FAKHAR UN NISA
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OBJECTIVE

I am an eager, adaptable individual with a keen interest in Molecular Breeding, Genetics and Genomics. Currently I am serving as Lecturer in the discipline of Animal breeding and Genetics at University of Agriculture, Faisalabad. Previously I also served against the same seat at University of Veterinary and Animal Sciences, Lahore, Pakistan. I completed my PhD in January 2025 from National Institute of Biotechnology and Genetic Engineering (NIBGE), Pakistan with a major focus on Cattle Genomics. I have gained moderate to excellent proficiency in analyzing SNP Chip data using various programming languages like Python, Perl, R, and Plink for different analyses. A postdoctoral fellowship will further refine my expertise, and I would be delighted to contribute my full efforts to serve effectively.

PERSONAL

Date of birth	:	19-01-1992
Nationality	:	Pakistani
Office Address	:	Lecturer (Animal Breeding and Genetics)
		Institute of Animal and Dairy Sciences,
		University of Agriculture, Faisalabad

ACADEMIC QUALIFICATION

DEGREE	YEAR	CGPA/Marks	BOARD/UNIVERSITY
PhD (Livestock Genomics)	2020-2025	3.82/4.00	NATIONAL INSTITUTE FOR BIOTECHNOLOGY AND GENETIC ENGINEERING- PAKISTAN INSTITUTE OF ENGINEERING AND APPLIED SCIENCES, PAKISTAN
M. Phil (Animal Breeding and Genetics) *Silver Medalist*	2015-2018	3.97/4.00 (87.95 %)	UNIVERSITY OF VETERINARY AND ANIMAL SCIENCES LAHORE, PAKISTAN
DVM (Doctor of Veterinary Medicine)	2009-2014	3.49/4.00 (87.2 %)	UNIVERSITY OF AGRICULTURE FAISALABAD, PAKISTAN

F.Sc. *Scholarship Holder*	*2009*	*921/1100 (83.7 %)*	*BISE FSD, PAK*
MATRIC *Scholarship Holder*	*2007*	*754/850 (88.7 %)*	*BISE FSD, PAK*

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ACHIEVEMENTS:

- Silver Medalist in M.Phil Animal Breeding and Genetics Batch(2016-2018)
- Got a lectureship on a permanent basis just after my graduation on a merit basis in 2015.
- Awarded by Laptop on a merit basis in 2010 and 2017, funded by provincial government of Pakistan.
- Awarded by University merit scholarships during DVM that are given to the first 10 students of each batch.
- Awarded by Merit scholarships at the School and College levels.

Foreign Exposure:

- ✓ Attended Erasmus Medical Centre, Rotterdam, Netherlands from 5-25 august, 2017 as a Summer Fellowship Student.
- ✓ Attended "Mouse Genetics: Model for Human Diseases" from 6-9 March 2017 in Trieste, Italy.

Courses Taught (Undergraduate Classes)

- Bioinformatics
- Animal Breeding and Genetics I
- Animal Breeding and Genetics II
- Introductory Molecular Genetics
- Introduction to Poultry Genetics
- Introduction to Animal Husbandry
- Animal Breeding Plans and Policies
- Fundamentals of Population Genetics
- Molecular Genetics and Biotechnology
- Introduction to Animal Breeding and Genetics
- Genetic Selection for Economic Traits in Dairy Animals
- Conservation and Development of Indigenous Species

Courses Taught (Postgraduate Classes)

- ➤ Breeding of Farm Animals
- ➤ General Genetics

Wet Lab techniques experience:

- ➢ DNA Extraction
- ➢ RNA extraction
- ➢ cDNA synthesis from RNA
- ➢ Agarose gel electrophoresis
- ➢ Nanodrop for quantification
- ➢ PCR
- ➢ RFLP
- ➢ qPCR
- ➢ Competent cell development
- ➢ Cloning

Dry Lab Knowledge & Skills:

Working experience on plink, R, Python, Perl on windows and linux based systems

- ➢ HandyCNV, detectRUNS, tidyverse, rehh and others used in R
- ➢ Plink extensive usage starting form Quality control, PCA, Minor allele frequency comparison, observed and expected homo and heterozygosity and many other functions exploration
- ➢ PennCNV for Copy Number Variation detection
- ➢ CNVRuler for Copy number variation region detection
- ➢ SNeP tool to estimate Effective population size trajectories
- ➢ Beagle for phasing and imputation
- ➢ Samtool, bamtool, bedtools etc in linux operated system
- ➢ MEGA11 for phylogenetic analysis
- ➢ SnapGene software for primer and probe designing
- ➢ Searching of databases Ensemble, NCBI and UCSC
- ➢ VEP from Ensemble
- ➢ Bioedit, SeqMan, Primer premier, SnapGene and some online tools
- ➢ Endnote for scientific write up
- ➢ WOMBAT for the EBVs estimation during Masters
- ➢ SAS for the summary statistics during Masters
- ➢ Microsoft Office and Internet Operations

Additional Skills:

- o Excellent skills in data recording and maintenance
- o Have experience of handling animals of sheep/goat farm
- o Blood collection of small and large ruminants
- o Can communicate and teach the skills to juniors and colleagues in an efficient way, due to 10 years of teaching experience

Publications:

