicate is the highest executive body of the University, while Academic Council, Selection Board, Finance and Planning Committee, Board of Advanced Studies and Research, Board of Faculty, and Departmental Board of Studies are the other statutory bodies of the University. The administrative setup of the University is as follows:

## Office of the Vice Chancellor

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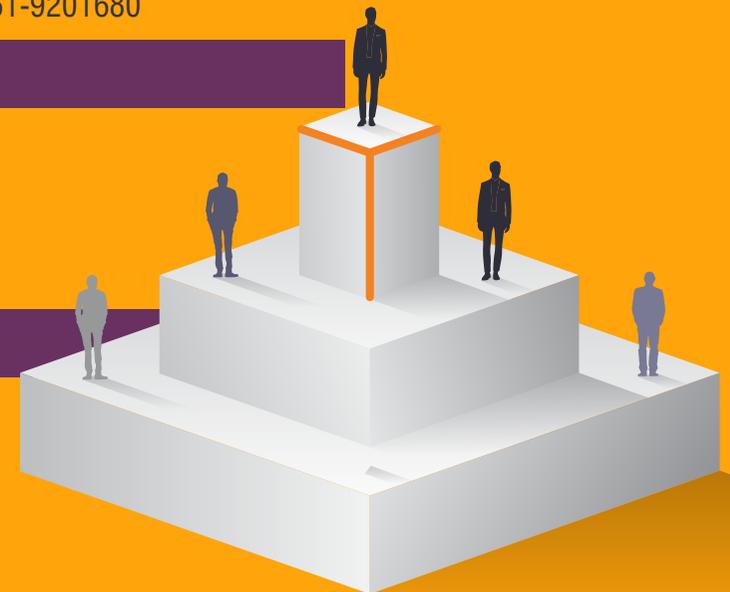
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# UNIVERSITY ADMINISTRATION

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# Faculty of Agriculture & Environmental Sciences





# Faculty of Agriculture & Environmental Sciences



**Prof. Dr. Shafqat Saeed**  
Dean, FA&ES

## Message from Dean

Welcome to Faculty of Agriculture and Environmental Sciences. The pioneer faculty of the University comprises of two institutes and four departments. Through teaching and research, our faculty members are committed to take all challenges as opportunity. We believe in problem-oriented research for the betterment of our farming community. We love to explore innovative approaches and working in collaboration with national and international institutes. Our research focus on healthy and viable seed production, improving soil health for sustainable crop production, development of improved crop varieties along with advanced cultural practices, climate smart cropping systems, sustainable weed management, insect toxicology, pesticide resistance, integrated pest management, drip irrigation system, hydroponics, tunnel farming, agro-forestry, pre- and post-harvest technologies of crops and fruits. Either there is rust outbreak, locust attack or any other agriculture emergency; we always stay alert and proactive to give intellectual input to policy makers for ensuring national food security. It is our core motive to produce a creative ecology where students will be able to get skilled based practical knowledge in the disciplines of agriculture and environmental sciences to embrace future challenges in the best possible way. We aim to produce qualified professionals, critical thinkers, and researchers which will serve the nation in quest of knowledge based economy. Together with our stakeholders, we are making strides towards our goal of making this University a world-class institute. Join us for your better future!

# Faculty of Agriculture & Environmental Sciences

The Faculty of Agriculture and Environmental Sciences (FA&ES) was established in 2015 as the first faculty in MNS-University of Agriculture, Multan. The faculty has energetic team of 66 full time faculty members (50 PhD and 16 Non PhD) with diverse background and academic experiences at top universities in Australia, China, Germany, Korea, Singapore, UK, USA etc. The faculty members have published more than 750 research papers and won more than 50 projects from national and international funding agencies like Higher Education Commission, Punjab Agriculture Research Board, Agricultural Linkages Program, Punjab Skill Development Fund, Prime Minister Youth Development Fund, USAID, Australian Centre for International Agricultural Research (ACIAR), and DAAD Germany. In FA&ES, there are 68 students enrolled in Ph.D., 392 students in M.Sc. (Hons.) and 1394 students in B.Sc. (Hons.) Agriculture. The learning system of the faculty is based on modern lines can be easily switched on physical and online classes. The flexible teaching system in which courses offered in module system with blended learning approaches makes the faculty a step ahead during COVID-19 Pandemic crises.

1. Department of Agronomy
2. Department of Food Sciences and Technology
3. Department of Horticulture
4. Department of Soil and Environmental Sciences
5. Institute of Plant Breeding and Biotechnology
  - Plant Breeding and Genetics
  - Seed Science and Technology
  - Biotechnology
6. Institute of Plant Protection
  - Entomology
  - Plant Pathology
  - Weed Science



# Department of AGRONOMY

The Department of Agronomy is striving hard to earn repute of excellence in agronomic education with focus on problem-oriented research related to crop production and soil management under changing climate scenario. A dedicated and highly qualified faculty, having hands on experience in agronomic teaching and research at national and international institutes, makes it one of the most accomplished departments in the University. So far, the Department of Agronomy at MNS-University of Agriculture, Multan has published more than 250 international papers in referred journals, won eight research projects and submitted several others competitive grants. The Department also organizes international workshops and seminars on contemporary issues of agriculture in changing climate scenario. Advisory services to farmers are also being provided. The Department has all the basic facilities like lecture rooms, well-equipped research laboratories, text books and reference materials for undergraduate and postgraduate degree programs. The students are blessed with diverse learning facilities ranging from lectures to interactive tutorials, brain storming sessions and field work involving advanced audio-visual aids.



# Department of AGRONOMY



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# Department of AGRONOMY



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# Department of FOOD SCIENCE & TECHNOLOGY

Keeping in view the current scenario of the world and our country's food safety and food security, the Department is aimed to produce well trained human resource to cope emerging needs of the community and food industry as well. The major focus of the Department is utilization of basic principles of Food Science and Technology for processing and preservation of food commodities to meet the challenges of burgeoning population and fastest growing food industry in the country. There has been a significant increase in the establishment of food industry during the last two decades and consequently the demand for Food Technology graduates has increased tremendously at national and international level. South Punjab is the hub for agricultural production and a lot of food industries are working here to enhance the quality of food products. Hence, there is a great demand of Food Technologists to cope needs of the area in terms of employment in industry and academia. The present faculty is practically involved in the capacity building of the students through effective teaching and training programs. Concerning the most important issues including malnutrition and unavailability of safe food of South Punjab community, these issues have been taken up as challenge and Department of FST shared significant contribution in promotion of food preservation and hygienic practices. In this perspective, the Department is aiming to provide all possible facilities in collaboration with different food industries and other neighboring institutes to train the graduates with skills and futuristic vision. The students of Food Science and Technology involved in different research institutes and food industries to meet the challenges of corporate sector through their practical knowledge.



