

# Curriculum Vitae

**Dr. Hafiz Umar Farid**



S/O Muhammad Sharif

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## Area of Field

Agricultural Engineering

## Value Added

I am confident, hardworking, and reliable person. I can work well under pressure either as an individual or part of a team. I am confident that I will be able to fulfill my duties in conformity to the requirements of the organization.

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## Personal Information

Date of Birth:	06/04/1981
Marital Status:	Married
Religion:	Islam
Nationality:	Pakistani
C.N.I.C#	36104-2797347-5

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## Professional Education

Ph.D., Agricultural Engineering	(2009-2013)
M.Sc., Agricultural Engineering	(2007-2009)
B.Sc., Agricultural Engineering	(2003-2007)

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## Ph.D. Thesis Title

Modeling Precision Farming Practices to Improve Wheat Productivity

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## M.Sc. Thesis Title

Determining Aquifer Characteristics Using Resistivity Survey and Pumping Test Techniques

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## Experience

08/2020 to date	Associate Professor (Tenured), under TTS in the Department of Agricultural Engineering, Bahauddin Zakariya University, Multan.
04/2014 to 08/2020	Assistant Professor, under TTS in the Department of Agricultural Engineering, Bahauddin Zakariya University, Multan.
03/2014 to 4/2014	Assistant Professor, Department of Agricultural Engineering, Bahauddin Zakariya University, Multan.
03/2013 to 03/2014	Assistant Professor, under IPFP program of HEC in the Department of Agricultural Engineering, Bahauddin Zakariya University, Multan.
09/2012 to 02/2013	Research Associate/Research Scholar in project "Enhancing Water Productivity by Using Feasible Efficient Irrigation Techniques" run by Department of Irrigation and Drainage, University of Agriculture Faisalabad.

01/2011 to 02/2012	Research Scholar in the Department of Irrigation and Drainage, University of Agriculture Faisalabad
03/2008 to 12/2010	Research Fellow in the project “Investigating Aquifer Storage and Recovery Techniques to Recharge the Saline Groundwater at Farmers Field’s run by Department of Irrigation and Drainage, University of Agriculture, Faisalabad.
07/2007 to 03/2008	Research Assistant in the Department of Irrigation and Drainage, University of Agriculture Faisalabad

## Honours and Activities

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- Higher Education Commission (HEC) Approved PhD Supervisor for Agri. Engineering Discipline
- Associate Editor, Pakistan Journal of Life and Social Sciences
- Member of Editorial Board, Universal Journal of Agricultural Research
- Won Research Grant Under National Research Program for Universities (NRPU) of HEC entitled “Precise soil nutrient management using hand-held sensor measurements and crop yield mapping”
- Received “Performance Based Increments” for the year 2016 from BZU Multan based on my excellence performance in research, teaching, and other related activities.
- Received “Performance Based Increments” for the year 2017 from BZU Multan based on my excellence performance in research, teaching, and other related activities.
- Received “Performance Based Increments” for the year 2018 from BZU Multan based on my excellence performance in research, teaching, and other related activities.
- Received “Performance Based Honorarium” for the year 2018 from BZU Multan based on my excellence performance in research, teaching, and other related activities.
- Received “Performance Based Increments” for the year 2019 from BZU Multan based on my excellence performance in research, teaching, and other related activities.
- Received “Performance Based Honorarium” for the year 2019 from BZU Multan based on my excellence performance in research, teaching, and other related activities.
- Received “Performance Based Increments” for the year 2020 from BZU Multan based on my excellence performance in research, teaching, and other related activities.
- Received “Performance Based Increments” for the year 2021 from BZU Multan based on my excellence performance in research, teaching, and other related activities.
- Received “Performance Based Honorarium” for the year 2021 from BZU Multan based on my excellence performance in research, teaching, and other related activities.
- Best Paper award at the 1st National Conference on Agricultural Engineering and Sciences, BZU Multan
- Received letter of appreciation from Vice Chancellor BZU on excellence research performance during the year 2018, Organed by ORIC BZU
- Peer Reviewer of Agriculture Water Management
- Peer Reviewer of Journal of Environmental Management
- Peer Reviewer of Scientific Reports
- Peer Reviewer of Sustainability

