Prospectus 2012-2013

Postgraduate Diploma “Food Safety and Controls”

35% Tution Fee is waived off through EU - TRTA-II Support Programme

The Postgraduate Diploma Course is being supported by the European Union funded Trade Related Assistance (TRTA-II) Programme, implemented by UNIDO

University of Veterinary and Animal Sciences, Lahore
This prospectus contains information on various aspects of the educational set up, admission procedure, criteria of examinations, rules and regulations for discipline, fee schedules and courses of study etc. of Postgraduate Diploma “FOOD SAFETY & CONTROLS” offered at the Department of Food Sciences & Human Nutrition, Faculty of Bio-Sciences, UVAS, Lahore. The University administration reserves the right to change any of the rules/regulations applicable to the students; whenever it is deemed appropriate or necessary.

Dr. Naureen Naeem
<table>
<thead>
<tr>
<th>CONTENTS:</th>
<th>CONTENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Messages</td>
<td>Students Facilities</td>
</tr>
<tr>
<td>Historical Vista of UVAS</td>
<td>ORIC, QOL, UDL</td>
</tr>
<tr>
<td>Department of Food Science &amp; Human Nutrition</td>
<td>Library</td>
</tr>
<tr>
<td>Faculty Profile</td>
<td>BeSt, BIC, IT</td>
</tr>
<tr>
<td>PgDip “Food Safety and Controls”</td>
<td>Hostels</td>
</tr>
<tr>
<td>Postgraduate Diploma Scheme of Studies</td>
<td>University Sports</td>
</tr>
<tr>
<td>Admission Guidelines</td>
<td>Authorities of the University</td>
</tr>
<tr>
<td>Curriculum and Syllabus</td>
<td>Prospectus Committee, UVAS Google Map</td>
</tr>
</tbody>
</table>
Quaid-e-Azam Muhammad Ali Jinnah

(Father of the Nation)
Sardar Muhammad Latif Khan Khosa
(Governor of the Punjab / Chancellor)
I am pleased to welcome you at the University of Veterinary and Animal Sciences, Lahore. I hope you are inspired to consider a career with us. Staff of The University of Veterinary and Animal Sciences is rightly proud of the University’s position as a leading research and teaching University.

I believe the key to our success is our people. Excellence in teaching, excellence in research and the excellence of our professional staff all contribute, making University of Veterinary and Animal Sciences a great place to work.

Food safety is a scientific discipline describing handling, preparation, and storage of food in ways that prevent foodborne illness. This includes a number of routines that should be followed to avoid potentially severe health hazards. I personally believe in lesser developed countries like Pakistan, the food safety control system is very weak and by producing technically proficient and academically qualified experts in food safety and controls through this Post Grad Diploma in Food Safety & Control will strengthen the trade capacity building process in Pakistan, thereby, promoting the economic integration of Pakistan into the global and regional economies and stimulate decent work and employment creation by increasing exports and enhancing the enabling climate for international trade.

I encourage you to explore our website (www.uvas.edu.pk) where you will find a wealth of information about UVAS that will help you in making important decisions regarding creating a relation with this unique seat of learning. I welcome the students joining this prestigious professional University. I assure that you will find conducive environment for learning, training and skill development to prepare you for future challenges in your life.

We at UVAS “Provoking Potentials & Producing Professionals”.

Prof. Dr. Talat Naseer Pasha
Vice Chancellor
Message of Dean

I welcome you, minds with ingenuity, talent and ambition to join us the realization of goals and satiation of thirst for knowledge of food safety and control Programme.

Primarily, the aim is to enrich and support the individual in his endeavor towards the attainment of knowledge, and wisdom to implement that knowledge in Pakistani food sector, in coherence with the aims and ambitions of the individual in particular and for the greater good of nation in general.

With the skilled professionals in this “Food Safety and Controls” Programme in the right place, we're creating a new standard in education. We encourage you to visit our distinctive learning community in person to see what sets us apart.

Your opportunities are endless. We challenge you to make the most of them. Please join us!

Prof. Dr. Ijaz Ahmad
DVM (UAF), MSc. Hons (UAF), MS (USA), Ph.D(USA), Postdoc(Canada)
Dean Faculty of Biosciences
Lahore is the capital of Punjab and the second largest city in the country. With a rich history dating back over a millennium, Lahore is the main cultural center of Pakistan. One of the most densely populated cities in the world, Lahore remains an economic, political, transportation, entertainment, and educational hub.

Lahore successively served as regional capital of the empires of different kingdoms in an era from 11th to 16th century and it was the capital of the Punjab region under the British Raj in the mid19th and early 20th century. The traditional capital of Punjab for a thousand years had been the cultural center of the northern Indian subcontinent which extended from the eastern banks of the Indus River to New Delhi. Mughal structures such as the Badshahi Mosque, the Lahore Fort, Shalimar Gardens, and the mausoleums of Emperor Jahangir and Noor Jehan are its tourist attractions. Lahore is also home to many British colonial structures built in the Indo-Saracenic style, such as the Lahore High Court, the General Post Office, Lahore Museum and many older universities including the University of the Punjab and University of Veterinary and Animal Sciences. Lahore Zoo, thought to be the fourth oldest in the world, is also situated here.

University of Veterinary and Animal Sciences (UVAS) is located at a key position in Lahore. All the renowned places are at a walking distance from this university which includes historical places, shopping market like Anarkali Bazar, Food Street, Books market like Urdu bazaar etc.
ABOUT THE UNIVERSITY

The University of Veterinary and Animal Sciences, Lahore, is one of the oldest Veterinary Institutions in Asia. Since its inception in 1882, the staff of this Institution has worked enthusiastically and successfully conducted a wide range of Programmes that have effectively catered for the educational and training needs in the field of Veterinary and Animal Sciences. By now it has emerged as one of the famous centers of teaching in Veterinary Education in Asia. This Institution started as Veterinary School in 1882 and was raised to the status of Punjab Veterinary College by the end of nineteenth century. Its present buildings were completed in 1921. In 1942, the College was affiliated with the Punjab University, Lahore. In 1971, this College was integrated with the University of Agriculture, Faisalabad, and since then basic DVM degree is being awarded. The Up-gradation of College of Veterinary Sciences, Lahore to the status of a University in June 2002, was an obvious testimony of commitment of the Government regarding institutional arrangement for further research, higher education, human resource development and poverty alleviation. With these up-gradations five faculties, two directorates, 21 departments, University administration and management were established. The new University commenced basic degree Programme in Veterinary and Animal Sciences, established postgraduate degrees, diplomas & short courses in areas of animal production and human health, computer science, statistics, livestock extension, economics, wildlife and fisheries & business management, etc. So far, over 4500 veterinary graduates have qualified from CVS/UVAS and are serving all over the world. Many graduates from this institution rose to the ranks of Major Generals in Pakistan Army, Ministers, Vice
Chancellors, Federal and Provincial Secretaries. Many of the graduates have entered into Civil Services, Livestock Departments, teaching and research institutions of the country and UN Agencies (FAO, UNDP, WHO) Atomic Energy etc. bringing respect and dignity to their Alma Mater.

Vision of UVAS

Future needs of the professionals will be updated to meet national and international standards. It will endeavor to improve and modernize animal entrepreneurship from traditional to modern farming system within a period of ten years (2004-2014) through development of appropriate technologies and more focused research on applied problems. The ultimate goal is to bring prosperity mainly by reducing/alleviating poverty especially in rural areas of the country.

Mission

The mission of the University of Veterinary and Animal Sciences (UVAS) Lahore is focused on human resource development to evolve strategies for sustainable development and improvement of animal, food and human health sectors leading to poverty alleviation through food and social security in the country and also aims to

- Human resource to ensure food security & safety for health and better income of the stake holders
- Education for entrepreneurship
- Research for production and improvement
- Extension of Production skills / Services

Aim of the University

To help in achieving the national economic and technological targets in animal, food and human nutrition sector by providing trained professional and technical manpower
which will help to enhance the production potentials of the livestock/poultry and other sciences leading to development and improvement in allied industries.

Enhancing the socioeconomic status of the rural/urban population engaged in animal production resulting in poverty alleviation and opening avenues of international cooperation in education, research and development of latest technologies in various fields.

FACULTY OF BIO-SCIENCES

This was established in year 2002. This faculty is teaching Bioscience courses for various degree Programmes offered by different faculties and departments of the University of Veterinary and Animal Sciences, Lahore. While enjoying the distinction of attracting students from national elite institutions the faculty has produced a reasonable number of BS (Hons.), M.Phil and Ph.D scholars. The highly qualified, experienced & dedicated faculty members, devoted to the cause of education in the country, have made significant contribution in their specific fields of specialization.

This faculty has following center/Institutions/Departments

Center of the Faculty

- Center for Environmental Science, Policy and Management

Institutes of the Faculty

- Institute of Biochemistry and Biotechnology
- Institute of Pharmaceutical Science

Departments of the Faculty

- Food Science and Human Nutrition
- Pharmacology and Toxicology
- Anatomy & Histology
- Physiology
- Social Science
Department of Food Science and Human Nutrition was formerly working as a discipline in the Department of Food and Nutrition under the faculty of Animal Production and Technology. Keeping in view the scope of the discipline, the University up-graded this discipline to a Department “Food Science and Human Nutrition” under the Faculty of Bio-Sciences. The main aim of the department is to produce manpower in the field of food science and human nutrition which will provide services in health departments, teaching and research, and to promote collaboration between national and international universities in this specific field.

