Taufique H. Mahmood

08/07/2023, https://und.edu/directory/taufique.mahmood

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1. Summary of education

- Ph.D. in Geological Science (Hydrology), Arizona State University, Tempe, AZ, 2012. (**Advisor**: Professor Enrique Vivoni)
- M.S. in Engineering science (RS and GIS), The University of Mississippi, 2003-2006.
- M.Sc. in Geology, University of Dhaka, Bangladesh, 2001-2003.
- B.Sc. in Geology, University of Dhaka, Bangladesh, 1996-2000.

2. Professional experience

- Founding Director, ND Center for Water Research, University of North Dakota (02/2023-Present).
- Graduate Director, Harold Hamm School of Geology and Geological Engineering, University of North Dakota, University of North Dakota (08/2022-Present)
- Associate Professor, Harold Hamm School of Geology and Geological Engineering, University of North Dakota, University of North Dakota (08/2021-Present)
- Assistant Professor, Harold Hamm School of Geology and Geological Engineering, University of North Dakota, (08/2015 – 08/2021)
- Post-doctoral Fellow, University of Saskatchewan, (06/2012 – 08/2015).
- RS and GIS analyst, Center for Environment and Geographic Information System, Bangladesh, (03/2003 - 07/2003).

3. Grants and Awards

Dean's Outstanding Faculty Award (2022) for contribution in water resources research.

NSF CAREER award in Hydrologic Science and Climate Change (**PI**, $442,000): EAR-Climate: Impacts of Recent Wetting on Cold Region Hydrologic Change in the Northern Great Plains (2022-2027). (https://blogs.und.edu/cem/2022/03/und-awarded-nsf-funds-for-flood-research-and-native-american-outreach/).

North Dakota Department of Water Resources award (**PI**, $165,000): Science-based Groundwater Appropriation Approach for Oakes Aquifer: Insights from the Cold Region Hydrologic Model (2022-2024).

USDA-NRCS-ND award (PI $314,000): Grassland dynamics to climatic and land use variability in Three Affiliated Tribes area (2023-2026).

USDA-NRCS-ND award (PI $390,000): Impacts of Tillage Practices on Soil Health, Water Quality, Snow Accumulation and Runoff in the Turtle Mountain Reservation (2023-2026).

USGS – NC CASC award (Co-PI, $360,000): Impact of climate-driven water-level fluctuations on recreational fisheries in the Northern Glaciated Plains! (2022-2025).

ND EPSCoR GSRA award (PI, $90,000): Wetland Dynamics in a Terminal Lake Basin Using Remotely Sensed Imagery: Implications to Recent Hydroclimatic Evolution (2017-2019).

ND EPSCoR (PI, $28,000): Traditional Ecologic Theory to decipher past Hydrologic Change. (2019-2020).

NSF MRI award (Co-PI, $106,000): Acquisition of an Acoustic Doppler Current Profiler (ADCP) System for Profiling Open Channels (2018-2021).

NDWRRI (PI, $1800): Impacts of Recent Climatic Wetting on Distributed Snow and Streamflow Responses in a Terminal Lake Basin (2017).

NDWRRI (PI, $1000): Hydrological Changes Due to Recent Wetting in a Cold Region Riverine Headwaters Environment. (2020).

UND CEM (Facilitator, $90,000): Acquisition of an ICP-OES for the Environmental and Analytical Laboratory, University of North Dakota.

UND CEM (PI, $3,000): Online course development of Groundwater Monitoring and Remediation (GEOE 419) ($3000).

ND EPSCoR (PI, $84,000):Impacts of climate change on cold region hydrologic responses and nutrient export. Award amount: $83,700. ND EPSCoR start-up award (2015-2018).

4. Graduate Student Grant and Award

NSF Graduate Research Fellowship Program (NSF GRFP) for Michaela Neal (MS in Geological Engineering): Effects of Recent Deluge and Drought Climates on Water Supply and Security in a Missouri River Headwater Basin (2023-2028).

Outstanding Student Presentation Award (AGU 2022 Fall Meeting): Archambault, AL and **Mahmood, TH**. 2022. Remotely Sensed Wetland Storage Changes to Climatic Variability and their Implication on Streamflow Generation. AGU Fall Meeting, Chicago, IL. (Alexis is a Native American PhD student from the Standing Rock Reservation).

5. Publications

Published while at UND

1. Archambault, A.L., **Mahmood, T.H.**, Todhunter, P.E. and Korom, S.F., 2023. Remotely sensed surface water variations during drought and deluge conditions in a Northern Great Plains terminal lake basin. Journal of Hydrology: Regional Studies, 47, p.101392.
2. Atashi, V., **Mahmood, T.H.** and Rasouli, K., 2023. Impacts of climatic variability on surface water area observed by remotely sensed imageries in the Red River Basin. Geocarto International, (just-accepted), pp.1-18.