- Peer Reviewer of Environmental Monitoring and Assessment
- Peer Reviewer of Journal of Water and Climate Change
- Peer Reviewer of Water
- Peer Reviewer of Remote Sensing
- Peer Reviewer of Groundwater for Sustainable Development
- Peer Reviewer Environment Development and Sustainability
- Peer Reviewer Pakistan Journal of Agricultural Sciences
- Peer Reviewer of Environmental Challenges
- Peer Reviewer of International Journal of Remote Sensing
- Peer Reviewer of Geocarto International
- Peer Reviewer of Atmosphere
- Peer Reviewer Journal of Flood Risk Management
- Peer Reviewer of Desalination and Water Treatment
- Peer Reviewer of Pakistan Journal Life and Social Sciences
- Peer Reviewer of Universal Journal of Agricultural Research
- Peer Reviewer of Journal of Agricultural and Crop Research
- Peer Reviewer of International Journal of Agricultural and Policy Research
- Received Letter of Appreciation by the Vice Chancellor University of Agriculture, Faisalabad on successful completion of my PhD degree within six semesters
- Received Amount Rs. 5000/- by the university of Agriculture, Faisalabad on successful completion of my PhD degree within six semesters
- Received Shield of honor as best Mess Manager in UAF (2004-2009)

## **Training Course**

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- Attend the four-days training session on “Level 1 training Program” held on 5<sup>th</sup> to 8<sup>th</sup> May 2025 at Bahauddin Zakariya (BZU) Multan organized by the Professional Development Center, ORIC, BZU, Multan. (May 5-8, 2025)
- Attend 3day hands on Training workshop on “Community of Practice (CoP) for the SWAT+ Model” organized by the International Water Management Institute (IWMI) from 18th to 20th December 2024 at the Ramada Hotel, Islamabad
- Attend the one-day training session on “Generated crop-type maps using geospatial tools and field data” organized by Food and Agriculture Organization (FAO) of the United Nation under the Project Transforming Indus Basin with Climate Resilient Agriculture and Water Management. (October 20, 2023)
- Attended online Capacity Building Training on “Introduction to Monitoring Evapotranspiration with pyWaPOR” from 23-26 January 2023, organized by Food and Agriculture Organization of the United Nation under the Project Transforming Indus Basin with Climate Resilient Agriculture and Water Management.
- Attend the two days training session on “Satellite Remote Sensing for Estimating Actual Evapotranspiration-Course No.1 PYTHON for Evapotranspiration estimation. Organized by Food and Agriculture Organization (FAO) of the United Nation under the Project

Transforming Indus Basin with Climate Resilient Agriculture and Water Management. (September 20-21, 2022)

- Attended two days training workshop on “Principles of Efficient Tractor Operation; Environmental impact of diesel exhaust, its remedies, and EPA standards” Organized by Department of Agricultural Engineering BZU, Multan (13-14 Sep., 2022)
- Attended 1-Day CPD training workshop on “WinSRFR Model for Design and Simulation of Precise Surface Irrigation Systems” arranged by Pakistan Engineering Council and Department of Agricultural Engineering at BZU, Multan on July 09, 2020
- Delivered a lecture in training session regarding Geographic Information System (GIS) arranged by Agricultural Engineering Department Field Wing Govt. of Punjab on 26-11-2020.
- Attended one-day training workshop “Dynamics Teaching Skills” organized by ORIC, BZU on Multan on 25 March 2018.
- Delivered a lecture in training session regarding design of tube wells arranged by Agricultural Engineering Department Field Wing Govt. of Punjab on 12-09-2019.
- 15 days internship at Water Management Training Institute Lahore
- Attended one-day training workshop on “Outcome based education and development of self-assessment report” at Agricultural Engineering Department, FAST, BZU, Multan on September 18, 2018
- Attended training workshop on “Resistivity survey workshop” organized by Department of Agricultural Engineering, Bahauddin Zakariya University, Multan on November 23, 2014
- Attended 1-Day CPD course on “Interactive Workshop” Pakistan Engineering Council at BZU, Multan on April 28, 2014
- Attended 1-Day CPD Interactive Workshop on “CPD framework for Professional Development of Engineers” organized by Pakistan Engineering Council at BZU, Multan
- Attended Two Day Intensive Training Course on “GIS, GPS and Mobile Mapper” from December 14 to 15, 2011, organized by Department of Irrigation and Drainage, University of Agriculture, Faisalabad in Collaboration with Nova Scotia Agriculture College Canada.
- Attended one-month Intensive training Workshop on “Remote Sensing and Digital Image Processing” from November 29 to December 26, 2010, organized by Department of Irrigation and Drainage, University of Agriculture, Faisalabad, and Sponsored by USDA.