# Department of FOOD SCIENCE & TECHNOLOGY



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# Department of HORTICULTURE

Department comprises of young, energetic and motivated faculty, staff as well as research team having diverse experience and strong commitment towards teaching, research and outreach. The Departmental faculty consists of a professor, five assistant professors and a lecturer; all having rich teaching and research experience together with numerous publications in national and international peer reviewed journals and conferences proceedings.

The Department offers degree programs in B.Sc. (Hons.), M.Sc. (Hons.) and Ph.D with specialization in horticulture subject. Curriculum of these degree programs is regularly reviewed and revised keeping in view the HEC guidelines, needs of farming community and global developments which is duly approved through statutory bodies. The Department was established during 2015; and until 2020, ninety-five (95) undergraduate and seventeen (17) master level students have received their degrees. Currently, five (05) PhD, forty-two (42) masters and seventy-eight (78) undergraduate students are enrolled in the Department.

As far as research and development are concerned; various projects of worth Rs. 29.2 million are under progress including, supply chain management of minor fruits (Rs. 8.6 million); vegetable grafting (Rs. 3.4 million); standardization of pomegranate production practices (Rs. 6.6 million); postharvest management of strawberry (Rs. 7.5 million) and collection and conservation of phalsa landraces (Rs. 2.9 million) funded by Higher Education Commission of Pakistan, Punjab Agricultural Research Board, and Pakistan Agriculture Research Council respectively; while projects worth Rs. 1.5 million have been completed during last years. The department is focused to conduct trans-disciplinary research and development



# Department of HORTICULTURE

in nursery raising, production systems, postharvest management, supply chain improvement, value addition and marketing of horticultural crops including fruits, ornamental plants and flowers, vegetables including mushrooms. Various field and laboratory facilities are available for teaching, demonstration and skill development of students and conducting scientific and industry-oriented research on horticultural crops and products.

The Department is actively involved in outreach activities for farming communities and agro-industries. Considering geographical location of MNS-UAM in main mango growing area of Pakistan the department emphasizes on creating awareness, branding and networking in mango production, supply and value chains. In this regard, the department has a pride to organize an annual mango festival in Multan to provide a platform to mango stakeholders including growers, exporters, processors, nursery owners, fertilizer companies/dealers, pesticide companies, banks and several other organizations/firms etc. These opportunities provide them a platform to display their products that attract the national and international business networking. Moreover, the event also includes festivity, competition opportunities and awareness for general public. In addition, the department also arranges regular seminar and workshops to disseminate information related to international compliances on quality and safety and facilitates/develops the capacity of growers to grow export quality produce. Recent organization of training course on mango small tree system and general orchard management at core mango production areas of Pakistan including Hyderabad, Rahim Yar Khan and Multan is a new national activity introduced by the Department to create awareness in mango industry and develop technical capacity to get higher mango yields with premium quality. Under this activity, over 300 growers and other stakeholders belonging to different areas of Pakistan were trained during 2019 and 2020 and over 1000 acres of mango orchards under mango small tree system have been established. Moreover, Departmental faculty has also taken lead in demonstrating the hydroponic and soilless cultivation of various horticultural crops including tomato, bell pepper, cucumber and strawberry. The technology has been demonstrated to several hundreds of stakeholders including growers, traders, researchers, investors, policy makers etc. Various farmers and investors get consultancy from the departmental faculty for vegetable production under protected environment.

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# Department of HORTICULTURE



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# Department of SOIL & ENVIRONMENTAL SCIENCES

“There can be no life without soil and no soil without life; they have evolved together”. Soils play tremendous role in the agricultural and economic development of nations. Fundamental knowledge of soil is not only vital for profitable crop production and food security, but also essential for natural resources management, environmental policy and protection. Keeping in view the importance of soil as a natural resource, Muhammad Nawaz Shareef University of Agriculture, Multan has established its Department of Soil and Environmental Sciences in the year 2012. We have outstanding and distinguished faculty having vast experience of teaching and research in their respective domains within soil and environmental sciences. Currently, we have Associate Professor (1), Assistant Professors (4) and Lecturers (3). Department has well equipped laboratories with all necessary equipment to carry out Soil, Plant and Water analysis for teaching and research purposes. To address the issues faced by the farmers, we have following five research groups; 1) Saline Agriculture, 2) Soil Microbiology and Biochemistry, 3) Soil Fertility and Plant Nutrition, 4) Soil and Environmental Chemistry and 5) Soil Physics. We have also good collaborations with different institutes of agricultural research.

We conduct research that drives innovation and new technologies, expands understanding and provides science-based information to solve problems. We are offering both undergraduate (B.Sc. Soil Science) and post graduate programs (M.Sc. Soil Science; M.Sc. Climate Change; PhD Soil Science). After graduation, our students serve in Public and Private Universities, Research Institutes, Soil and Water Testing Laboratories and Fertilizer and Pesticide Companies. Currently, we do have research projects funded by Higher Education Commission (HEC), Pakistan. Recently, we have also initiated out-reach program for establishing linkages between the local farming community and the researchers to provide advisory services to the farmers at their doorstep. As far as our competitiveness in research funding is concerned, we have managed to win 11 competitive grants of worth 12 million rupees. We have won research projects both from national and international funding agencies. Likewise, we are also running academia-industry collaborative research projects to contribute in knowledge base economy. Besides, we have also signed a MoU with Shandong University in China for joint research ventures in the future.



# Department of SOIL & ENVIRONMENTAL SCIENCES



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## DR. MUHAMMAD IMRAN

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# Institute of PLANT BREEDING & BIOTECHNOLOGY

The Institute of Plant Breeding and Biotechnology (IPBB) at MNSUAM offers undergraduate and postgraduate degree programs in the subjects of Plant Breeding and Genetics, Seed Science and Technology, and Biotechnology. The institute was established with the aim of developing improved crop varieties and improving seed systems through the integration of conventional plant breeding techniques with modern biotechnological tools. The institute has qualified faculty actively involved in developing latest curriculum and promoting effective research and development activities in the University. The institute is running a number of research projects funded by national and international funding agencies including Agricultural Development Program (ADP), Govt. of the Punjab, Punjab Agricultural Research Board (PARB), Higher Education Commission (HEC), Agricultural Linkages Program (ALP), DFID, ACIAR and USAID. The institute has also initiated outreach program for establishing linkages between the farming community, industry and the researchers to solve the problems of the stakeholders. The institute frequently arranges seminars, conferences and workshops to discuss burning issues of agriculture and also to bring new research ideas for the young faculty and postgraduate students.