The department is offering one under graduate degree Programme i.e. B.S. (Hons.) Nutrition & Dietetics and Postgraduate Diploma “Food Safety and Controls” with the collaboration of United Nations Industrial Development Organization (UNIDO)/EU-TRTA-II Programme, Islamabad, Pakistan. Furthermore, the department is offering M. Phil and Ph.D degree programmes since 2008.

The department has a highly qualified teaching faculty in relevant disciplines. The students are professionally trained in Food Science, Food Safety and Quality Management, Clinical Nutrition/Dietetics and Public Health Nutrition. For practical training of the students, the department has developed collaborations with many institutes & industries.
FACULTY OF THE DEPARTMENT

1. Prof. Dr. Ijaz Ahmad
   DVM (UAF), MSc. Hons (UAF), MS (USA), Ph.D(USA),
   Postdoc(Canada)
   Chairman

2. Dr. Muhammad Nasir
   B.Sc. Hons. (UAF), M.Sc. Hons. (UAF), Ph.D. (UAF & USA)
   Assistant Professor & Officer Incharge

3. Dr. Naureen Naeem
   B.Sc. Hons. (UAF), M.Sc. Hons. (UAF), Ph.D. (UAF)
   Assistant Professor

4. Dr. Sanaullah Iqbal
   B.Sc. Hons. (UAF), M.Sc. Hons (UAF), Ph.D. (Austria)
   Assistant Professor

5. Miss Zahra Khan
   B. Sc (PU), M. Sc (UAF), M.Phil (KEMU)
   Lecturer

6. Miss Amina Chughtai
   B.Sc. Home Economics (PU), M.Sc. Home Economics
   (Food and Nutrition) (PU), PGD Dietetics (PU)
   Lecturer

7. Ms. Frasat Rizwan
   B.Sc. Hons. (UAF), M.Sc. Hons. (UAF)
   Lecturer

FOREIGN FOOD SAFETY EXPERTS

1. Dr. Andrew Mathieson
   International Technical Food Safety Expert

2. Dr. Ian Goulding
   International Technical Food Safety Expert
Dr. Muhammad Nasir


Assistant Professor & Officer Incharge

Dr. Muhammad Nasir, is Assistant Professor & Officer Incharge, Department of Food Science & Human Nutrition and holds B.Sc. (Hons.), M.Sc. (Hons.) and Ph.D degrees in Food Technology. He is also Visiting Consultant in Food, Nutrition & Dietetics at King Edward Medical University/ Mayo Hospital, Lahore. He conducted significant part of his Ph.D research at the Department of Food Science & Human Nutrition, Michigan State University, USA and published 04 peer reviewed papers from that research. He is the Programme Coordinator for the Postgraduate Programme in Food Safety, Hygiene & Border Control. Dr. Nasir’s fundamental expertise is in the field of Food and Nutrition, especially development of nutraceuticals / functional foods and to explore their impact on human health & disease management. Besides, other research area of interest is value addition of foodstuff using indigenous resources and assessment of their acceptability, efficacy and safety using animal and human models. Dr. Nasir being the member of Technical Committee also played key role in revising “The Punjab Pure Food Rules 2007” and drafting “The Punjab Pure Food Rules 2011”. Dr. Nasir has more than 25 peer reviewed research publications, 18 conference proceedings, 02 international books and 02 international book chapters to his name. He presented research findings in 17 international and national scientific conferences in various countries including USA and UK. So far, he has produced around 15 postgraduate students under his supervision. Being Associate Editor, he has also the key role in publishing “The Journal of Animal & Plant Sciences” a bimonthly, peer reviewed impact factor journal. Dr. Nasir being the member of various professional bodies including Institute of Food Technologist, American Society of
Nutrition, Nutrition Society of UK, American Association of Cereal Chemists, Functional Food Center USA etc. is contributing for the uplift of scientific knowledge in the field of Food Science & Human Nutrition and to translate this knowledge for improvement of lives of masses in the country. He is member of various bodies outside UVAS including Board of Studies (BOS) Department of Food Science Government College University Faisalabad, synopsis Review Committee Institute of Public Health Lahore.

Dr. Naureen Naeem

B.Sc. Hons. (UAF), M.Sc. Hons. (UAF), Ph.D (UAF)

Assistant Professor

Dr. Naureen Naeem is presently serving as Assistant Professor in the Department of Food Science & Human Nutrition, Faculty of Bio-Sciences, University of Veterinary & Animal Sciences, Lahore, Pakistan. She holds B.Sc. (Hons.), M.Sc. (Hons.) and Ph.D degrees in Food Science and Technology. She has completed her Ph.D in 2004 from NIFSAT University of Agriculture Faisalabad. She has over 9 years of teaching / research experience in different public/private sector universities of Pakistan. She has published more than 15 papers in reputed national /international journals. Her doctoral research focused on the link between soluble dietary fiber and Hypercholesterolemia and Hyperglycemia. Special formulated composite flour was found to be useful in lowering blood cholesterol and glucose level. Food product prepared from selected composite flour ought to be introduced in weight loss Programme. She produced 6 research papers and one newspaper article from her PhD research. Dr. Naureen’s fundamental expertise is in the field of Food and Nutrition, especially development of nutraceuticals/ functional foods and to explore their impact on human health & disease management. Other area of research interest includes value addition of foodstuff using indigenous resources and their assessment, efficacy, acceptability and safety by the use of community based studies on animal models and humans. In her area of
interest, she has also won a research project for scientific work, with 2 more projects in line for submission. She has more than 15 peer reviewed research publications, 2 conference oral presentations and working on the project to publish 2 books and one review article. Dr. Naureen, is a member of various professional bodies including, The Pakistan Society of Food Scientists and Technologists (PSFST), Pakistan Association for Nutritionists and Academic Staff Association (ASA) UVAS, to transform scientific knowledge for improvement of nutritional uplift and food safety standards. She is also Member Board of Studies (BOS) Department of Food Science and Human Nutrition UVAS.

**Dr. Sanaullah Iqbal**

*B.Sc. Hons. (UAF), M.Sc. (Hons) (UAF), Ph.D (Austria)*

**Assistant Professor**

Dr. Sanaullah Iqbal is Assistant Professor in the Department of Food Science and Human Nutrition, Faculty of Bio-Sciences, University of Veterinary and Animal Sciences, Lahore, Pakistan since 7th September 2011. He has completed his B.Sc. (Hons.) Agriculture, major subject as Food Technology in 2004 and M.Sc. (Hons.) Food Science and Technology in 2006 from National Institute of Food Science and Technology, University of Agriculture, Faisalabad, Pakistan. Dr. Sanaullah has received his PhD in Food Biotechnology with distinction in 2011 from Food Biotechnology Lab., University of Natural Resources and Life Sciences, Vienna–Austria. In his Doctorate studies, he has cloned, expressed and characterized lactobacilli β-galactosidases, has produced prebiotic galacto-oligosaccharides using these enzymes and has characterized them through different separation techniques. From this study, he has written three peer reviewed research papers in well-known scientific journals with good impact factor. Dr. Sanaullah has also presented his scientific work in 3 international conferences worldwide. His research interest areas are functional foods with emphasis on prebiotics
especially galacto-oligosaccharides, production of different mixtures of prebiotics and to determine their prebiotic effect. In his area of interest, he has also won two research projects for scientific work.

Miss Zahra Khan

B.Sc (PU), M.Sc (UAF), M. Phil (KEMU)

Lecturer

Ms. Zahra khan is Lecturer, Department of Food Sciences and Human Nutrition, Faculty of Bio-Sciences, University of Veterinary and Animal Sciences, Lahore, Pakistan. She holds B.Sc and M.Sc degrees in Food and Nutrition and M.Phil degree in Public Health and Preventive Medicine from King Edward Medical University, Lahore, Pakistan. Miss Zahra is a pioneer faculty member of this department and has worked devotedly for the development of this discipline at UVAS. She has participated in national and international conferences. Miss Zahra Khan is also member of American Society of Nutrition and Pakistan Association for Nutritionists.

Miss Amina Chughtai

B.Sc. Home Economics (PU),
M.Sc. Home Economics
(Food and Nutrition) (PU), PGD Dietetics (PU)
Lecturer

Ms. Amina Chughtai is Lecturer at Department of Food Sciences and Human Nutrition, Faculty of Bio-Sciences, University of Veterinary and Animal Sciences, Lahore, Pakistan. She holds B.Sc and M.Sc Home Economics (Food and Nutrition) from University of Punjab, Lahore, Pakistan. Currently, she is pursuing her M. Phil Food & Nutrition programme under the supervision of Dr. Muhammad Nasir and is working on hyperlipidemia management through various sources of omega-3 fatty acids. She has working experience in various private hospitals as nutritionist and Dietitian. She has strong inter-personal &
Ms. Frasat Rizwan

B.Sc. Hons. (UAF), M.Sc. Hons.(UAF)

Lecturer

Ms. Frasat Rizwan is a Lecturer in the Department of Food Science & Human Nutrition, Faculty of Bio-Sciences, University of Veterinary & Animal Sciences, Lahore, Pakistan. She has completed her B.Sc. (Hons.) & M.Sc. (Hons.) in Food Technology from University of Agriculture, Faisalabad, Pakistan. She has also completed different courses in HACCP and ISO 14001 from University of Punjab. She is member of Pakistan Society of Food Scientists and Technologists (PSFST), Academic Staff Association (ASA) UVAS, & Pakistan Association of Nutritionists.