- **Nisa, F.U.,** Naqvi, R.Z., Arshad, F. et al. Assessment of Genomic Diversity and Selective Pressures in Crossbred Dairy Cattle of Pakistan. Biochem Genet (**2024**). https://doi.org/10.1007/s10528-024-10809-2
- Ilyas I, **Nisa FU,** Ali MB, Arshad F, Irfan N, Asif M, Amin I. Unveiling genetic variants: Tetra-primer ARMS-PCR diagnosis and structural insights into BLAD, BC, and DUMPS in Pakistani cattle herds. Molecular biology reports. **2024** Dec;51(1):963. https://doi.org/10.1007/s11033-024-09898-4
- **Nisa, F.U.**, Kaul, H., Asif, M. Amin, I. Mrode, R. Mansoor, S. Mukhtar, Z. (**2023**) Genetic insights into crossbred dairy cattle of Pakistan: exploring allele frequency, linkage disequilibrium, and effective population size at a genome-wide scale. Mamm Genome 34, 602–614. https://doi.org/10.1007/s00335-023-10019-y
- Usman M, Ali MZ, Qureshi AS, Ateeq MK, Nisa FU. 2017. Short-term effect of dose-dependent camel milk in alloxan-induced diabetes in female albino rats. Journal of Animal and Plant Science.
- Nisa, FU, Rehman, SU. Nisa, QU. Naqvi, RZ. Asif, M. Mansoor, S. Mukhtar, Z. Copy Number Variation Profiling in the Genome of Crossbred Dairy Cattle from Pakistan (**Under Review)**
- Nisa, FU, Usman, M. Ali, A. Ali, MB. Kaul, H. Asif, M. Mrode, R. Mukhtar, Z. Estimation of Genome-wide Patterns of Homozygosity, Heterozygosity and Inbreeding in Crossbred Dairy Cattle Population in Pakistan **(Under Review)**
- Muhammad Ameen Khan, Asad Ali *, Muhammad Dawood, Muhammad Usman,Sohail Ahmad, Rashed A. Alhotan, Shaimaa Selim, Numan Sharif, Hafiz Asad Raza, Fakhar Un Nisa, Azeem Ali *, Abdul Ghayas, Waqas Ishaq, Rashid Iqbal. Association of IRS-2 gene with the cognitive abilities and color preferences in Commercial Layer and Naked Neck chicken breeds **(Under Review)**
- Fazeela Arshad, Muhammad Basil Ali, Fakhar un Nisa, Rubab Zahra Naqvi, Iram Ilyas,Imran Amin, Muhammad Asif, Shahid Mansoor. Unveiling Fixed Loci Distinguishing Riverine from Swamp Buffalo Breeds using Regions of Homozygosity Analysis **(Under Review)**

Book Chapters:
- Raza M, Rauf MM, Rashid H, **un Nisa F**, Saeed AA, Muzaffar HA. Physiological Basis of Parasitism. InAntiparasitic Drug Resistance in Veterinary Practice **2024** Jul 12 (pp. 1-18). GB: CABI.
- Siddique RM, Iqbal A, **Nisa FU**, Arijo AG, Liaqat HA. Parasite control strategies: Biological materials. InParasitism and Parasitic Control in Animals: Strategies for the Developing World **2023** Jul 10 (pp. 183-200). GB: CABI.
- Azhar S, Abdullah M, Shafi MS, Rizwan F, Ullah H, Ullah S, Qamar W, **Nisa F**, Badshah F and Wei C, Muhammad Sohail11, **2023**. Diagnosis and Control of Lymphatic Filariasis with Special Emphasis on Gene Editing Method. In: Abbas RZ, Hassan MF, Khan A and Mohsin M (eds), Zoonosis, Unique Scientific Publishers, Faisalabad, Pakistan, Vol 2: 58-72. https://doi.org/10.47278/book.zoon/2023.52

- Raheem A, Khalil MZ, **Fakhar-un-Nisa** HM, Rafique S, Qamar W, Zahid T, Saeed M, Aslam MA. Pathological events of lassa fever infection. Zoonosis, Unique Scientific Publishers, Faisalabad, Pakistan. **2023**;3:438-52.

Membership:
- Life time member of "Teaching and Education Research Association (TERA)" by Euresia Research
- Member of "Pakistan Science Club"
- Member of "Organization for Women in Science for the Developing World (OWSD)"
- Associate member of "Institute of Research Engineers and Doctors (IRED)"

Work Experience/Internship:

➢ Worked as a trainer for a period of three months titled as "Hands On Training On Genomic Analysis And Molecular Techniques In Animal Biotechnology" from 1st august 2022 to 30th October 2022.

➢ Working as Lecturer BPS-18 since May 2015 in which research and teaching are the major responsibilities.

➢ Computerized the past ten-year record of Sheep and Goat Farm at the University of Veterinary and Animal Sciences, Lahore, Pakistan.

➢ Coordinated my MPhil Supervisor in the management of an online Impact Factor journal named" Journal of Animal and Plant Sciences" from 2015-2019.

➢ Worked as "Associate Director Student Affairs" at Ravi Campus, UVAS, Lahore, the major responsibilities were administration and management of co-curricular and extracurricular activities of the student.

➢ Worked as "Resident Tutor" of Girls Hostel, the major responsibilities are administrative.

➢ 4-month internship at Poultry Diagnostic Laboratory, Faisalabad in 2014.