# Institute of PLANT BREEDING & BIOTECHNOLOGY



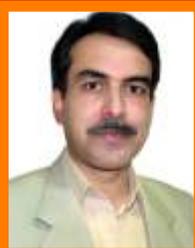
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## DR. ZULFIQAR ALI

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# Institute of PLANT BREEDING & BIOTECHNOLOGY



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## **MS. SAIMA RASHEED**

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# Institute of PLANT PROTECTION

Climate change is a global phenomenon which is putting diverse cascading effects on every sphere of life on the earth including agriculture. On the other hand, population of the world is increasing which demands to produce sufficient amount of food. With the prevailing scenario of climate change, a vast diversity of insect pests, diseases and weeds invade crops, vegetables, fruit and forest trees and cause huge losses to their production both in on-farm and post-harvest / storage. The Institute has inherited ties with local research institutes like CCRI, CRS, MRI, AMRI, Agri. Extension, Pest Warning and Quality Control of Pesticides etc. These links will pave the path in grooming the students of the Institute in a professional and practical way. Several research projects have been submitted to renowned funding agencies of National and International fame like USAID, Higher Education Commission (HEC), Pakistan Science Foundation, Pakistan Agriculture Research Board (PARB), International Foundation for Science (IFS), ACIAR and JICA. Moreover, five research projects have been funded by PARB, HEC and IFS on Cotton Whitefly and Pink bollworm, Mango Fruit and Shoot Borer and Mango Fruit Fly, and viruses of onion and garlic, respectively. Currently, active programs are B. Sc. (Hons.) Agriculture (Entomology & Plant Pathology), M. Sc. (Hons.) Entomology, M. Sc. (Hons.) Plant Pathology, Ph. D Entomology and Ph. D Plant Pathology.

Due to the COVID-19 pandemic, all the educational institutions in the country have been shifted to online learning tools. Keeping in view the need of time, IPP has also started online classes using learning management system (LMS) without compromising the standards of teaching. In future, the institute will offer various courses which will be taught online completely and hybrid courses with



# Institute of PLANT PROTECTION



blended learning along with face-face teaching to meet the standards of international institutions.

The faculty from the institute is also leading the University in organizing seminars about COVID-19 pandemic and creating awareness among the society especially farming communities through literature and other possible means. Recently, the Institute organized an International webinar in collaboration with Centre for Agriculture Sustainability in South Punjab (CAS-SP). The title of the webinar was “Current Scenario of R&D on Locust Management: Pakistan Perspective” which was held on 09-07-2020 at 11:00 am. A large number of scientists, academia, policy makers, students and farmers were participated in the same. Prominent scientists from all provinces of Pakistan and around the world shared their experiences about research and management of locust. At the end, beside other technical policy points regarding management of locust, all speakers agreed that collaborative efforts at national and international level are necessary for effective management of the pest.

Moreover, the Institute is also actively engaged in developing a biological control of locust which poses a threat to the cultivation of various crops in Southern Punjab. Similarly, the farming community of the region also getting benefits from the institute in the form of diagnostic facilities of weeds and diseases along with the best possible solution for their management.





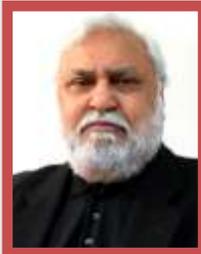
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**DR. MUHAMMAD ARSLAN KHAN**

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**DR. MIRZA ABID MEHMOOD**

Position: Lecturer  
Qualification: Ph.D (China)  
Expertise: Microbial Metagenomics and Metatranscriptomics, Soil Microbiomes, Phytobiomes  
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**MR. ASIF MAHMOOD ARIF**

Position: Lecturer (On study leave)  
Qualification: M.Sc. (Hons.) Agri.  
Expertise: Fungal diseases of fruits crops, Identification of soil mycoflora using different isolation techniques and their management  
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**(Plant Pathology)**





# Scheme of Studies

B.Sc. (Hons.) Agriculture (Semester I-IV)

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## Semester I

Course Code	Course Title	Credit	Course Type
SES-301	Introduction to Environmental Science	2(2-0)	FC
AEE-301	Introduction to Agri. Extension	3(2-1)	FC
AGRON-301	Basic Agriculture	2(1-1)	Comp
AGRON-303	Field Crop Production	2(1-1)	Comp
AGRON-304	Weed Control Methods (For the students of Intermediate Pre - Agriculture)	2(1-1)	Comp
CS-301	Computer Science and Information Technology	2(0-2)	Comp
MATH-301/ BIO-301	Elementary Mathematics (for Pre -Medical) / Essentials of Biology (for Pre -Engineering )	3(3-0) 3(2-1)	Comp
ENG-301	Composition and Communication Skills	3(3-0)	Comp
UAM-301	Social and Religious Tolerance	2(2-0)	Audit
	<b>Total Credit Hours</b>	<b>17</b>	

## Semester II

Course Code	Course Title	Credit	Course Type
AGRON-302	Principles of Agronomy	3(2-1)	FC
HORT-302	Introductory Horticulture	3(2-1)	FC
AH-302	Introduction to Animal Husbandry	3(2-1)	FC
MAB-302	Fundamentals of Agribusiness and Marketing	2(2-0)	FC
ID-304	Irrigation and Drainage Practices	2(1-1)	Comp
SSH-302	Pakistan Studies	2(2-0)	Comp
STAT-302	Introductory Statistics	2(2-0)	Comp
IS-302/ SSH-304	Islamic Studies OR Ethics (for Foreigners / Non-Muslims)	3(3-0)	Comp
UAM-302	Citizenship Education and Community Engagement	3(2-1)	Audit
	<b>Total Credit Hours</b>	<b>20</b>	

## Semester III

Course Code	Course Title	Credit	Course Type
BIOTECH-	Introductory Genetics and Biotechnology	3(2-1)	FC
RS-409	Rural Sociology and Development	2(2-0)	Comp
VMD-401	Introduction to Veterinary Preventive Medicine	2(1-1)	Comp
AE-401	Principles of Agricultural and Resource Economics	3(3-0)	FC
FRW-401	Agro-Forestry, Range and Wildlife Management	3(2-1)	FC
FMP-405	Farm Mechanization	2(1-1)	Comp
ENT-401	Introductory Entomology	3(2-1)	FC
	<b>Total Credit Hours</b>	<b>18</b>	