Dr. Andrew Mathieson

International Food Safety Expert

Dr. Mathieson is working closely with UVAS through EU funded TRTA-II Programme implemented by UNIDO in PgDip Food Safety & Controls Programme. He has played pivotal role in development & implementation of this Programme. Dr. Andrew Mathieson is the Principal Lecturer in Public Health at the Institute for Health Research which is part of the Postgraduate medical school at the University of Bedfordshire. Andrew is an expert on the EFSA technical list and holds fellowships from the Institute of Food Science and Technology, Royal Society of Health and Royal Society of Medicine. He qualified in Environmental Health (1988) and worked in local government for some 14 years before crossing into academia. He has developed, managed and led a number of environmental & public health programmes. His Professional Doctorate is in post conflict reconstruction.
He also has qualifications in food safety, HACCP and public health. Dr. Mathieson has widely published and regularly presents at national and international conferences. His international work has led him to Pakistan, Kenya, Malawi, Australia and a number of European Countries.

**Dr. Ian Goulding**

*International Food Safety Expert*

Dr. Goulding is working as Technical Food Safety Expert with EU funded TRTA-II Programme implemented by UNIDO and has key role in development & implementation of PgDip Food Safety & Controls Programme at UVAS, Lahore. Dr. Ian Goulding has been Managing Director of food and fisheries consultants Megapesca Lda in Portugal since its formation in 1993. He has inter-disciplinary qualifications in environmental health, and food science, and a PhD in the marketing of aquaculture products.

Since 1986 Dr. Goulding has been working in international aspects of trade in food and fishery products in less developed countries, with a strong focus on sanitary and phytosanitary (SPS) control systems. He has in-depth knowledge of the legal basis and implementation of the EU food safety regime. He has a substantial international work experience in 60+ countries, with diverse geographic and cultural environments. He has supported many countries to develop export food safety control systems for international trade, and has been instrumental in setting up the legal and institutional basis for food safety in Croatia, Latvia, and Gambia. He has worked with national SPS institutions in Pakistan since 2008. He has proven experience of project identification, design and implementation applying the logical framework approach to project life cycle management. He is creator and editor of popular monthly e-newsletter, Fish Files Lite, covering EU developments in fisheries and fish trade; current readership 15,000+. He is a member of the European Food Law Association, the International Association of Fish Inspectors and is a Fellow of the Institute of Food Science and Technology (UK).
Nutritional Assessment and Dietary Counseling Camps

Department of Food Science and Human Nutrition organizes different activities to disseminate nutritional education to the community for building a healthy nation. The Department routinely organizes various camps on nutritional assessment and dietary counseling with collaboration of private sectors. The objective is to share the experiences in this camp that will help others to improve their own nutritional requirements and to contribute to the overall improvement of health status by knowing their energy and diet requirement.

Main areas of assessment and counseling were included:

- Body Mass Index (BMI)
- Energy Requirements
- Various Body Measurements like WH Ratio
- Balance Dietary regime
- Ideal Body Weight
- Frame Size
- Body Fat
- Total Body Water
- Healthy Eating Practices
- Dietary Counseling according to Individual Requirements

Aims:

- Create AWARENESS about nutrient and calorie requirements
- Role of balanced diet in health management
- Arrange free of cost nutritional health assessment facility
- Provide free of cost dietary counseling
WORKSHOPS / TRAININGS / SEMINARS

Workshop on “PgDip Food Safety & Controls (Finalization of Syllabus)

Department of Food & Nutrition conducted three (03) days workshop on “Finalization of Syllabus for Post-Graduate Diploma in Food Safety, & Controls” designed for Food Inspectors / Food Safety Officers in Collaboration with Trade Related Technical Assistance Programme implemented by United Nations Industrial Organization from 27-29, March, 2012. The workshop was attended by representatives from Partner Institutes; University of Karachi and University of Agriculture Faisalabad along with representatives from The Punjab Pure Food Rules Technical Committee and Industry. TRTA-II Programme provided technical assistance by fielding International Expert in Food Safety, Dr. Andrew Mathieson to conduct the workshop. Workshop participants worked rigorously to finalize syllabus, scheme of studies, entrance requirements, examination system, QA/QC, and Monitoring & Evaluation System. Asad Islam Mahni, DG Food Safety & Standards Authority appreciated the work and hoped that this PgDip Programme will help to develop core competencies and professional skills in future Food Safety Experts of the Country.

Seminar on Consequences of Calcium and Vitamin-D Deficiency in Relation to Bone Health

Food and Nutrition Discipline organized an educational /awareness seminar entitled “Consequences of calcium and vitamin-D deficiency in relation to bone health” in collaboration with Nutritional Health Consultant and Abbott Laboratories (Pakistan) Ltd, to create awareness about the
importance of calcium and vitamin D for maintaining bone health. The students, faculty and staff members were given free facility for bone mineral density (BMD) tests. More than 300 people benefitted with facility.

Similarly, various other workshops were organized by the Discipline in various fields like Obesity, Colorimetry in Food & Nutrition etc.

DEGREE PROGRAMMES

Under Graduate Degree Programme

- B.S. (Hons.) Nutrition & Dietetics (4 years)

Postgraduate Degree Programmes

- Postgraduate Diploma “Food Safety and Controls”
- M. Phil
- Ph.D

RESEARCH PROJECTS OF THE DEPARTMENT

Ongoing Projects:

- Production of low-lactose skim milk powder containing prebiotic galacto-oligosaccharides (GalOS) and its biochemical and microbiological analysis (PI: Dr. Sanaullah Iqbal, Co PI: Dr. Muhammad Nasir) Funding agency HEC
- Efficacy of prebiotic galacto-oligosaccharide produced in dairy products of buffalo milk (PI: Dr. Sanaullah Iqbal) Funding agency International Foundation for Science (IFS)
- Effect of dietary fiber supplemented food products in weight reduction (PI: Dr. Naureen Naeem, Co PI: Dr. Muhammad Nasir) Funding agency : HEC

HEC Funded Indigenous Research Projects

- Efficacy assessment of prebiotics and probiotics in health management of severely malnourished infants and young children admitted in Community-based...
Management of Acute Malnutrition (CMAM) Programme. Rs.1.5 million

- Isolation & nano-encapsulation of lactoferrin from cheese whey and its efficacy assessment against cancer. ~Rs.1.5 million

**Research Priority Areas:**

- Identification, analysis, nutritional significance of novel & un-conventional foods and their incorporation in food formulations

- Characterization and evaluation of food products available in market for health injurious substances i.e. anti-nutritional factors, heavy metals, toxins, pesticide residues, veterinary drugs, trans fats etc

- Development of nutraceuticals and functional foods

- Production of Probiotics especially galactooligosaccharides & its efficacy studies

- Dietetics: Development of specially designed foods for sportsmen, PEM children, diabetics, hypercholesterolemics, CVD patients etc.

- Exploration and utilization of indigenous resources with rich phyto-chemistry against cancer and other health disparities

- Value-addition of food-stuff regarding nutritional and functional properties

**DEPARTMENT COLLABORATIONS**

- A research project was completed in collaboration with HSPH Harvard University, USA
A research project is in progress in collaboration with University of Florida, USA

Department has identified areas with Functional Food Center USA for joint USA- Pakistan Research Projects relating to Healthy and Functional Foods.

Engaged with Dr. Siddiq (Michigan State University, USA) and Dr. Jiwan Sidhu (Kuwait University) in writing chapters for books by Wiley & Sons.

Submitted a joint project with Dr. Jagat Kanwar (Deakin University, Australia) on “Camel Milk lactoferrin with oral nano delivery for cancer and diabetes”.

Mutual agreement with Reading University to develop strategic partnership in Research and Education with department of Food and Nutrition.

**Future Vision:**

- Accreditation of labs
- PGD in Dietetics & Clinical Nutrition
- Self-sustainment
- Professional development through Trainings/Workshops
- Collaborations with various organizations for seminars, conferences & trainings
In developing countries like Pakistan, the food safety control system is very weak. For this purpose international experts from UNIDO reviewed the background status of food safety and control system in Pakistan.

According to these experts, clean water in Pakistan is unavailable to 20% urban and 47% rural population. Only 33% compliances of food safety management principles are followed in public hospitals in the country. It is also estimated that healthy and clean food was available only to 48% population of the country as a whole.

Pakistan is affluent in agriculture and livestock wealth but lacks ability to fully exploit this rich resource due to insufficient investment, inadequate professionals, technologies and value-addition activities. The experts have suggested the TRTA-II Programme, which has three complementary components aimed at improving the trade and investment policy climate and enhancing trade development, strengthening standards and quality capacity, and improving the protection of intellectual property rights.

The implementation of the above three components is expected to result in strengthening the trade capacity building process in Pakistan, thereby promoting the economic integration of Pakistan with the global and regional economies and stimulate decent work and employment creation by increasing exports and enhancing the enabling climate for international trade.
Food safety has been a neglected area in the past, with divided mandates, weak institutions, outdated legislation and lack of budgetary support. Government is responding to these failures with a Programme to reform Federal and Provincial institutions.

However, the technical capacity of the mandated food safety control bodies (for both present and future) is weak. The University of Veterinary and Animal Sciences (UVAS) is already serving as hub for knowledge generation, dissemination and scholarly education of younger generation in Livestock sector including Food Safety. It is our understanding that a post graduate diploma in Food Safety & SPS Control through indigenous and external resources can inculcate the required traits for quality food inspection and monitoring system in Pakistan. Such training modules with requisite knowledge & technology in emerging global scenario will also make the Food Safety Inspectors/Officers aware of global developments and WTO needs, in food inspection system. The responsibility of UVAS in producing educated manpower realizing its role in national progress and protection of human health and alleviation of poverty through food sector development is a vital future expectation from the institution. Therefore, development and initiation of this post graduate diploma Programme for food safety officers, as also proposed in EU TRTA-II Programme, is one of the priorities of the University.
OBJECTIVES OF THE PROGRAMME

General Objectives:

- To protect consumer by improving the safety status of food up to consumer desk
- To facilitate Pakistan’s capacity to integrate into global trade
- To improve compliance of exported and imported products with market requirement

Specific Objectives:

- To bridge the knowledge gap of the existing food safety officers in the country and their counterparts in developed countries
- To provide internationally recognized training opportunity locally by creating partnership with International faculty
- To make food safety officers capable of inspecting the food for domestic consumption, food that is imported to Pakistan and food that is intended for export.