### **Computer Skills**

- Technical Software: DSSAT, MZA, ANN, IXID Resistivity Software, Erdas Imagin, ArcGIS 9.3
- Microsoft office (word and Excel. power point), Internet, Auto cad
- Statistical Package: SAS, Statistix v.8, SPSS

### **Research Projects Completed/Ongoing as PI/Research Associate/Team Member**

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- Precise soil nutrient management using hand-held sensor measurements and crop yield mapping funded by HEC Under National Research Program for Universities (NRPU) (Completed)
  - Development and evaluation of indigenous soil moisture and nitrogen fertilizer sensors for site-specific application of crop inputs (Funded by BZU) as PI (Completed)

- Investigating Groundwater Extraction Efficiency Using Resistivity Survey and Energy Audit Techniques (Funded by BZU) as PI (Completed)
- Development and evaluation of design procedure for gravity fed drip irrigation systems for small farmers (Funded by BZU) as PI (Completed)
- Investigating Aquifer Storage and Recovery Techniques to Recharge the Groundwater at Farmer's Field (Funded by Endowment Fund Secretariat) as Research Associate (Completed)
- Decision Support System for Better Crop productivity and Environmental Quality (Funded by Pakistan Science Foundation) as team Member (Completed)
- Development of High Efficiency Irrigation System (Funded by University of Agriculture Faisalabad) as team Member (Completed)
- Demonstration of a Groundwater Model to Simulate Pumping Effects on a Faisalabad Water Supply Scheme (Funded by Endowment Fund Secretariat) as team Member (Completed)
- Enhancing Water Productivity by Using Feasible Efficient Irrigation Techniques (Funded by International Food Policy Research Institute) as Research Associate (Completed)

### **Supervisor of Ph.D. Agri. Engg. Students (Thesis Completed)**

- Groundwater Salinity Mapping and Tubewell Energy Conservation using Geo-electrical Survey Technique (Engr. Dr. Haris Abdullah, 2024)
- Groundwater Behaviour in relation to climate Change trends in Indus Basin of Pakistan (Engr. Dr. Akhtar Ali, 2022)

### **Supervisor of M.Sc. (Hons.) Agri. Engg. Students (Thesis Completed)**

- Quantification of Solid Waste Generation and Identification of Suitable Landfill Sites using GIS and Remote Sensing in Rajanpur Pakistan (Engr. Kashif Bashir, 2024)
- Climate Response to Land Use Changes using Remote Sensing Techniques (Engr. Nadeem Zubair, 2023)
- GIS-based analytical hierarchical process for potential groundwater recharge zones in Punjab, Pakistan (Engr. Maira Naeem, 2023)
- Identifying soil fertility based site-specific management zones in Multan, Pakistan using GIS and remote sensing (Engr. Aqsa Dilshad, 2023)
- Application of nano carbon for enhancing soil infiltration and water holding capacity (Engr. Arees Nasir, 2023)
- Quantifying Irrigation Demand/Supply Gap using Remote Sensing and GIS in Multan Pakistan (Muhammad Haseeb, 2022)
- Spatial Distribution of Groundwater Potential and Borehole Design Parameters for Multan-Pakistan (Najum-ul-Hassan, 2022)
- Performance of Millet (*Pennisetum glaucum* L.) Under the Combination of Different Irrigation and Nitrogen Levels (Muhammad Abrar, 2022)
- Formulation of Precision Input Management Strategy for Wheat using Handheld Crop Sensors (Huzaiifa Shahzad Qureshi, 2021)
- Effect of Urbanization on Irrigated Agriculture in Shujaabad Canal Command Area of District Multan (Khawaja Muhammad Zakariya, 2021)
- Groundwater Vulnerability and Aquifer Protective Capacity potential using Vertical Electrical Sounding Method (Muhammad Rizwan Shahid, 2021)
- Time Series Modeling Approach for Temporal Variability of Groundwater Level and Site-specific Management Zoning (Saddam Hussain, 2021)