# Scheme of Studies

B.Sc. (Hons.) Agriculture

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## Semester IV

Course Code	Course Title	Credit	Course Type
PBG-402	Introductory Plant Breeding	3(2-1)	FC
PP-402	Introductory Plant Pathology	3(2-1)	FC
FST-402	Essentials of Food Science and Technology	3(2-1)	FC
ENT-402	Applied Entomology	3(2-1)	FC
MB-402	Basic Microbiology	3(3-0)	FC
SES-401	Introduction to Soil Science	3(2-1)	FC
	<b>Sub-Total credit hours</b>	<b>18</b>	
	<b>Elective course (3+2)</b>	<b>5</b>	
	<b>Total credit hours</b>	<b>23</b>	

## List of Elective Courses in Semester-IV

(A student will opt any 2 courses for 5 credit hours, but minimum of 20 students will be required to offer a course)

Course No.	Course Title	Credit Hours	Department/Institute
AGR0N-404	Introduction to Weed Science	3(2-1)	Department of Agronomy
AGR0N-406	Introduction to Seed Science	2(2-0)	Department of Agronomy
BIOTECH-402	Introduction to Biotechnology and Bioinformatics	3(2-1)	Institute of Plant Breeding and Genetics
SST-402	Basics of Seed Production	3(2-1)	Institute of Plant Breeding and Genetics
FST-408	Food Quality Management	2(2-0)	Department of Food Science and Technology
FST-412	Poultry and Egg Processing	3(2-1)	Department of Food Science and Technology
HORT-404	Peri-Urban Horticulture	2(1-1)	Department of Horticulture
HORT-406	Environmental Horticulture	3(2-1)	Department of Horticulture
SES-402	Soil, Water and Air Pollution	2(2-0)	Soil and Environmental Sciences
SES-406	Carbon Sequestration and Environment	2(2-0)	Soil and Environmental Sciences
PP-404	Introduction to Plant Pathogens	3(2-1)	Institute of Plant Protection
PP-408	Fundamentals of Plant Pathology	3(2-1)	Institute of Plant Protection
ENT-404	Apiculture and Sericulture	3(2-1)	Institute of Plant Protection
AE-402	Economy of Pakistan	3(3-0)	Department of Agribusiness and Applied Economics
AE-404	Resource and Environmental issues of Agrarian Economy	3(3-0)	Department of Agribusiness and Applied Economics
FM-402	Principles of Farm Planning and Management	3(3-0)	Agribusiness and Applied Economics



# Scheme of Studies

B.Sc. (Hons.) Agriculture

## MAJOR AGRONOMY (Semester V-VIII)

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### SEMESTER-V (Students will opt for 5 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
AGRON-501	Agro-Ecology	3(2-1)	Major
AGRON-503	Irrigation Agronomy	3(2-1)	Major
AGRON-505	Field Crop Physiology	3(2-1)	Major
AGRON-507	Principles of Weed Management	3(2-1)	Major
AGRON-509	Sustainable Agriculture and Organic Farming	3(2-1)	Major
<b>Sub-Total Credit Hours</b>		<b>15</b>	
AGRON-511	Global Agriculture	3(3-0)	Elective
AGRON-513	Fodders and Forages	2(1-1)	Elective
AGRON-515	Crop Management under stressful Environments	3(2-1)	Elective
AGRON-517	Water Relations of Crop Plants	2(1-1)	Elective
AGRON-519	Outreach in Agronomy-I	3(2-1)	Elective
<b>Total Credit Hours</b>		<b>(15+5)= 20</b>	

### SEMESTER-VI (Students will opt for 5 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
AGRON-502	Seed Science and Technology	3(2-1)	Major
AGRON-504	Arid Zone Agriculture	3(3-0)	Major
AGRON-506	Agro-technology of Major Field Crops	3(2-1)	Major
AGRON-508	Management of Field Crop Nutrition	3(2-1)	Major
BIOCHEM-502	Fundamental Bio-chemistry	3(2-1)	Supporting
<b>Sub-Total Credit Hours</b>		<b>15</b>	
AGRON-510	Crop Growth Modeling and its Application in Agriculture	3(2-1)	Elective
AGRON-512	Eco-Physiological Aspects of Weeds	3(2-1)	Elective
AGRON-514	Layout of Field Experiments	2(0-2)	Elective
AGRON-516	Agro-technology of Special Crops	2(1-1)	Elective
AGRON-518	Outreach in Agronomy-II	3(2-1)	Elective
<b>Total Credit Hours</b>		<b>(15+5)= 20</b>	

### SEMESTER-VII (Students will opt for 2 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
AGRON-601	Agro-technology of Minor Field Crops and Medicinal Plants	3(2-1)	Major
AGRON-603	Biological Crop Potential	3(2-1)	Major
AGRON-605	Conservation Agronomy	3(2-1)	Major
AGRON-607	Environmental Physiology and Crop Improvement	4(2-2)	Major
AGRON-611	Preparation of Research Project and Scientific Writing	2(1-1)	Major
AGRON-615	Farming System and Farm Record	3(2-1)	Major
<b>Sub-Total credit hours</b>		<b>18</b>	
AGRON-609	Application of Allelopathy in Agriculture	2(1-1)	Elective
AGRON-613	Plant and Soil Analysis	2 (1-1)	Elective
<b>Total Credit Hours</b>		<b>18+2= 20</b>	

### SEMESTER-VIII

Course No.	Course Title	Credit Hours	Course Type
AGRON-612	Internship and External Evaluation	6 (0-6)	Major



# Scheme of Studies

B.Sc. (Hons.) Agriculture

## MAJOR

### FOOD SCIENCE AND TECHNOLOGY (Semester V-VIII)

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#### SEMESTER-V

Course No.	Course Title	Credit Hours	Course Type
FST-501	Principles of Human Nutrition	3(3-0)	Major
FST-503	Food Microbiology	3(2-1)	Major
FST-505	Fruit and Vegetable Processing	3(2-1)	Major
FST-507	Dairy Technology	3(2-1)	Major
FST-509	Cereal Technology	3(2-1)	Major
FST-511	Food Analysis and Sensory Evaluation	3(2-1)	Major
FST-513	Food Plant Layout	2(2-0)	Major
<b>Total Credit Hours</b>		<b>20</b>	

#### SEMESTER-VI

Course No.	Course Title	Credit Hours	Course Type
FST-502	Food Chemistry	3(3-0)	Major
FST-504	Unit Operations in Food Processing	3(2-1)	Major
FST-506	Meat Technology	3(2-1)	Major
FST-508	Technology of Oils and Fats	3(2-1)	Major
FST-510	Food Toxicology & Safety	3(3-0)	Major
FST-512	Beverage Technology	2(2-0)	Major
FMP-502	Food Process Engineering-I	3(2-1)	Supporting
<b>Total Credit Hours</b>		<b>20</b>	