THE CURRICULUM LEARNING OBJECTIVES

The learning objectives of an accredited programme have been grouped under four headings:

1. Fundamental principles and underpinning knowledge
2. Intervention strategies and operational skills
3. Practice skills in each intervention field
4. Core competencies

Universities are not required to deliver the objectives in any particular sequence and are encouraged to design a programme in a way that best suits them and their students.

1. Fundamental Principles and Underpinning Knowledge

Programmes should provide students with a sound general knowledge of the natural and human-made worlds and their systems. They should establish the context in which different stressors impact on humans and how this requires intervention, specifically:

- The concepts of ‘health’ and ‘disease’, and how these
might be measured, assessed and articulated, exploring the principles of, and strategies for, health protection, health promotion and health improvement.

- Introduction to the concepts of ‘hazard’ and ‘risk’, with particular reference in the earlier stages of the course of how ‘risk assessment’ serves to identify and characterise hazards and establish the risk, explaining why this must be accomplished ahead of considering risk management strategies.

- The nature of governance in Pakistan, taking this through from the role of central government (and the governments of the devolved regions) as the Legislature informed by its civil service and others, thereafter discharging its responsibilities through departments of State, non-ministerial agencies and non-governmental organisations, through to local government.

- The nature of the Legal System pertaining in each devolved region of Pakistan, and the jurisdiction of the courts in discharging the criminal and civil law, thus establishing the means by which judge-made law complements Statute.

- Encouraged (through exposure to published work performed across the food safety/inspection/SPS field) to appreciate why research forms such a vital part, as in all other fields, to our better understanding of ‘stressors’ at a fundamental level and informs practice through the establishment and reinforcement of the evidence-base.

- Through frequent opportunities to practice different forms of communication, acquire the high standards of communication skills expected of a FoodOfficer in drafting reports, briefing notes, letters and other forms of written exchange, as well as to prepare and present oral presentations.

Thereafter programmes will seek to explore particular fields of professional engagement, many vital to the process of identifying hazards, elucidating risk, assessing risk and
interpreting compliance against standards, guidelines and other legislative tools. Those deemed ‘key’ are:

- The principles of microbiological, chemical and physical food safety as they relate to our understanding of health, disease, hygiene and food technology.
- The fundamentals of mammalian anatomy, physiology and how the function of tissues and organs can be disrupted by biological, toxicological and mechanical effects.
- The role of parasites and vectors in the aetiology of disease, as a preliminary to looking in detail at the range of pest species that share Man’s ecological niche and thus establish strategies of elimination and control.
- Establishing the nature and epidemiological significance of a range of communicable and non-communicable diseases, identifying those that have a particularly strong environmental association;
- An introduction to the range of approaches and methodologies employed in researching fundamental and applied physical and social science, including the use of statistics and statistical analysis.

2. Intervention Strategies and Operational Skills

The fulfilment of the following objectives is a natural point of professional progression for students as they utilise knowledge of the objectives of practice and relate theory to practice.

At this point students can see themselves as the precursor to change in the behaviour of others through their capacity to inform, persuade, educate and criticise. A working understanding of these operational skills, during a placement or period of work experience, is normally essential for the skills to be properly embedded, but ahead of this much can be inculcated through close instruction from an experienced practitioner-lecturer.

Some of these are detailed below:
• Identify, and articulate, the nature, impacts, mechanism of impact and the potential or realised health outcomes of the stressors previously studied. Identify the points where the role of the Food Officer might be best practiced as a means of intervening to prevent, control or mitigate the impact of the stressors previously studied, but recognising the need to consider the political, technological, commercial and financial implications.

• Develop a working practice that routinely involves assimilating and integrating data from works of authority, legislation, codes of practice etc, and by mobilising the data thus acquired through local research, use it in a way that maximises the intervention.

• Recognise the desirability / primacy of compliance strategies that through effective informal action (particularly the capacity to inform and offer advice) the desirable outcome can be achieved (and the likelihood of recurrence minimised).

• Identify when, and how best, to adopt the educational role, having regard to the skills of the would-be recipient to make use of the information so obtained.

• To know when best to defer to enforcement action (recognising the need for this to be proportionate, transparent and consistent) but once decided upon the pursuit of formal action, to collect & assemble such evidence that the matter is dealt with efficiently & effectively.

• Recognise how inspections, investigations and audits (conducted with a clear idea of how to maximise their impact), and with effective engagement with duty holders (through questioning and ‘active listening’), reach an early assessment of normal practice, deduce the effectiveness of systems in place and reveal the mechanisms of control that may (or may not) be in place.
• By setting personal goals and objectives, prioritise action (against competing influences from other sources) and in so doing demonstrate the capability and confidence to work independently, whilst learning how best to work in a team and through ‘partnership’ with other organisations, bodies and health professionals see how effective intervention strategies might arise through ‘joint working’.
• To routinely weigh-up the effectiveness of different interventions that can be evaluated formally or informally, reflecting on how this would influence one’s future approach to intervention, and, if necessary, suggesting how one might alter or adapt the approach to afford a more equitable, efficient and effective outcome.

3. Practice skills
We believe that there remains considerable value in representing the ‘practice skills’ in terms of technical ‘Intervention Fields’ - Food Safety and Public Health.

Public Health
As previously mentioned the public health practice skills are considered central to the role of the Food Officer, and with the transfer of the public health portfolio to Regional Government Food Officers may find themselves requiring an understanding of these matters. In pursuit of this, students completing a programme of instruction and training should understand:
• Assessing the evidence of effectiveness of interventions, programmes and services to improve population health and well-being (focusing on the critical assessment of evidence relating to the effectiveness and cost-effectiveness of health and well-being and related interventions, programmes and services) and the application to practice through planning, audit and evaluation.
• Leadership and collaborative working to improve population health and well-being (concerned with leading and managing teams and individuals,
building alliances, developing capacity and capability, working in partnership with others and using the media effectively.

- Health Protection (acknowledging that this is the principal domain of professional activity of the Food Officer, but here focusing on the means of preventing the transmission of communicable diseases and/or protecting against the health impact of incidents that present.

Understand the concept of ‘hazard analysis’ in respect of food safety, and with due regard to the legal requirements (Codex, EU, FDA and Pakistan), guidance and guidelines, apply this in order to minimise the risks to health and to protect the wider interests of the consumer. In pursuit of this, students completing a programme of instruction and training should understand:

- The range of biological, chemical and physical contaminants that expose the consumer to risk to health, or might impact on their rights as a consumer.

- The technology of food production and packaging that serves to eliminate pathological contaminants (or inhibits their health impact) or otherwise prolongs the shelf-life of the product.

- The examination of a range of food commodities encountered at ‘point of sale’, and by so doing relating appearance, condition and quality to the context in which the foodstuff is presented, and specifically passing judgment on its fitness and wholesomeness.

- The means by which contamination that would present risk to health or consumer interests can be prevented (or their impact minimized) through the application of pre-requisite requirements representing good hygiene / manufacturing practice, where the focus is on ‘quality control’.

- The principles of Hazard Analysis Critical Control Points (HACCP) and the application of a food safety and food standards, including the standards and
guidelines that assist in deciding the most appropriate course of action

- The means by which health professionals, working together, detect, investigate and manage outbreaks of food-borne illness, thus minimising further spread and contributing to the epidemiology of particular diseases.

4. Core Competencies
- The ‘core competencies’ refer to the range of skills that would be expected to have been acquired and practised by the Food Officer in training, but as yet may have not become embedded through sustained practice. The competencies detailed below are those that would be expected of the so-called ‘Day Zero’ graduate:
  - Plan and execute the appropriate inspection, investigation or audit to characterise the hazard in context.
  - Plan and execute the means by which numerical sampling, survey or surveillance data might be secured to reinforce that which is known about the hazard.
  - Using the data obtained from sampling, surveying and surveillance organise and analyse this in form that allows the determination of the level of risk against the hazard.
  - Consider and consult the available standards, specifications and guidelines that relate to the matter in hand so as to establish the extent of the hazard and level of non-compliance.
  - Using the combination of first- and second-hand data thus secured, establish the case for intervention and the options available, taking into account the likely cost and beneficial outcome, and so its capacity to eliminate, reduce or otherwise mitigate the risk.
  - Where grounds need to be found for intervention based on legislative requirements, be prepared to demonstrate how formal action offers the most appropriate course of action, and where this focuses
on the strength of the evidence obtained, consider how a successful defence, if any, might be mounted;

- Understand the Food Officers role in securing evidence (and maintaining its integrity), preparing legal summaries, taking and writing witness statements, serving legal notices and presenting oneself as a credible witness.

- Consider the limits to the effectiveness of the Food Officer working alone, and by so doing make a case for working with others or in partnership, routinely identifying with whom this might be affected (individuals, statutory agencies, private-sector) and the contribution that they might make to the outcome.

- Recognise that ‘reflection’ is an essential element of professional practice and that Food Officers should make a conscious effort to consider activities and interventions performed in terms of health outcome and the sensibilities of those affected.