- Verification of Satellite Precipitation in comparison with Rain Gauge Data in Lower Indus Basin of Pakistan (Mazhar Abbas, 2021)
- Assessment of Climate Change Impact on Input Use Efficiency of Cotton-Wheat using DSSAT model (Khawar Abbas, 2021)
- Identifying suitable technique for delineation of potential management zone for precision agriculture (Mehran Iqbal, 2019)
- Evaluation and adoption of Precision farming practices to improve land productivity (Hafiz Usman Ayub, 2019)
- Performance evaluation and applicability of sensing technologies in precision agriculture (Behzad Mustafa, 2018)
- Spatial analysis of physical and chemical analysis of saline soil properties in District Multan, Pakistan (Hafiz Hamid Saleem, 2018)
- Energy conservation using resistivity survey and tubewell auditing technique (Sabir Hussain, 2018)
- Site specific ground water assessment in Multan Region (Mubashir Ali Ghaffar, 2018)
- Optimization of Pressurized Irrigation System Using of Flow-Driven Model (Attiq-ur-Rehman, 2017)
- Decision Support Mechanism for Adoption of High Efficiency System in Punjab, Pakistan (Muhammad Zubair, 2016)
- Drip Irrigation Field-Adoption Constraints in Multan Region Punjab Pakistan (Muhammad Navid Rasool, 2016)
- Site- Specific Aquifer Characterization Using Resistivity Survey and GIS for District Rahim Yar Khan Pakistan (Akhtar Ali, 2015)

## Publications

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### Articles Published in different National and International journals

1. Ali, A., **Farid, H.U.**, Shoaib, M. and Anjum, M.N., (2025) Sensitivity of groundwater quality to climate explained variability in the areas of Indus Basin of Pakistan. *Water and Environment Journal*. PP 1-19. <https://doi.org/10.1111/wej.12985>
2. Saleem, M.A., Shoaib, M., Hashim, S., **Farid, H.U.**, Ghaffar, M.A., Ismail, M., Ameen, A., Lee, J., Inam, M.A. and Jun, C., (2025). Machine Learning-Based Streamflow Projections in the Upper Indus Basin Under CMIP6 Climate Scenarios. *Physics and Chemistry of the Earth, Parts A/B/C*, p.104035. <https://doi.org/10.1016/j.pce.2025.104035>
3. Zakariya, K.M., Sarwar, T., **Farid, H.U.**, Albano, R., Inam, M.A., Shoaib, M., Ahmad, A. and Ahmad, M., (2025). Land Use Land Cover (LULC) Mapping for Assessment of Urbanization Impacts on Cropping Patterns and Water Availability in Multan, Pakistan. *Earth*, 6(3), p.79.
4. Kanwar, R.M.A., Khan, Z.M., Shoaib, M., **Farid, H.U.**, Sultan, M., Shakoor, A., Ahmad, F., Ullah, A., Shahzad, M.W., Javaid, S.F. and Ameen, (2025). Performance evaluation of novel cascade aerating trickling filter: contaminants removal and biodegradation model. *International Journal of Environmental Science and Technology*, (22)12813–12830.
5. Ahmad, A., Khan, Z.M. and **Farid, H.U.**, (2025) Optimization of condensing tray shapes for a multi-effect solar still coupled with parabolic solar collectors for domestic wastewater treatment: A comparative study. *Environmental Progress & Sustainable Energy*, p.e14515.