#### SEMESTER-VII (Students will opt for 12 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
FST-601	Instrumental Techniques in Food Analysis	3(1-2)	Major
FST-607	Food Product Development	3(1-2)	Major
FST-611	Research Projects and Scientific Writing	2(1-1)	Major
<b>Total Credit Hours</b>		<b>08</b>	
FST-603	Outreach in Food Science and Technology	3(2-1)	Elective
FST-605	Sugar Technology and Confectionary	3(2-1)	Elective
FST-609	Food Packaging	3(3-0)	Elective
FST-613	Community Nutrition & Dietetics	3(2-1)	Elective
FST-615	Bakery Products Technology	3(2-1)	Elective
FST-617	Extrusion Technology and Snack Food	3(2-1)	Elective
FST-619	Food Safety and Quality Management	3(3-0)	Elective
FST-621	Food Biotechnology	3(2-1)	Elective
FMP-601	Food Process Engineering-II	3(2-1)	Elective
I&D-601	Fluid Mechanics	3(2-1)	Elective
<b>Total Credit Hours</b>		<b>8 + 12 = 20</b>	

#### SEMESTER-VIII

Course No.	Course Title	Credit Hours	Course Type
FST-612	Internship and External Evaluation	6(0-6)	Major



# Scheme of Studies

B.Sc. (Hons.) Agriculture

## MAJOR HORTICULTURE

(Semester V-VIII)

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### SEMESTER-V (Students will opt for 5 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
HORT-501	Principles of Fruit Production	4(3-1)	Major
HORT-503	Principles of Vegetable Production	3(2-1)	Major
HORT-505	Ornamental Horticulture	3(2-1)	Major
HORT-507	Medicinal and Aromatic Plants	2(1-1)	Major
Biochem-502	Fundamental Biochemistry	3(2-1)	Supporting
<b>Sub-Total Credit Hours</b>		<b>15</b>	
HORT-509	Nutrient Management of Horticultural Crops	3(1-2)	Elective
HORT-511	Greenhouse Crops	3(2-1)	Elective
HORT-513	House Plants	2(1-1)	Elective
HORT-515	Innovative Technologies for Vegetable Production	2(1-1)	Elective
HORT-517	Outreach in Horticulture-I	2(1-1)	Elective
<b>Total Credit Hours</b>		<b>15+5= 20</b>	

### SEMESTER-VI (Students will opt for 5 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
HORT-502	Production of Fruits	4(3-1)	Major
HORT-504	Production of Vegetables	3(2-1)	Major
HORT-506	Landscape Plants	3(2-1)	Major
HORT-508	Basics of Plant Tissue Culture	2(1-1)	Major
Bot-502	Advanced Botany	3(2-1)	Supporting
<b>Sub-Total Credit Hours</b>		<b>15</b>	
HORT-512	Minor Fruit Crops	3(2-1)	Elective
HORT-514	Organic Horticulture Production	3(2-1)	Elective
HORT-516	Good Agricultural Practices in Horticulture	2(1-1)	Elective
HORT-518	Business Management in Horticulture	2(1-1)	Elective
HORT-520	Outreach in Horticulture-II	2(1-1)	Elective
<b>Total credit hours</b>		<b>15+5= 20</b>	

### SEMESTER-VII (Students will opt for 2 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
HORT-603	Breeding of Horticultural Crops	3(2-1)	Major
HORT-605	Research Methods in Horticulture	3(2-1)	Major
HORT-607	Propagation and Nursery Management	4(2-2)	Major
HORT-609	Commercial Flower Production	3(2-1)	Major
HORT-611	Preparation of Research Projects and Scientific Writing	2(1-1)	Major
HORT-613	Harvest and Handling of Horticultural Crops	3(2-1)	Major
<b>Total Credit Hours</b>		<b>18</b>	
HORT-615	Temperate Fruits	2(1-1)	Elective
HORT-617	Vegetable and Flower Seed production	2(1-1)	Elective
HORT-619	Food Safety in Horticultural Crops	2(1-1)	Elective
<b>Total Credit Hours</b>		<b>18+2=20</b>	

### SEMESTER-VIII

Course No.	Course Title	Credit Hours	Course Type
HORT-612	Internship and External Evaluation	6(0-6)	Major



# Scheme of Studies

B.Sc. (Hons.) Agriculture

## MAJOR SOIL SCIENCE (Semester V-VIII)

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### SEMESTER-V (Students will opt for 5 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
SES-501	Physical Properties of Soils	3(2-1)	Major
SES-503	Chemical Properties of Soils	3(2-1)	Major
SES-505	Soil Survey and Land Evaluation	3(2-1)	Major
SES-507	Instrumentation and Laboratory Techniques	3(1-2)	Major
SES-509	Applied Mathematics for Soil Science	3(3-0)	Major
<b>Sub-Total Credit Hours</b>		<b>15</b>	
SES-511	Plant Growth under Stress Environment	3(2-1)	Elective
SES-513	Microbial Ecology and Plant Growth	3(3-0)	Elective
SES-515	Municipal Wastes and its Transformations	2(2-0)	Elective
SES-517	Soil Fertility Evaluation	2(1-1)	Elective
<b>Total Credit Hours</b>		<b>15+5=20</b>	

### SEMESTER-VI (Students will opt for 5 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
SES-502	Salt-Affected Soils and Water Quality	3(2-1)	Major
SES-504	Soil Fertility and Fertilizer Use	3(2-1)	Major
SES-506	Soil Genesis and Morphology	3(2-1)	Major
SES-508	Nutrient Management in Degraded Soils	3(2-1)	Major
Chem-502	Environmental Chemistry and Bio-chemistry	3(2-1)	Supporting
<b>Sub-Total credit hours</b>		<b>15</b>	
SES-510	Soil – Water – Plant Relationships	3(3-0)	Elective
SES-512	Soil Chemistry and Plant Growth	3(3-0)	Elective
SES-514	GIS in Soil Survey and Land Use Planning	2(1-1)	Elective
SES-516	Outreach in Soil Science	2(1-1)	Elective
<b>Total credit hours</b>		<b>15+5=20</b>	

### SEMESTER-VII (Students will opt for 3 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
SES-601	Soil Microbiology and Environment	3(2-1)	Major
SES-603	Environment Pollution and Management	3(3-0)	Major
SES-605	Soil, Water and Environment Conservation	3(3-0)	Major
SES-609	Elements of Soil Physics	3(2-1)	Major
SES-611	Preparation of Research Proposal and Scientific Writing	2(1-1)	Major
Stat-601	Applied Statistics for Soil and Environment	3(2-1)	Supporting
<b>Total credit hours</b>		<b>17</b>	
SES-607	Saline Agriculture	3(2-1)	Elective
SES-613	Experimental Planning	3(2-1)	Elective
<b>Total credit hours</b>		<b>17+3=20</b>	