- Hold uppermost the need to be sensitive in all dealings with the public or commercial operators in that they have rights and responsibilities of their own, and that a successful outcome might require concessions and compromise.

- Recognise the need to maintain the reputation of the profession of Food Officer by up-holding its code of professional ethics.
Admissions in Postgraduate (PgDip) Food Safety & Controls programme is usually opened once in a year during Fall Semester i.e August / September.

- Applications for admission are invited through an advertisement in the National Press & the University (UVAS) website.

- The candidates seeking admission should have B.Sc./B.S. (Hons) or higher degree (equivalent to at least 16 years of education) in pure and applied sciences to apply for PgDip in Food Safety & Controls.

- The Academic Council will determine the number of students to be admitted in each year's academic session.

- A candidate seeking admission to the Food Safety & Controls programme should apply in Admission & Information Office, Department of Food Science & Human Nutrition (FSHN) on the prescribed form obtainable from the FSHN Department or Downloadable from UVAS website within time limit specified by the University of Veterinary and Animal Sciences, Lahore.

- The completed form should also accompany a bank draft of specified price along with all other required documents. Admissions are made purely on merit basis from amongst the applicants.

- The candidates seeking admission in PgDip are required to pass pre-entry test, which consists of two components; general part and specialist/technical part. The total numbers of multiple choice questions (MCQs) are 100 of 80 min duration; technical part (50 MCQs) of 30 min duration and general part (50 MCQs) of 50 min duration. The candidate will be required to score minimum of 50% marks in each part to qualify for interview. In exceptional circumstances the University may accept an aggregate score of 50% so long as the candidate scores 50% in subject test. The candidates who have already passed NTS based GAT test can be exempted from general part of entry test.
- The candidates who will qualify in the entry test will be required to appear before selection committee, constituted by competent authority for the purpose.
- Final selection of the candidates to be admitted in PgDip will be based on their performance in entry test, academic qualification, experience and performance in interview.
- List of admitted students is displayed on the website www.uvas.edu.pk, and on Notice Boards of the Department of Food Science & Human Nutrition on the date mentioned in the admission advertisement in the National Press & UVAS website.
- Candidates might not be informed about their selection and as such they will themselves be responsible to check regarding their admission from the lists of selected candidates.
- If any candidate fails to deposit the University dues within the stipulated period after the display of admission list, his/her admission shall automatically stand cancelled without any prior notice and the admission on that seat will be offered to next waiting candidate on merit basis.

**MEDIUM OF INSTRUCTION**

Medium of instruction, examination and evaluation will be English.

**EXAMINATION & EVALUATION SYSTEM**

a) Examinations and evaluations will be conducted according to examination regulations of UVAS for semester system. However, in the proposed PgDip role of external examiner has also been realized/included.

b) The students will be required to obtain minimum of 2.00 GPA to enroll the second semester and minimum of 2.50 CGPA for award of diploma. If any student fails to maintain above mentioned GPA/CGPA, he/she will be dropped from the program.

c) A mid-term examination of one hour duration will be held during 9th week of the semester, which shall
carry 30% of the total marks, allocated for the course. This examination shall be conducted by the teacher concerned who shall determine the form of the examination.

d) In addition, quizzes, special home assignments and/or term papers shall carry 10% of the total marks allocated for the course which shall be uniformly split over the whole semester.

e) The final examination shall be held at the end of the semester and shall carry 60% of the total marks allocated for the course.

f) For the purpose of evaluation, one credit hour shall carry 20 marks e.g. five credit courses shall carry 100 marks. These marks shall be divided in accordance with the credit assigned to theory/practical for each course.

g) One hour of theory shall be equivalent to two hours of practical work in terms of marks.

**DURATION OF THE COURSE**

This diploma certificate will be awarded after successful completion of 01 academic year consisting of 2 regular semesters. If a student fails to successfully complete course in stipulated time, the maximum duration for the award of PgDip will be 02 years consisting of four regular and two summer semesters. If any student fails to complete his diploma programme in 02 years, he will be dropped from the programme. There will be 10 weeks internship in industry or any relevant organization in consultation with students, facilitated by TRTA-II Programme, International Expert and Punjab Food Safety & Standards Authority. If some students fail in course(s), they will be allowed to enroll summer semester, provided that internship does not affect their classes and examination.

There shall be two semester in each academic year (semester I & semester II) of 18 weeks each. Out of 18 weeks 16 weeks shall be the actual teaching time, the rest may be utilized for
admission, conduct of examinations, preparation and declaration of results and one week semester break.

**ATTENDANCE REQUIREMENTS**

A candidate with less than 75% of the attendance both in theory and practical separately in each course shall not be allowed to take the final examination of the course in a semester provided that the period of absence in case of participation in extracurricular/sports activities, with the permission of Senior Tutor/Director Sports shall be condoned.

**GRADE POINT AVERAGE (GPA)**

a. “A” grade carries 4 quality points, whereas B, C, D & F grade carry 3, 2, 1 and zero quality points, respectively, as mentioned below:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Value</th>
<th>Marks</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>80-100%</td>
<td>Excellent</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
<td>65-79%</td>
<td>Good</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>50-64%</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>40-49%</td>
<td>Pass</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
<td>Below 40%</td>
<td>Fail</td>
</tr>
</tbody>
</table>

b. Minimum Grade point average=4.00

c. Minimum CGPA for obtaining Diploma =2.50

d. The grade point or quality point will be worked out on the basis of percentage of marks obtained by a student in each course separately according to a conversion table and not on the percentage of total marks obtained by a student.
e. The conversion table is available in the University website.

### Annual Fee Structure for PgDip Programme

<table>
<thead>
<tr>
<th>Description</th>
<th>PKR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(^{st}) Semester Fee</td>
<td>35,000</td>
</tr>
<tr>
<td>2(^{nd}) Semester Fee</td>
<td>30,000</td>
</tr>
<tr>
<td>Fee Support by TRTA-II-UNIDO/Student</td>
<td>35,000</td>
</tr>
<tr>
<td><strong>Total Tuition Fee/Student</strong></td>
<td><strong>100,000</strong></td>
</tr>
</tbody>
</table>
## Scheme of study for Postgraduate Diploma in Food Safety & Controls

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td><strong>Course No.</strong></td>
<td><strong>Course No.</strong></td>
</tr>
<tr>
<td>FSAC-1001</td>
<td>FSAC-1007</td>
</tr>
<tr>
<td>Food of Animal Origin</td>
<td>Food Quality Management Systems</td>
</tr>
<tr>
<td>3(2-1)</td>
<td>3(3-0)</td>
</tr>
<tr>
<td>FSAC-1002</td>
<td>FSAC-1008</td>
</tr>
<tr>
<td>Food of Plant Origin</td>
<td>Food Related Legal System</td>
</tr>
<tr>
<td>3(2-1)</td>
<td>2(2-0)</td>
</tr>
<tr>
<td>FSAC-1003</td>
<td>FSAC-1009</td>
</tr>
<tr>
<td>Food Microbiology</td>
<td>Food Inspection, Investigation and Judgement</td>
</tr>
<tr>
<td>3(2-1)</td>
<td>4(3-1)</td>
</tr>
<tr>
<td>FSAC-1004</td>
<td>FSAC-1010</td>
</tr>
<tr>
<td>Food Safety Science</td>
<td>Food Safety, Standards and Trade</td>
</tr>
<tr>
<td>3(2-1)</td>
<td>2(2-0)</td>
</tr>
<tr>
<td>FSAC-1005</td>
<td>FSAC-1011</td>
</tr>
<tr>
<td>Food Sampling Techniques and Analysis</td>
<td>Compliance Strategies and Effective Enforcement</td>
</tr>
<tr>
<td>3(1-2)</td>
<td>2(2-0)</td>
</tr>
<tr>
<td>FSAC-1006</td>
<td>FSAC-1012</td>
</tr>
<tr>
<td>Food Plant Sanitation and Hygiene</td>
<td>Food Toxicology &amp; Adulteration</td>
</tr>
<tr>
<td>3(2-1)</td>
<td>3(2-1)</td>
</tr>
<tr>
<td><strong>Total Credit Hours in 1st Semester</strong></td>
<td><strong>Total Credit Hours in 2nd Semester</strong></td>
</tr>
<tr>
<td>18(11-7)</td>
<td>19(14-5)</td>
</tr>
</tbody>
</table>

Total Credit Hours (18+19)=37
FSAC-1001  Food of Animal Origin  3(2-1)
At the end of this module and following completion of an appropriate amount of independent study, a student will be able to:

1.1 Describe the functional anatomy of the major systems within human and comparative anatomy and physiology of food animals, including the ability to differentiate organs & carcasses of food animals, including red, white, game, exotic & fish.

1.2 Recognise gross post-mortem evidence of pathological conditions of food animals common to the Pakistan at a retail level, along with post mortem quality deterioration and contamination.

1.3 Articulate the causes and effects of common pathological conditions found in the Pakistan and EU food market, from ‘farm to fork’, along with deterioration and contamination of animal carcasses and animal products.

1.4 Discuss the aetiology, morphology and pathology of a range of common zoonoses affecting food along with the action and impact of a range of microbiological and chemical contaminants.

1.5 Explain the role of food production methods in the distribution and prevalence of common zoonoses.

1.6 Articulate the causes and effects of common spoilage and other conditions found in the Pakistan food market, from ‘farm to fork’, including red & white meat, along with eggs and dairy products.

1.7 Identify a range of fish and shellfish common to the Pakistan market at retail level.

1.8 Describe the physiology of fish and shellfish common to the Pakistan retail market.
1.9 Articulate the causes and effects of common pathological conditions of fish and shellfish found in the Pakistan food market, at retail level, along with deterioration and contamination of fish, fish products and shellfish.