6. Waleed, M., Inam, M.A., Albano, R., Samad, A., **Farid, H.U.**, Shoaib, M. and Ali, M.U., 2025. Statistical Model Development for Estimating Soil Hydraulic Conductivity Through On-Site Investigations. *Hydrology*, 12(3), p.55. <https://doi.org/10.3390/hydrology12030055>
7. Abbas, T., Shoaib, M., Albano, R., Baig, M.A.I., Ali, I., **Farid, H.U.** and Ali, M.U., 2025. Artificial-Intelligence-Based Investigation on Land Use and Land Cover (LULC) Changes in Response to Population Growth in South Punjab, Pakistan. *Land*, 14(1), p.154. <https://doi.org/10.3390/land14010154>
8. Mehdi, S.N., Khan, Z.M., **Farid, H.U.**, Khan, S.U., Khan, M.I., Jameel, M., Abduvalieva, D., Garalleh, H.A. and Waqas, M., 2024. Analyzing the Combustion Characteristics of Thar Coal Block XI: A Comprehensive Study. *Results in Engineering*, p.103038. <https://doi.org/10.1016/j.rineng.2024.103038>
9. Naeem, M., **Farid, H.U.**, Madni, M.A., Albano, R., Inam, M.A., Shoaib, M., Shoaib, M., Rashid, T., Dilshad, A. and Ahmad, A., 2024. GIS-Based Analytical Hierarchy Process for Identifying Groundwater Potential Zones in Punjab, Pakistan. *ISPRS International Journal of Geo-Information*, 13(9), p.317.
10. Ahmad, A., Khan, Z.M. and **Farid, H.U.**, 2024. A potential solution for clean water supply: multi-effect solar still and water quality analysis. *Water Supply*, 24(2), pp.329-340.
11. Abdullah, H., **Farid, H.U.**, Naeem, M., Zubair, N., Khan, Z.M., Shahzad, H., Sikandar, P., Abrar, M., Shakoor, A. and Mubeen, M., 2023. Investigating On-Site Energy Consumption Patterns Using Vertical Electrical Sounding (VES) and Geographic Information System (GIS) Techniques. *Sustainability*, 15(24), p.16782.
12. **Farid, H.U.**, Ayub, H.U., Khan, Z.M., Ahmad, I., Anjum, M.N., Kanwar, R.M.A., Mubeen, M. and Sakinder, P., 2023. Groundwater quality risk assessment using hydro-chemical and geospatial analysis. *Environment, Development and Sustainability*, 25 (8), 8343-8365.
13. Haseeb, M., **Farid, H. U.**, Khan, Z. M., Anjum, M. N., Ahmad, A., & Mubeen, M. (2023). Quantifying irrigation water demand and supply gap using remote sensing and GIS in Multan, Pakistan. *Environmental Monitoring and Assessment*, 195(8), 990.
14. Kanwar, R.M.A., Khan, Z.M. and **Farid, H.U.**, 2023. Fate of biofilm activity in cascade aerating trickling filter for wastewater treatment: Comparison of two types of indigenous support media. *Biochemical Engineering Journal*, 194, p.108875.
15. Ameen, A., and Farid, H.U. 2023. Greywater Characteristics and Treatment Processes: A Review. *Journal of Business and Environmental Management*, 2(2), pp.22-44.
16. Anjum MN, Ghanim AAJ, **Farid HU**, Zaman M, Niazi UM, Rahman S, Alsaiari MA and Irfan M (2022) Assessment of Climate Change and Its Impacts on the Flows of a Subtropical River Basin in the Hindu-Kush Mountain, South Asia. *Pure and Applied Geophysics*, 179(10), pp.3841-3857. doi: 10.1007/s00024-022-03150-57
17. Waleed, M., Mubeen, M., Ahmad, A., Habib-Ur-Rahman, M., Amin, A., **Farid, H.U.**, Hussain, S., Ali, M., Qaisrani, S.A., Nasim, W. and Javeed, H.M.R., (2022). Evaluating the efficiency of coarser to finer resolution multispectral satellites in mapping paddy rice fields using GEE implementation. *Scientific reports*, 12(1), p.13210.
18. Naeem, Maira, **Hafiz Umar Farid**, Muhammad Arbaz Madni, Rameez Ahsen, Zahid Mehmood Khan, Aqsa Dilshad, and Huzaiifa Shahzad. "Remotely sensed image interpretation for assessment of land use land cover changes and settlement impact on allocated irrigation water in Multan, Pakistan." *Environmental monitoring and assessment* 194, No. 2 (2022): 1-18. <https://doi.org/10.1007/s10661-021-09732-5>