### SEMESTER-VIII

Course No.	Course Title	Credit Hours	Course Type
SES-612	Internship and External Evaluation	6(0-6)	Major



# Scheme of Studies

B.Sc. (Hons.) Agriculture

MAJOR PLANT BREEDING AND GENETICS

(Semester V-VIII)

[www.mnsuam.edu.pk](http://www.mnsuam.edu.pk)

## SEMESTER-V (Students will opt for 5 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
PBG-501	Principles of Genetics	3(2-1)	Major
PBG-503	Breeding Field Crops	3(2-1)	Major
PBG-505	Cytogenetics	3(2-1)	Major
PBG-507	Germplasm Resources of Field Crops	3(3-0)	Major
PBG-509	Experimentation in Plant Breeding	3(3-0)	Major
<b>Sub-Total Credit Hours</b>		<b>15</b>	
PBG-511	Breeding for Plant Quality Traits	3(2-1)	Elective
PBG-513	Hybrid Seed Production Technology	3(2-1)	Elective
PBG-515	Heteroploidy and Apomixis in Crop Breeding	2(2-0)	Elective
PBG-517	Mutation Breeding in Crop Plants	2(1-1)	Elective
<b>Total Credit Hours</b>		<b>15+5=20</b>	

## SEMESTER-VI (Students will opt for 5 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
PBG-502	Breeding Climate Smart Crops	3(2-1)	Major
PBG-504	Modern Concepts in Plant Breeding	3(2-1)	Major
PBG-506	Genetics and Breeding of Fibre Crops	3(2-1)	Major
PBG-508	Genetics and Breeding of Oilseed Crops	3(2-1)	Major
PBG-510	Genetics and Breeding of Vegetable Crops	3(2-1)	Major
<b>Sub-Total Credit Hours</b>		<b>15</b>	
PBG-512	Genetics and Breeding of High-value (Minor and Medicinal) Crops	3(2-1)	Elective
PBG-514	Genetics and Breeding of Sugar Crops	3(2-1)	Elective
PBG-516	Outreach in Plant Breeding	2(1-1)	Elective
PBG-518	IPR and Variety Development	2(2-0)	Elective
<b>Total Credit Hours</b>		<b>15+5=20</b>	

## SEMESTER-VII (Students will opt for 2 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
PBG-601	Genetics and Breeding of Cereal Crops	3(2-1)	Major
PBG-603	Genetics and Breeding of Pulse Crops	3(2-1)	Major
PBG-605	Genetics and Breeding of Fodder and Forage Crops	3(2-1)	Major
PBG-607	Bioinformatics in Plant Breeding	3(2-1)	Major
PBG-609	Quantitative Genetics and Biometry	4(3-1)	Major
PBG-611	Preparation of Research Project and Scientific Writing	2(1-1)	Major
<b>Sub-Total Credit Hours</b>		<b>18</b>	
PBG-613	Bio-Safety Measures in GM Crops	2(1-1)	Elective
PBG-615	Genomics in Agriculture	2(1-1)	Elective
<b>Total Credit Hours</b>		<b>18+2=20</b>	

## SEMESTER-VIII

Course No.	Course Title	Credit Hours	Course Type
PBG-612	Internship and External Evaluation	6(0-6)	Major



# Scheme of Studies

B.Sc. (Hons.) Agriculture

**MAJOR SEED SCIENCE AND TECHNOLOGY**  
(Semester V-VIII)

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## SEMESTER-V (Students will opt for 5 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
SST-501	Principles of Seed Science	3(2-1)	Major
SST-503	Physiology of Seed Development	3(2-1)	Major
SST-505	Seed Production in Various Crops	3(2-1)	Major
SST-507	Seed Health and Vigour	3(2-1)	Major
PBG-513	Hybrid Seed Production Technology	3(2-1)	Supporting
<b>Sub-Total Credit Hours</b>		<b>15</b>	
SST-509	Seed Production of Transgenic Crops	3(2-1)	Elective
PBG-509	Experimentation in Plant Breeding	3(2-1)	Elective
PBG-517	Mutation Breeding in Crop Plants	2(1-1)	Elective
SES-517	Soil Fertility Evaluation	2(1-1)	Elective
<b>Total Credit Hours</b>		<b>15+5=20</b>	

## SEMESTER-VI (Students will opt for 5 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
SST-502	Principles of Seed Technology	3(2-1)	Major
SST-504	Seed Germination and Dormancy	3(2-1)	Major
SST-506	Seed Certification and Registration	2(1-1)	Major
PBG-518	IPR and Variety Development	2(2-0)	Supporting
FMP-510	Seed Processing Industries & their maintenance	3(2-1)	Supporting
MAB-516	Seed Trade Policies and Regulations	2(2-0)	Supporting
<b>Sub-Total Credit Hours</b>		<b>15</b>	
AGRON-502	Seed Science and Technology	3(2-1)	Elective
ENT-508	Stored Products Pests & their Management	3(2-1)	Elective
SST-510	Biological Potential of Various Crops	2(2-0)	Elective
SES-508	Nutrient Management in Degraded Soils	3(2-1)	Elective
<b>Total Credit Hours</b>		<b>15+5=20</b>	

## SEMESTER-VII (Students will opt for 2 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
SST-601	Seed Testing	3(1-2)	Major
SST-603	Seed Storage	3(2-1)	Major
HORT-607	Propagation and Nursery Management.	4(2-2)	Major
SST-611	Preparation of Research Project and Scientific Writing	2(1-1)	Major
PP-601	Plant Disease Management	3(2-1)	Supporting
MAB-615	Seed Marketing and Logistics	3(3-0)	Supporting
<b>Sub-Total Credit Hours</b>		<b>18</b>	
SST-605	Seed Enhancement	2(1-1)	Elective
PBG-613	Biosafety Measures in Crop Improvement	2(1-1)	Elective
HORT-617	Vegetable and Flower Seed Production	2(1-1)	Elective
ENT-615	Postharvest Protection of Cereals	2(1-1)	Elective
<b>Total Credit Hours</b>		<b>18+2=20</b>	

## SEMESTER-VIII

Course No.	Course Title	Credit Hours	Course Type
SST-612	Internship and External Evaluation	6(0-6)	Major



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## MAJOR BIOTECHNOLOGY (Semester V-VIII)