1.10 Discuss the aetiology, morphology and pathology of common zoonoses and other conditions affecting fish and shellfish along with the action and impact of a range of microbiological contaminants.

1.11 Explain the role of food inspectors in the prevention of illness associated with the consumption of shellfish.

Recommended Books:


FSAC-1002 Food of Plant Origin 3(2-1)

At the end of this module and following completion of an appropriate amount of independent study, a student will be able to:

2.1 Identify a range of food products including pulses, cereals, vegetables, fruit, herbs and spices and dry products.

2.2 Recognise spoilage and other contamination of foods and ingredients common to the Pakistan food market, at a retail level.

2.3 Articulate the causes and effects of common spoilage and other conditions found in the Pakistan food market, from ‘farm to fork’, including cereals, vegetables, fruit, herbs, spices and dry products.

2.4 Explain the role of Codex in the control of standards for size, appearance and quality of a range of foods.
2.5 Explain the role of food production methods in limiting the occurrence of food spoilage and other contaminants.

2.6 Product evaluation – sensory analysis, viscosity, colour, texture, size, shape, symmetry, with reference to Codex, FSA, EU directives and other systems of control.

**Recommended Books:**


**FSAC-1003 Food Microbiology 3(2-1)**

At the end of this module and following completion of an appropriate amount of independent study, a student will be able to:

3.1 Advanced food microbiology including microbial analysis, growth, physiology and survival.

3.2 Interpret the Codex & ICMSF microbiological criteria regulations for foodstuff.

3.3 Discuss the role and ability of antimicrobial agents and their role in cleaning science.

3.4 Comprehend results relating to the detection, enumeration, identification and prediction of microorganisms.

3.5 Explain the aetiology of common food borne illnesses/diseases.

3.6 Interpret data on trends in food borne microbiology and explain the role of epidemiology in monitoring the distribution and determinants of food borne illness/disease.

3.7 Discuss sterilisation and disinfection and appropriate preventative and remedial environmental
interventions including cleaning and disinfection strategies.

3.8 Detail the role of microbes in disease, food spoilage, food production, food preservation methods and biotechnology.

3.9 Explain the importance of water quality, water chlorination (chemistry, methods, testing and interpretation of results) in food production.

**Recommended Books:**


FSAC-1004 Food Safety Science 3(2-1)

At the end of this module and following completion of an appropriate amount of independent study, a student will be able to:

4.1 Describe the production methods of primary foodstuffs common to Pakistan and how these affect food safety, quality, composition of foodstuffs commonly found in Pakistan.

4.2 Examine food production, processing, catering and distribution methods and determine compliance with legal standards.

4.3 Explain the role of preservation, temperature control, moisture and water activity, and formulation control in a food safety and food quality context.

4.4 Apply the legal requirements for sampling food products for compositional, chemical and microbiological analysis including additives used in the food industry and their labelling.
4.5 Plan and conduct sampling programmes, interpret the results from sampling programmes and take appropriate action.

4.6 Evaluate the causes of, and hazards associated with physical, biological and chemical contamination of food and the proliferation of micro-organisms in food at all stages of production and retail.

**Recommended Books:**


**FSAC-1005  Food Sampling Techniques and Analysis 3(1-2)**

5.1 Transportation, handling, processing, record keeping, results, interpretation of results

5.2 Food sampling (SOPs)

5.3 Basic laboratory analysis & instrumentation techniques including UV-VIS, atomic emission, atomic absorption, fluorescence, IR, chromatography (paper, thin layer, GC, HPLC, LC-MS, GC-MS etc.

5.4 Basic food analysis, sampling and food preservation.
5.5 Fundamentals of statistics including use of different statistical packages such as EPI INFO, MINI TAB & SPSS.

Recommended Books:


FSAC-1006 Food Plant Sanitation and Hygiene

3(2-1)

At the end of this module and following completion of an appropriate amount of independent study, a student will be able to:

6.1 Identify a range of common food pests, including insects, avian and mammalian pests, vectors and parasites.

6.2 Discuss the significant of these pests in terms of food safety and food quality.

6.3 Explain the biological and environment factors that affect pest populations.

6.4 Recommend appropriate controls by means of physical, biological, chemical or environmental methods.

6.5 Organise, administer, develop and manage a food sanitation program.

6.6 Clear understanding of the Pakistan regulations affecting food industry.

6.7 Comprehensive understanding of risk reduction, hazard avoidance and quality management.
6.8 Chemistry of detergents and sanitisers including use of quality assurance.

6.9 Design, construction and sanitation of buildings and equipment.

6.10 Design, construction and sanitation of food equipment.


6.12 Personal hygiene and training of food handlers.

6.13 Evaluate building and layout designs and recommend improvements to improve food safety and food quality.

6.14 Appraise constructional and maintenance defects and recommend remedial measures for rectification.

**Recommended Books:**


**FSAC-1007 Food Quality Management Systems**

**3(3-0)**

At the end of this module and following completion of an appropriate amount of independent study, a student will be able to:

7.1 Evaluate quality control systems and in product and end product quality control measures in the context of food safety and control (including ISO 22,000, GMP, internal & external audit, HACCP & CWA 15793 – bio risk management etc)
7.2 Explain the principles underlying food safety management systems and be able to audit such systems.

7.3 Apply hazard analysis principles and identify critical control points in relation to food safety and food standards throughout the food chain, including vehicle and mobile vendors, and be able to communicate the principles of hazard analysis in a range of food settings. [NB - this will need to include allergen control]

7.4 Judge the efficacy of product recall and traceability systems in relation to a range of food products common to the Pakistan market, including standard traceability and that applied to food animals.

7.5 Examine and judge the appropriateness of labelling and packaging of food to ensure compliance with Pakistan and European law, including ingredient labelling, and nutritional details, and be able to judge the status of claims and misleading descriptions.

Recommended Books:


FSAC-1008  Food Related Legal System  2(2-0)

At the end of this module and following completion of an appropriate amount of independent study, a student will be able to:

8.1 Outline sources and classification of Pakistan Law and other law applicable within the EU & USA (may include others).
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>8.2</td>
<td>Recount the constitutional position of the executive, judiciary and legislature and the executive agencies.</td>
</tr>
<tr>
<td>8.3</td>
<td>Explain the main features of legislation as a source of law, including primary and secondary legislation and quasi-judicial guidance and outline the judicial reasoning in relation to statutory sources of law.</td>
</tr>
<tr>
<td>8.4</td>
<td>Discuss the role, function and impact of the Pakistan Government on food safety and food safety standards.</td>
</tr>
<tr>
<td>8.5</td>
<td>Relate the relationships between central government and their agencies, local government and non-governmental organization in relation to food safety.</td>
</tr>
<tr>
<td>8.6</td>
<td>Define the role of members and officers within a local government context.</td>
</tr>
<tr>
<td>8.7</td>
<td>Describe the role and function of the institutions responsible for food safety control in Pakistan and the equivalent for the EU &amp; USA (e.g. EFSA/FDA).</td>
</tr>
<tr>
<td>8.8</td>
<td>Undertake basic legal interpretation and show the ability to update legal knowledge in light of new case law, guidance or directives in the context of the constitution of Pakistan.</td>
</tr>
<tr>
<td>8.9</td>
<td>Find and extract relevant law from both printed and electronic sources.</td>
</tr>
<tr>
<td>8.10</td>
<td>Recognize the role of precedence in the judicial system.</td>
</tr>
<tr>
<td>8.11</td>
<td>Explain the main features of the case law system, the system of law reporting and the process of judicial reasoning in relation to case law.</td>
</tr>
<tr>
<td>8.12</td>
<td>Outline the legal position in relation to burden of proof in criminal and civil trials.</td>
</tr>
<tr>
<td>8.13</td>
<td>Discuss the major offences and defences created by the Relevant Pakistani legislation.</td>
</tr>
<tr>
<td>8.14</td>
<td>Express the legislation relating to powers of inspectors and in particular those relating to powers of entry, sampling, seizure and detention in relation to food.</td>
</tr>
</tbody>
</table>
8.15 Evaluate the main principles of criminal law, including rules of evidence, burden of proof, preparing cases for court.

8.16 Construct a case for legal proceedings and present a case in the magistrate’s court (or equivalent).

**Recommended Books:**

1. Food Regulation: law, Science, Policy and Practice
2. Food Import and Export Inspection & Certification System (Codex Alimentarius)

**FSAC-1009 Food Inspection, Investigation and Judgement 4(3-1)**

At the end of this module and following completion of an appropriate amount of independent study, a student will be able to:

9.1 Justify the need for appropriate equipment, clothing and record keeping for undertaking inspections in a range of food premises and during the food production cycle.

9.2 Demonstrate the ability to collect and record information in a food safety and control context, and show the ability to interpret the results of an inspection investigation or audit.

9.3 Identify hazards and assess risks in a range of food safety and control settings and justify solutions or remedial measures to remove, reduce or control the risks.

9.4 Determine the need and priorities for an inspection, including Halal foods and its certification.

9.5 Conduct an investigation; manage a range of information and evidential sources and determine appropriate options on completion.

9.6 Recognise the importance of the laws of evidence and formulate appropriate statements and other forms of admissible evidence.
9.7 Identify and utilise a range of measurement and monitoring techniques within a food safety and control context.

9.8 Explain the reasons for and purpose of administrative systems and procedures and their link to the quality management system of an enforcement body.

9.9 Basic and advanced food inspection techniques (including appropriate equipment).

9.10 Determine the fitness for human consumptions in a range of foods, including fruits, vegetables, cereals, fish, shellfish, stored products (dry, vacuum, canned etc.), poultry, red meat commonly available in Pakistan at retail and production level.