19. Ali, A. and **Farid, H.U.**, (2022). Evaluation and Performance of SM2-Satellite Precipitation Product with Reference to Ground-Based Observations, in different cities of Pakistan. *NUST Journal of Engineering Sciences*, 15(1), pp.30-43.
20. **Hafiz Umar Farid**, Ijaz Ahmad, Zahid Mahmood Khan, Allah Bakhsh, Muhammad Naveed Anjum, Aamir Shakoor, Assad Farooq (2021) Prediction and Maximization of Wheat Grain Yield in Semiarid Environment by Using Artificial Neural Networks. *Fresenius Environmental Bulletin*, 30(02A/2021) 1977-1987.
21. Ahmed, N., Lü, H., Ahmed, S., Nabi, G., Wajid, M.A., Shakoor, A. and **Farid, H.U.**, 2021. Irrigation Supply and Demand, Land Use/Cover Change and Future Projections of Climate, in Indus Basin Irrigation System, Pakistan. *Sustainability*, 13(16), p.8695. <https://doi.org/10.3390/su13168695>
22. Mehdi, S.N., Khan, Z.M., **Farid, H.U.** and Hussain, S., 2021. Investigating Compatible Drying Technique for Safe Utilization of Thar Coal, Pakistan. *International Journal of Coal Preparation and Utilization*, 42(11) pp. 3303-3324. <https://doi.org/10.1080/19392699.2021.1958794>
23. Hussain, S., Mubeen, M., Ahmad, A., Masood, N., Hammad, H.M., Amjad, M., Imran, M., Usman, M., **Farid, H.U.**, Fahad, S. and Nasim, W., 2021. Satellite-based evaluation of temporal change in cultivated land in Southern Punjab (Multan region) through dynamics of vegetation and land surface temperature. *Open Geosciences*, 13(1), pp.1561-1577.
24. Ali A, **HU Farid**, ZM Khan, I Ahmad, MN Anjum, M Mubeen, A Shakoor (2021) Temporal Analysis for Detection of Anomalies in Precipitation Patterns over a Selected Area in the Indus Basin of Pakistan. *Pure and Applied Geophysics*, 178, 651–669. <https://doi.org/10.1007/s00024-021-02671-9>
25. RMA Kanwar, ZM Khan, **HU Farid** (2021) Modelling Based Performance Evaluation of Novel Cascade cum Trickling Filter Wastewater Treatment System. *International Journal of Environmental Science and Technology*. 19(6), pp.5015-5028. <https://doi.org/10.1007/s13762-021-03455-3>
26. RMA Kanwar, ZM Khan, **HU Farid** (2021) Enhanced contaminant removal from municipal wastewater using novel cascade cum trickling filter and multilayer adsorption bioreactor. *International Journal of Environmental Science and Technology*, 19(3), pp.1423-1436. <https://doi.org/10.1007/s13762-021-03201-9>
27. RMA Kanwar, ZM Khan, **HU Farid** (2021) Investigation of municipal wastewater treatment by agricultural waste materials in locally designed trickling filter for peri-urban agriculture. *Water Supply*, 21(5): 2298–2312. <https://doi.org/10.2166/ws.2021.075>
28. Huzaifa Shahzad, **Hafiz Umar Farid**, Zahid Mahmood Khan, Muhammad Naveed Anjum, Ijaz Ahmad, Xi Chen, Perviaz Sakindar, Muhammad Mubeen, Matlob Ahmad, Aminjon Gulakhmadov (2020) An Integrated Use of GIS, Geostatistical and Map Overlay Techniques for Spatio-Temporal Variability Analysis of Groundwater Quality and Level in the Punjab Province of Pakistan. *Water* 12(12):3555.
29. R Ahsen, ZM Khan, **HU Farid**, A Shakoor, Ali, I. (2020) Estimation of cropped area and irrigation water requirement using remote sensing and GIS. *Journal of Animal and Plant Sciences* 30 (4), 876-884.
30. Muhammad Mubeen, Ashfaq Ahmad, Hafiz Mohkum Hammad, Muhammad Awais, **Hafiz Umar Farid**, Mazhar Saleem, Muhammad Sami ul Din, Asad Amin, Amjed Ali, Shah Fahad and Wajid Nasim (2020) Evaluating the climate change impact on water use efficiency of cotton-wheat in semi-arid conditions using DSSAT model. *Journal of Water and Climate Change*, 11 (4): 1661–1675. doi: 10.2166/wcc.2019.179.