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### SEMESTER-V (Students will opt for 5 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
Biotech-501	Principles of Biotechnology	3 (2-1)	Major
Biotech-503	Introduction to Biosafety	3 (3-0)	Major
Biotech-505	Molecular Cell Biology	3 (2-1)	Major
Biotech-507	Modern Concepts in Biotechnology	3 (2-1)	Major
Biotech-509	Introduction to Bioinformatics and Functional Genomics	3 (2-1)	Major
<b>Sub-Total Credit Hours</b>		<b>15</b>	
AGRON-505	Field Crop Physiology	3 (2-1)	Elective
SST-509	Seed Production of Transgenic Crops	3 (2-1)	Elective
PBG-505	Cytogenetics	3 (2-1)	Elective
Biotech-511	Molecular Virology	2(1-1)	Elective
Biotech-513	Biophysics and Computational Biology	2(2-0)	Elective
<b>Total Credit Hours</b>		<b>15+5=20</b>	

### SEMESTER-VI (Students will opt for 5 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
Biotech-502	Genomics and Proteomics	3 (3-0)	Major
Biotech-504	Epigenetics	3(2-1)	Major
Biotech-506	Plant Transformation	4(3-1)	Major
Biotech-508	Principles of Plant Molecular Physiology	3 (3-0)	Major
Biotech-510	Nanobiotechnology	2 (2-0)	Major
<b>Sub-Total Credit Hours</b>		<b>15</b>	
Biochem-502	Fundamental Biochemistry	3 (2-1)	Elective
PBG-504	Modern Concepts in Plant Breeding	3 (2-1)	Elective
ENT-516	Introduction to Insect Molecular Genetics	2 (1-1)	Elective
PP-518	Biotechnology and its applications in Plant Pathology	2 (1-1)	Elective
<b>Total Credit Hours</b>		<b>15+5=20</b>	

### SEMESTER-VII (Students will opt for 2 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
Biotech-601	Agricultural Biotechnology	4 (4-0)	Major
Biotech-603	Genome Editing and its Applications	3 (2-1)	Major
Biotech-605	Fundamentals of Seed Molecular Biology	3 (3-0)	Major
FST-621	Food Biotechnology	3 (2-1)	Major
Biotech-611	Preparation of Research Project and Scientific Writing	2 (1-1)	Major
Biotech-613	Biotechnology Entrepreneurship	3 (3-0)	Major
<b>Sub-Total Credit Hours</b>		<b>18</b>	
PBG-613	Bio-Safety Measures in GM Crops	2 (1-1)	Elective
Biotech-615	Industrial Biotechnology	2(1-1)	Elective
Biotech-617	Animal Biotechnology	2 (2-0)	Elective
<b>Total Credit Hours</b>		<b>18+2=20</b>	

### SEMESTER-VIII

Course No.	Course Title	Credit Hours	Course Type
Biotech-612	Internship and External Evaluation	6(0-6)	Major



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## MAJOR ENTOMOLOGY (Semester V-VIII)

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### SEMESTER-V (Students will opt for 5 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course type
ENT-501	Insect Morphology	3(2-1)	Major
ENT-503	Principles of insect Taxonomy	3(2-1)	Major
ENT-505	Insect Ecology	3(2-1)	Major
ENT-507	Insect Pests of Household, Human & Animals	3(2-1)	Major
ENT-509	Insect Behaviour	3(2-1)	Major
<b>Sub-Total Credit Hours</b>		<b>15</b>	
ENT-511	Vertebrate Pests and their Management	3(2-1)	Elective
ENT-513	Pest Management and Phytosanitary Measures	3(2-1)	Elective
ENT-515	Insect Biodiversity Management	2(1-1)	Elective
ENT-517	Entomological History and Literature	2(1-1)	Elective
<b>Total Credit Hours</b>		<b>(15+5)= 20</b>	

### SEMESTER-VI (Students will opt for 2 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course type
ENT-502	Insect Physiology	3(2-1)	Major
ENT-504	Insect Classification and Biodiversity	3(2-1)	Major
ENT-506	Agricultural Pests & their Management	4(3-1)	Major
ENT-508	Stored Products Pests & their Management	3(2-1)	Major
ENT-510	Beneficial Insects	3(2-1)	Major
ENT-512	Biological Control of Insect Pests	3(2-1)	Major
<b>Sub-Total Credit Hours</b>		<b>19</b>	
ENT-514	Introduction to Insect Molecular Genetics	2(1-1)	Elective
ENT-516	Arachnid Pests and their Management	2(1-1)	Elective
<b>Total Credit Hours</b>		<b>(19+2)= 21</b>	



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## MAJOR ENTOMOLOGY (Semester V-VIII)

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### SEMESTER-VII (Students will opt for 2 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course type
ENT-601	Integrated Pest Management	4(3-1)	Major
ENT-603	Plant Resistance to Insect Pests	2(1-1)	Major
ENT-605	Insecticides and their Application	3(2-1)	Major
ENT-607	Range and Forest Entomology	3(2-1)	Major
ENT-609	Agriculture and Environmental Pollution	3(2-1)	Major
ENT-611	Preparation of Research Project and Scientific Writing	2(1-1)	Major
ENT-613	Apiculture	3(2-1)	Major
<b>Sub-Total Credit Hours</b>		<b>20</b>	
PP-601	Plant Disease Management	3(2-1)	Compulsory
<b>Sub-Total Credit Hours</b>		<b>3</b>	
ENT-615	Post-Harvest Protection of Cereals	2(1-1)	Elective
ENT-617	Agricultural Pesticide Legislation	2(2-0)	Elective
<b>Total Credit Hours</b>		<b>(20 + 3 + 2) = 25</b>	

### SEMESTER-VIII

Course No.	Course Title	Credit Hours	Course Type
ENT-612	Internship and External Evaluation	6(0-6)	Major



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## MAJOR PLANT PATHOLOGY (Semester V-VIII)

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### SEMESTER-V (Students will opt minimum for 5 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
PP-501	Introductory Mycology	3(2-1)	Major
PP-503	Introduction to Plant Parasitic Nematodes	3(2-1)	Major
PP-505	Introduction to Plant Prokaryotes	3(2-1)	Major
PP-507	Introduction to Plant Viruses	3(2-1)	Major
PP-509	Abiotic Diseases of Plants	3(2-1)	Major
<b>Sub-Total Credit Hours</b>		<b>15</b>	
PP-511	Beneficial Microorganisms for Sustainable Agriculture	3(2-1)	Elective
PP-513	Soil-Borne Plant Pathogens	3(2-1)	Elective
<b>Total Credit Hours</b>		<b>15+6=21</b>	