9.11 Draft appropriate letters/reports/notices following the completion of inspections and make recommendation on relevant action to be taken to achieve desired outcome and improvement in food safety and control systems.

9.12 Discuss the importance of administrative systems and procedures and their link to QMS of an enforcement body.

Recommended Books:

1. Food Regulation: law, Science, Policy and Practice
2. Food import and export inspection & certification system (Codex Alimentarius)

FSAC-1010  Food Safety, Standards and Trade 2(2-0)

At the end of this module and following completion of an appropriate amount of independent study, a student will be able to:

10.1 Discuss the role of food inspectors in the regulation of imported and exported foods both of animal origin both inland and at points of entry.

10.2 Explain the role of Health marking and other methods of quality monitoring in food importation and exportation.
10.3 Discuss the role food importation controls relating to products of non-animal origin for both Pakistan and foods imported from outside Pakistan both inland and at points of entry.

10.4 Halal food compliance and certification.

Recommended Books:


FSAC-1011 Compliance Strategies and Effective Enforcement 2(2-0)

At the end of this module and following completion of an appropriate amount of independent study, a student will be able to:

11.1 Determine the likely co-operation of food proprietors and others in a food safety context.

11.2 Justify effective compliance strategies for a range of food safety context based on proportionality to risk.

11.3 Explain the underlying principles of an enforcement strategy, including consistency of approach, proportionality and public interest.

11.4 Explain the constraints that small, medium and large enterprises operate under and its impact on compliance and of compliance on business operation.
11.5 Examine the influence of culture on food safety standards and incorporate cultural differences into compliance strategies.

11.6 Identify the ability to perform food safety duties with tact, discretion and honesty and show the ability to work with colleagues and others to improve food safety.

11.7 Show the ability to communicate effectively at all levels and to constructively resolve differences of opinion.

11.8 Illustrate the principles of decision making in a food safety context and demonstrate the ability to contribute positively to the decision making process to achieve improvement in food safety standards.

11.9 Investigate appropriate sources and apply European standards for size, appearance and quality.

Recommended Books:


FSAC-1012 Food Toxicology and Adulteration 3(2-1)

12.1 Toxicants in food – an overview including intrinsic & extrinsic toxins, naturally occurring toxicants, accidental chemical contamination (natural and additives)

12.2 Toxicants in the body: absorption, distribution, translocation, biotransformation, excretion. Detoxication mechanisms.

12.4 Nutritional quality and safety

12.4 Food adulteration, identification and controls.

12.5 Wholesomeness of processed foods: heat treatment, irradiation, new foods - GM foods
12.5 Outline the key adulterations associated with food products common to Pakistan retail market (e.g. adulteration of milk (and other foods) use of unapproved colours, aflotoxins in spices, grains and dried fruits/nuts).

12.6 Explain the current legislative position in relation to allergens and in relation to the labelling of specified food in relation to potential allergens.

12.7 Be able to assess procedures for controlling allergen contamination to ensure accurate allergen labelling, including voluntary labelling.

**Recommended Books:**

1. Takayuki, S. and Leonard F. B. Introduction to Food Toxicology.

**FSAC-1013 Specialist Visits, Report Writing & Professional Skills 3(2-1)**

13.1 Carry out a number of guided food safety visits (8-10) to a range of premises.

13.2 Produce comprehensive food safety reports on each visit looking at production, systems, controls, HACCP. Identify good and bad practices and make suggestions/recommendations for improvements.

13.3 Using the reports as a basis, construct a reflective portfolio of your experiences.
Food Quality of animal origin has been a main concern and on account of poor knowledge, lack of sophisticated equipments and techniques, non-availability of suitable labs, no efforts to improve the quality of food in Pakistan have been made. It is a bare fact that animals and plants are constantly exposed to a variety of potentially harmful chemicals/bio-chemicals and pathogens/hazards in the polluted environment. There is indiscriminate spray of pesticides on cotton and rice crops. Residues of these pesticides are transferred to animal or poultry through consumption of feed containing chemically contaminated cotton seed cake and rice. Similarly, there is contamination of disinfectants, antibiotics, mycotoxins etc., in feed of poultry and dairy animals that are excreted in milk, meat or eggs and subsequently enters in our food chain. These chemical or biological toxins or pathogens are posing serious health hazards to human life. The toxic effects in human may be manifested at population, individual, tissue, cellular or molecular level. Some effects such as death, acute respiratory illness, skin rashes, toxic hepatitis are apparently visible while some serious effects such as immunosuppression, reproductive/fetal abnormalities, teratogenic, mutagenic/carcinogenic effects etc. reduce growth and are not uncommon.

The nervous system is a prominent target when toxins can induce acute psychosis, memory impairment, neuropathy and tremor. Adverse consequences of such potential
toxicities are illnesses leading to disability, anxiety, stress, chronic frustration, anger and emotional discomfort.

General public is not aware of hidden and harmful effects of many compounds and foods of animal origins on human health. The World Trade Organization (WTO) has emphasized on standardized frame work of quality control of food items of animal origin for export or import purpose and this has been elaborated in the Sanitary and Phyto-Sanitary (SPS) measures under trade in goods. Government of Punjab realized the serious public problem of Food Security through Agriculture Support Programme Loan II (ASPL-II) and decided to spend Rs 99.998 million for establishing a Quality Operations Laboratory for Testing Livestock and Food of Animal Origin with reference to World Trade Organization (QOL) in the University of Veterinary and Animal Sciences (UVAS), Lahore. This laboratory will test the quality of livestock and food of animal origin not only to meet the requirement of international trade but also to provide quality conscious food for our own people. Moreover, the laboratory shall take care of Technical barriers on Trade (TBT). To achieve these targets, tremendous revolutionary changes in the Extension Wing of Veterinary Services are required to be made.

UNIVERSITY DIAGNOSTIC LABORATORY (UDL)
(ACCREDITED LAB ISO/IEC 17025)
First Disease Diagnostic Lab Internationally Accredited In Livestock Sector of Pakistan

Vision:
University Diagnostic Lab (UDL) of the university is serving in the country with vision to enhance the economic strength by encouraging healthy poultry and livestock sectors. The lab’s aim to improve the life quality of companion animals, enhancing the safety of animal, protecting wildlife resources through disease diagnostics & control and promotion of awareness towards understanding of disease.
**Mission:** The laboratory’s mission is to provide disease diagnostic services to poultry and livestock sector farmers and guide to control the prevalence of problems. This will be achieved by accurate diagnostics, implementation of internal and external quality assurance Programmes, research over complex nature problem, sharing of information and ideas and through induction of highly qualified staff. UDL is an internationally accredited lab over international standard ISO/IEC 17025:2005 for lab management by Pakistan National Accreditation Council (PNAC) in 2010, which has mutual recognition arrangements (MRAs) with International Laboratory Accreditation Cooperation (ILAC) and Asia Pacific Laboratory Accreditation Cooperation (APLAC).

It is a milestone in the history of UVAS and livestock sector of Pakistan that a veterinary disease diagnostic laboratory, both in veterinary and medical profession has got international recognition and its results are now acceptable worldwide.

**SERVICES OFFERED BY UNIVERSITY DIAGNOSTIC LAB (UDL)**

1. DIAGNOSTIC SERVICES
2. ACADEMICS
3. RESEARCH & DEVELOPMENT
4. HUMAN RESOURCE DEVELOPMENT
5. DIAGNOSTIC LABORATORY DESIGN

BeSt

- Established in 2008
- Constructed on 2345 sq ft area
- Labs & Equipment with state of art facilities
- Fully air conditioned volunteers area as per WHO standards
- Provide a forum for exchange of information between the scientists & the pharmaceutical industry

**Mission**

Our mission is to enhance the quality and quantity of scientific research in the field of medicine.

**Focus**

Our Focus is to develop new & effective techniques in the pharmaceutical manufacture.

**Analytical Section**

- State of the art laboratories with GLP as described by WHO, FDA and MOH, Pakistan
- Quality Assurance SOP’s preparation and review
- Equipped with Cutting-edge Technologies

**Biochemical Section**

- Sample coding system
- Blood Chemistry
- Hematology
- Screening for HBV, HCV, HIV
- Fully automated analyzers

**BUSINESS INCUBATION CENTRE**

University of Veterinary and Animal Sciences (UVAS) has took a major step to establish a business incubation center (BIC) in July 2011 in collaboration with the Higher Education Commission (HEC) at its Lahore campus. BIC is the fifth model business incubator of Pakistan which has been launched under the academia. It aims to provide business inclusive environment with extensive services and facilities to
young entrepreneurs in order to help them to establish successful business.

The BIC is a multipurpose entity that intends to grow new businesses ventures. It is a dynamic system that tailored young growing companies to impart training, consultancy services, marketing and financial assistance, technology expertise and well educated work force; hence, a wide-ranging business development facility and services under one roof.

Furthermore, it is a platform to leverage UVAS knowledge base and faculty for creating the industry academia linkages that will act as a catalyst. It provides opportunities to strengthen ties between the educational institution and the local business community; also give practical exposure to students and make healthy utilization of university research to solve out the related issues faced by the young entrepreneurs. It is a big source to train entrepreneurs, create jobs, enhance a community’s entrepreneurial climate, retaining businesses, and enhance growth in a local industry and ultimately it’s after effects will expand overall local economies”

**OFFICE OF RESEARCH, INNOVATION & COMMERCIALIZATION (ORIC)**

**Directorate of Research**

Directorate of Research has the responsibility to develop, expand, enhance and manage the university’s research Programmes and to link research activities directly to the educational, social and economic priorities of the university and the community. The Directorate ensures that all research Programmes and policies reflect core values of academic freedom, professional integrity and ethical conduct and full compliance with all policies, legal requirements and operational standards of the university.