31. A Shakoor, ZM Khan, **HU Farid**, M Sultan, I Ahmad, N Ahmad, (2020) Delineation of regional groundwater vulnerability using DRASTIC model for agricultural application in Pakistan. *Arabian Journal of Geosciences* 13 (4), 1-12. <https://doi.org/10.1007/s12517-020-5161-y>
32. Hussain S., M. Mubeen, W. Akram, A. Ahmad, M. H. Rahman, A. Ghaffar, A. Amin, M. Awais, **H. U. Farid**, A. Farooq, W. Nasim 2020. Study of land cover/land use changes using RS and GIS: a case study of Multan district, Pakistan. *Environmental Monitoring Assessment* (2020) 192(1):2. <https://doi.org/10.1007/s10661-019-7959-1>
33. Ali, A., **H.U. Farid**, and M.M.H. Khan. 2020. Divergent effect of rainfall, temperature and surface water bodies on groundwater quality in Haveli Canal Circle of Multan Irrigation Zone, Southern Punjab, Pakistan. *Journal of Environmental and Agricultural Sciences*. 22(4): 25-36.
34. **Hafiz Umar Farid**, Ijaz Ahmad, Muhammad Naveed Anjum, Zahid Mahmood Khan, Muhammad Mazhar Iqbal, Aamir Shakoor, Muhammad Mubeen (2019) Assessing seasonal and long-term changes in groundwater quality due to over-abstraction using geostatistical techniques. *Environmental Earth Sciences*, 78 (386) 1-12. <https://doi.org/10.1007/s12665-019-8373-2>
35. Rana Muhammad Asif Kanwar, Zahid Mahmood Khan, **Hafiz Umar Farid** (2019) Development and Adoption of Wastewater Treatment System for peri-urban Agriculture in Multan, Pakistan. *Water Science and Technology* 80(8):1524-1537. <https://doi.org/10.2166/wst.2019.403>
36. Hussain S, M Mubeen, A. Ahmad, W Akram, HM Hammad, M Ali, N Masood, A Amin, **HU Farid**, SR Sultana, S Fahad, D Wang, W Nasim (2019) Using GIS tools to detect the land use/land cover changes during forty years in Lodhran District of Pakistan. *Environmental Science and Pollution Research*, 27(32), pp.39676-39692. [doi.org/10.1007/s11356-019-06072-3](https://doi.org/10.1007/s11356-019-06072-3).
37. **Hafiz Umar Farid**, Zahid Mahmood-Khan, Ijaz Ahmad, Aamir Shakoor, Muhammad Naveed Anjum, Muhammad Mazhar Iqbal, Muhammad Mubeen and Muhammad Asghar (2019) Estimation of infiltration models' parameters and their comparison to simulate the onsite soil infiltration characteristics. *International Journal of Agricultural and Biological Engineering*, 12(3): 84-91.
38. **Hafiz Umar Farid**, Muhammad Zubair, Zahid Mahmood Khan, Aamir Shakoor, Behzad Mustafal, Aftab Ahmad Khan, Muhamad Naveed Anjum, Ijaz Ahmad and Muhammad Mubeen (2019) Identification of Influencing Factors for Optimal Adoptability of High Efficiency Irrigation System (HEIS) in Punjab, Pakistan. *Sarhad Journal of Agriculture*, 35(2): 539-549. <http://dx.doi.org/10.17582/journal.sja/2019/35.2.539.549>
39. Zahid Mahmood Khan, Rana Muhammad Asif Kanwar, **Hafiz Umar Farid**, Muhammad Sultan, Muhammad Arsalan, Maqbool Ahmad, Mian Muhammad Ahson Aslam, Amir Shakoor (2019) Wastewater Evaluation for Multan (Pakistan): Characterization and Agricultural Reuse. *Pol. J. Environ. Stud.* 28(4):1-16. doi: 10.15244/pjoes/90838
40. Imran Ali, Changsheng Peng, Zahid M. Khan, Muhammad Sultan, Iffat Naz, Mohsin Ali, **Hafiz U. Farid**, Muhammad H. Mahmood, Rameez Ahsen. (2019). Removal of Crystal Violet and Eriochrome Black T dyes from Aqueous Solutions by Magnetic Nanoparticles Biosynthesized from Leaves Extract of *Fraxinus Chinensis* Roxb. *Pol. J. Environ. Stud.* 28(4):2027–2040. [10.15244/pjoes/89505](https://doi.org/10.15244/pjoes/89505)