### SEMESTER-VI (Students will opt minimum for 5 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
PP-504	Diseases of Field Crops	3(2-1)	Major
PP-506	Diseases of Fruits and Ornamentals	3(2-1)	Major
PP-508	Pesticides, their Action and Applications	3(2-1)	Major
PP-510	Plant Diseases Epidemiology	3(2-1)	Major
ENT-506	Agriculture Pests and their Management	3(2-1)	Major
<b>Sub-Total credit hours</b>		<b>15</b>	
PP-512	Biology and Cultivation of Edible Fungi	3(2-1)	Elective
PP-514	Diseases of Vegetable Crops	3(2-1)	Elective
PP-516	Histopathology of Diseased Plants	3(2-1)	Elective
PP-518	Biotechnology and its Applications in Plant Pathology	3(2-1)	Elective
<b>Total credit hours</b>		<b>15+6=21</b>	

### SEMESTER-VII (Students will opt minimum for 2 credit hours from elective courses)

Course No.	Course Title	Credit Hours	Course Type
PP-601	Plant Disease Management*	3(2-1)	Major
PP-603	Methods and Techniques in Plant Pathology	3(1-2)	Major
PP-605	Seed and Post-Harvest Pathology	3(2-1)	Major
PP-607	Plant Resistance to Diseases	3(2-1)	Major
PP-609	Introductory Molecular Plant Pathology	3(2-1)	Major
PP-611	Preparation of Research Projects and Scientific Writing	2(1-1)	Major
<b>Total credit hours</b>		<b>17</b>	
PP-613	Introductory Range and Forest Pathology	3(2-1)	Elective
PP-615	Plant Quarantine and SPS Measures	3(2-1)	Elective
<b>Total credit hours</b>		<b>17+3=20</b>	

### SEMESTER-VIII

Course No.	Course Title	Credit Hours	Course Type
PP-612	Internship and External Evaluation	6(0-6)	Major

\*This course will be opted as a major course by the students of Entomology in 7<sup>th</sup> semester



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**Human Nutrition & Dietetics**  
(Semester I-VIII)

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## Semester I

Course No.	Course Title	Credit Hours	Course Type
ENG -301	Composition and Communication Skills	3(3-0)	CC
CS-301	Computer Science and Information Technology	2(0-2)	FC
HND-301	Micronutrients in Human Nutrition	3(3-0)	FC
HND-303	Assessment of Nutritional Status	3(2-1)	MC
HND-305	Macronutrients in Human Nutrition	3(3-0)	FC
HND-307	Metabolism of Nutrients	2(2-0)	MC
PHYSIO-301	Human Physiology-I	3(2-1)	FC
		<b>19(15-4)</b>	

## Semester II

Course No.	Course Title	Credit Hours	Course Type
SSH-302	Pakistan Studies	2(2-0)	CC
STAT-302	Introductory Statistics	2(2-0)	CC
SOC-302	Fundamentals of Sociology/Behavior	3(3-0)	GC
BIOCHEM-302	Clinical Biochemistry	3(1-2)	GC
PHYSIO-302	Human Physiology-II	3(2-1)	FC
HND-302	Public Health Nutrition	3(2-1)	MC
HND-304	Nutritional Deficiency Disorders	3(3-0)	MC
UAM-301	Social and Religious Tolerance	2(2-0)	Audit
		<b>19(15-4)</b>	

## Semester III

Course No.	Course Title	Credit Hours	Course Type
IS-401/SSH-402	Islamic Studies/Ethics (for Foreigners / Non-Muslims)	3(3-0)	CC
BIOTECH-401	Basics of Molecular Biology and Biotechnology	2(2-0)	GC
FST-419	Food laws and regulations	3(3-0)	MC
ANAT-401	Human Anatomy	3(2-1)	FC
PHARM-401	Pharmacology-I	3(3-0)	MC
HND-401	Nutrition and Psychology/Behavior	3(3-0)	MC
HND-403	Preventive Nutrition	3(3-0)	MC
UAM-302	Citizenship Education and Community Engagement	3(2-1)	Audit
		<b>20(18-2)</b>	



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## Semester IV

Course No.	Course Title	Credit Hours	Course Type
FST-402	Essentials of Food Science and Technology	3(2-1)	FC
PATH-402	General Human Pathology	3(2-1)	FC
PHARM-402	Pharmacology-II	3(2-1)	MC
HND-402	Nutrition Through the Life Cycle	3(3-0)	MC
HND-404	Nutritional Immunology	3(3-0)	MC
HND-406	Nutrition Epidemiology	3(3-0)	MC
HND-408	Nutrition Policies and Programs	3(3-0)	MC
		<b>21(18-3)</b>	

## Semester V

Course No.	Course Title	Credit Hours	Course Type
FST-501	Principles of Human Nutrition	3(3-0)	FC
FST-503	Food Microbiology	3(2-1)	GC
FST-511	Food Analysis and Sensory Evaluation	3(2-1)	GC
HND-501	Functional Foods and Nutraceuticals	3(3-0)	MC
HND-503	Nutritional Education and Awareness	3(2-1)	FC
HND-505	Nutrition Through Social Protection	2(2-0)	MC
HND-507	Dietetics-I	3(2-1)	MC
		<b>20(16-4)</b>	

## Semester VI

Course No.	Course Title	Credit Hours	Course Type
HND-502	Dietetics-II	3(2-1)	MC
HND-504	Drug-Nutrient Interactions	2(2-0)	MC
HND-506	Food Supplements	2(2-0)	MC
HND-508	Research Methods in Nutrition	3(1-2)	MC
HND-510	Meal Planning and Management	3(2-1)	MC
		<b>13(9-4)</b>	
<b>Elective</b>			
HND-512	Water safety in Developing World	3(2-1)	EC
HND-514	Food Toxins and Allergens	3(3-0)	EC
HND-516	Sports Nutrition	3(2-1)	EC
FST-502	Food Chemistry	3(3-0)	EC
		<b>6</b>	
		<b>19</b>	



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## Semester VII

Course No.	Course Title	Credit Hours	Course No.
FST-619	Food Safety and Quality Management	2(2-0)	GC
HND-601	Dietetics-III	3(2-1)	MC
HND-603	Nutritional Practices in Clinical Care	3(2-1)	MC
HND-605	Global Food Issues	3(3-0)	MC
		<b>11(7-4)</b>	

## Elective

HND-607	Nutrition in Emergencies	3(3-0)	
HND-609	Genetically Modified Foods and Food Diversification	3(3-0)	
HND-611	Infant and Young Child Feeding	3(2-1)	
		<b>6</b>	
		<b>17</b>	

## Semester VIII

Course No.	Course Title	Credit Hours	Course No.
HND-602	Internship/Project	6(0-6)	MC
		<b>6(0-6)</b>	