The Directorate of Research, since its independence in March 2007, is leaving no stone unturned to promote a culture of research at UVAS. The growth of ongoing research projects funded by various funding agencies to 17 with a magnitude of Rs. 143.50 million is a witness to it. The Directorate of
Research comprises of Director Research, Assistant Director Research and other ministerial staff which is always helpful for the faculty to pursue quality research. In addition, the directorate also keeps up-linkages with other research organizations at national and international level to enhance the academics and research in the University.

It is worth mentioning here that in the year 2010, University of Veterinary and Animals Sciences, Lahore got 12th position in the ranking among 82 public and private sector universities across the country and 3rd position in Lahore out of 14 public and private universities and educational institutions for producing 101 research papers in peer-reviewed journals indexed by Thomas Reuters ISI Web of Knowledge in 2009. It was just the teacher’s dedication towards research and provision of research environment to the students in respective disciplines that enabled UVAS to achieve remarkable success by producing 101 research papers in 2009 against 26 publications during 2008 and 11 publications in 2007.

Maximum efforts to encourage young faculty to develop viable research projects are made continuously in this regard, a document made containing various funding resources developed by the Directorate can be of special help.

**DIRECTORATE OF ADVANCED STUDIES**

Directorate of Advanced Studies & Research came into existence along with the University in July, 2002. Directorate of Advanced Studies and Directorate of Research work together since the upgradation of the College of Veterinary Sciences into the University of Veterinary & Animal Sciences, Lahore. In March 2007, Directorate of Advanced Studies became independent and is making rapid progress.

Higher Education is imperative to the development of a nation and the Universities are considered to be the main source of higher education, research and human resources development. Consequently, skilled man-power is produced to work in the industrial and other technological sectors.

The postgraduate scholars are expected to produce leadership qualities in themselves and practice higher ethical values like honesty, truthfulness, contentment and hence
develop a balanced personality in terms of their mental and physical faculties.
At the same time, It is to be emphasized that as a postgraduate, students should aim to become experts in their field of study so that they could serve the nation in a befitting manner. They are also expected to develop a holistic approach towards scientific solutions to the problems of the Animal Sector and become the scientific leaders of the nation.

**UNIVERSITY LIBRARY**

The University Library is situated on the first floor adjacent to conference hall that has continuously been disseminating the latest knowledge/information to its faculty members, undergraduate & postgraduate students and to the entire livestock sector for the promotion of Higher Education, Research & Extension activities. The University Library has made significant achievements constructing postgraduate reading hall with a computer lab consisting of (135) computers for conducting e-examination and for use of University students etc. The University Library has Regulation 2003, information, collection development policy, etc. The library is presently fully engaged in providing effective services for the promotion of skilled higher education, research and extension especially digital library and e-ibrary services through its following sections:-

**Library Circulation Section**

Most of the library books and general stocks have been placed in the main Library Hall where good seating arrangements are available. This section comprises of over 24409 Text and Reference Books relating to Veterinary & Medical Sciences, and other disciplines along with over 1289 M.Sc., M.Phil. and Ph.D. research theses. Searching facility of library books along with theses has been made available on University website.
(www.uvas.edu.pk/library.htm) and details regarding issue, return and fine on books can be checked through computerized circulation from the library. The reference materials like encyclopedias, dictionaries, atlases, maps, indexes and research reports submitted by research scholars of UVAS are also available in this section. The use of the reference materials is only restricted for study inside the library where they can use Indexing & Abstracting services regarding post-graduate thesis and latest research articles published in journals. The library has recently started services of indexing and abstracting of theses available in the library and latest research articles published in various journals to keep the faculty members and students informed about the latest research to be conducted all over the world.

**The Book bank Section**

This section has been organized as a special part of the library to lend expensive text books to the students on long term basis on nominal rental basis as per book bank regulations. The book bank section comprises of over 6000 volumes of text books and students can make full use of this precious facility in enhancing their knowledge from these latest books.

**Journal Section**

There are 4500 bound volumes of 315 old/retrospective scientific journals. The UVAS Library has been receiving several titles of latest journals, periodicals and magazines related to different disciplines of livestock sector. In addition, a total of 2500 reports/magazines and 11 daily newspapers are also available in this section for use by the students, teachers and other interested readers.

Automaton of all retrospective and current journals have been recently completed and information about the availability of scientific journals has also been shared with PARC's Web Based Union Data Base of journals in agricultural libraries of Pakistan (http/oracle.parc.gov.pk)

**Computer Lab. & e-examination hall**
This fully air conditioned section was established in 1990 through the courtesy of U.S.MART Project, offering the facilities of study & research through T.V. VCR., Microfiche Reader with Copier. Full multimedia, computers, scanner, laser printer, CD-writer and CD ROM searching facilities using various equipments are available.

This section has been recently upgraded by installing 135 latest computers for conducting e-examination and students can also use this Lab for study and explore internet facilities to search materials and documents required for completing their assignments.

**Major Services provided by the University Library**

i. **Reading Facility**

Reading facility inside the library is available in an air conditioned environment to all users/visitors from 08.00 a.m. to 10.00 p.m. from Monday to Saturday.

a. Reading Room for Under-graduate students

b. Reading Room for female students

ii. **Photocopy Services**

iii. **Circulation Services**

iv. **Reference Services**

v. **Computerized Catalogue**

vi. **Access to Digital Library**

vii. **E-brary Searching Facility**

viii. **Searching Facility for Abstracting Databases**

**UNIVERSITY SPORTS**

Various sports and game facilities are available to the students and teachers at the campus. There are playgrounds for Rugby, Kabaddi, Judo, Karate, Hockey, Football, Volleyball, Handball, Badminton, Tennis, Basketball, Athletics and Cricket etc.
1. The University Sports Clubs include Tennis, Indoor Games, Athletics, Cricket, Football, Hockey, Volleyball, Badminton, Table Tennis, Basketball, Bodybuilding, Judo Karate, Handball, Boxing, Squash, Hiking Club, Kabaddi Club, Swimming Club, Wrestling and Chess.

2. Each Club has its President and Vice-President which are nominated from the staff members by the Sports Board.

3. The President organizes the teams, arranges games and matches with coordination of Director Sports of the University.

4. Secretaries and Captains of the Clubs assist the Presidents in their work. They are elected from the players.

5. Interclass Tournaments and Annual Sports are regularly arranged every year.

UNIVERSITY MAGAZINE
The University Magazine “Vision” is published once a year. The Vice Chancellor of the University is the Patron-in-Chief. A Publication Committee is responsible for publication of the Magazine and fortnightly News Bulletin of the University. An editorial Committee of the students also works under the guidance of the Publication Committee.

UNIVERSITY MOSQUE
For the convenience of the resident students and the staff, a mosque was built on the University Campus in 1950 where the University has employed an Imam and Moazzan who lead the prayers for the growing number of “Namazies” in the mosque.
MEDICAL AND HEALTH SERVICES

University extends a medical facility to all the students. One Medical Officer & One female Senior Medical Officer is available at the medical Centre. An ambulance is available round the clock to shift a patient to the nearby hospital in emergency.

Medicines are available on the prescription of the medical officer. Medical & Health Committee of the University ensures the availability of the medicine & other health related issues.

INFORMATION TECHNOLOGY (IT) CENTER

To meet the challenges of day to day improvement in the knowledge, Information Technology (IT) has emerged as an essential tool for the growth in every field of life. To strengthen the Livestock Sector as well as Veterinary and Animal Husbandry Sciences, the UVAS has taken very progressive steps in order to adopt this latest technology. For this purpose an IT Center has been established in the university.

In this connection, since the last five years, with the collaboration of HEC, UVAS has spent a large amount to develop the IT infrastructure and Data center for the faculty members, staff and students of the University in the best and latest possible ways. At the moment, University has internet facility @ 1 Mbps bandwidth for students, staff, faculty members and researchers. The University Departments have been connected with the Fiber Optic backbone. The seven
computer labs having more than 300 PCs in different locations, library and hostels have been installed at both city & Ravi Campuses of the university. The facilities of Internet, printing, scanning and CD writing are available from morning till night in these Labs. Training Programmes are being continuously arranged by IT Center to meet the need of trained/skilled manpower for UVAS and various public and private organizations. IT Center manages the overall IT infrastructure of the university like network development, expansion and maintenance, providing maintenance/troubleshooting services (network, hardware and software) to all departments, Software Development, Database Management & Website Development and 24-hours Internet facility. IT Center has also made the conduction of examination system on line which enhances transparency in the exams and on line results are also produced upon completion on exams. Video Conferencing facility is also available in the university to interlink research, development and socio economic national/international activities.

AUTHORITIES OF THE UNIVERSITY

- Syndicate
- Selection Board
- Academic Council
- Discipline Committee
- Finance & Planning Committee
- Advanced Studies & Research Board
- Faculty Boards
- Departmental Board of Studies
acknowledgments

As convener of the Prospectus Committee, I wish to acknowledge the contribution of all the worthy members of Admission Committee & Postgraduate students of the Department of Food Science & Human Nutrition without whose inputs, completion of the task was difficult. Let me also wholeheartedly thank all the active members of the Prospectus Committee who participated in this activity wholeheartedly.

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prospectus committee:

Convener: Dr. Naureen Naeem
Member: Mr. Muhammad Asif Ali
Member: Mr. Naveed Akbar