41. **Hafiz U. Farid**, Allah Bakhsh, Muhammad U. Ali, Zahid Mahmood-Khan, Amir Shakoor, Imran Ali (2018) Field Investigation of Aquifer Storage Recovery (ASR) Technique to Recharge Groundwater – A case study in Punjab Province of Pakistan, *Water Science and Technology-Water Supply*, 18(1)71-83. <https://doi.org/10.2166/ws.2017.083>
42. Muhammad Mazhar Iqbal, Muhammad Shoaib, **Hafiz Umar Farid** and Jung Lyul Lee (2018) Assessment of Water Quality Profile Using Numerical Modeling Approach in Major Climate Classes of Asia. *International Journal of Environmental Research and Public Health*, 15(2258): 1-26. <https://doi.org/10.3390/ijerph15102258>
43. Muhammad Naveed Anjum, Yongjian Ding, Donghui Shangguan, Ijaz Ahmad, Muhammad Wajid Ijaz, **Hafiz Umar Farid**, Yousif Elnour Yagoub, Muhammad Zaman, Muhammad Adnan (2018) Performance evaluation of latest integrated multi-satellite retrievals for Global Precipitation Measurement (IMERG) over the northern highlands of Pakistan. *Atmospheric Research*, 205 (2018) 134-146. <https://doi.org/10.1016/j.atmosres.2018.02.010>
44. Ijaz Ahmad, Fan Zhang, Muhammad Tayyab, Muhammad Naveed Anjum, Muhammad Zaman, Junguo Liu, **Hafiz Umar Farid**, Qaisar Saddique (2018) Spatiotemporal analysis of precipitation variability in annual, seasonal and extreme values over upper Indus River basin. *Atmospheric Research*, 213: 346-360.
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**IMPORTANT COURSES UNDERTAKEN DURING M.Sc./Ph.D. DEGREE PROGRAMS:**

ID-706	Groundwater Hydrology
ID-707	Groundwater Modeling
ID-712	Design of Irrigation Systems
ID-716	Erosion and Sedimentation Engineering
FMP-716	Farm Machinery and Environment
FMP-710	Operations Research
FMP-721	Grain Storage and Preservation
AGR-710	Arid Zone Agronomy
AGR-711	Agro Meteorology
SES-707	Soil Physics
CS-704	High level Programming I
STAT-701	Experimental Statistics
STAT-710	Experimental Design II