3. Putkonen, J. and Mahmood, T.H., 2022. Twenty-Four Buried Ice Masses Remotely Mapped in Transantarctic Mountains, Antarctica. *Geocarto International*, (just-accepted), pp.1-16.
4. Shoaib, S.A., **Mahmood, T.H.** and Sultana, N., 2022. The spectrum of uncertainty in flood damage assessment. ***Journal of Water and Climate Change***, *13*(6), pp.2337-2352.
5. Atashi, V., Rosati, M., Lim, Y.H. and **Mahmood, T.H.**, Characteristics of Seasonality on 3D Velocity and Bathymetry Profiles in Red River of the North. In *World Environmental and Water Resources Congress 2022* (pp. 252-263).
6. **Mahmood, T.H.**; Putkonen, J.; Sobbe, A. Spatially Variable Precipitation and its Influence on Water Balance in a Headwater Alpine Basin, Nepal. ***Water*** 2021, 13, 254. https://doi.org/10.3390/w13030254
7. Shoaib, S.A., Khan, M.Z.K., Sultana, N. and **Mahmood, T.H.**, 2021. Quantifying Uncertainty in Food Security Modeling. ***Agriculture,*** *11*(1), p.33. https://www.mdpi.com/2077-0472/11/1/33
8. Todhunter, P., Jackson, C., **Mahmood, T.H.,** 2020. Streamflow Partitioning using the Budyko Hypothesis in a Northern Glaciated Watershed under Drought to Deluge Conditions. ***Journal of Hydrology.*** DOI:https://doi.org/10.1016/j.jhydrol.2020.125569
9. Rasouli, K., Scharold, K., **Mahmood, T.H**., Glenn, N.F. and Marks, D., 2020. Linking hydrological variations at local scales to regional climate teleconnection patterns. Hydrological Processes. https://doi.org/10.1002/hyp.13982
10. Van Hoy, D.F., **Mahmood, T.H**., Todhunter, P.E. and Jeannotte, T.L., 2020. Mechanisms of Cold Region Hydrologic Change to Recent Wetting in a Northern Glaciated Landscape ***Water Resources Research,*** *56*(7), p.e2019WR026932.
11. Jeannotte, T.L., **Mahmood, T.H**., Vandeberg, G.S., Matheney, R.K., Hou, X. and Van Hoy, D.F., 2020. Impacts of Cold Region Hydroclimatic Variability on Phosphorus Exports: Insights from Concentration-Discharge Relationship. ***Journal of Hydrology***, 591, p.125312.
12. Rasouli, K., Nasri, B.R., Soleymani, A., **Mahmood, T.H.,** Hori, M. and Haghighi, A.T., 2020. Forecast of streamflows to the Arctic Ocean by a Bayesian neural network model with snowcover and climate inputs. ***Hydrology Research.*** doi.org/10.2166/nh.2020.164.
13. **Mahmood, T.H.,** Hasan, K. and Akhter, S.H., 2019. Lithologic mapping of a forested montane terrain from Landsat 5 TM image. ***Geocarto International***, *34*(7), pp.750-768.
14. **Mahmood, T.H**., Pomeroy, J.W., Wheater, H.S., & Baulch, H. 2017. Hydrological responses to climatic variability in a cold agricultural region. **Hydrological Processes**, 31(4), 854-870.

Published before joining to UND

15. **Mahmood**, T.H. & Vivoni, E. R. (2014). Forest ecohydrological response to bimodal precipitation during contrasting winter to summer transitions. *Ecohydrology*, 7(3), 998-1013.
16. **Mahmood**, T. H. & Vivoni, E. R. (2011a). A climate-induced threshold in hydrologic response in a semiarid ponderosa pine hillslope. *Water Resources Research*, 47(9), 1028-1038.

17. **Mahmood**, T.H. & Vivoni, E.R. (2011b). Breakdown of hydrologic patterns upon model coarsening at hillslope scales and implications for experimental design, *Journal of Hydrology*, 411 (3-4), 309-321, doi: 10.1016/j.jhydrol.2011.10.011.
18. **Mahmood**, T.H, & Vivoni, E.R. (2008). Evaluation of distributed soil moisture simulations through field observations during the North American monsoon in Redondo Creek, New Mexico. *Ecohydrology*. 1(3): 271-287.
19. Vivoni, E.R., Rinehart, A.J., Méndez-Barroso, L.A., Aragón, C.A., Bisht, G., Cardenas, M.B., Engle, E., Forman, B.A., Frisbee, M.D., Gutiérrez-Jurado, H.A. **Mahmood, T.H.,** and Hong, S.H., 2008. Vegetation controls on soil moisture distribution in the Valles Caldera, New Mexico, during the North American monsoon. Ecohydrology, 1(3), pp.225-238.
20. **Mahmood**, T.H. & Easson, G.L. (2006). Comparing ASTER and Landsat 7 ETM+ at spectral level for change detection studies, ASPRS annual conference 2006, Reno, Nevada.

Under Review

1. **Mahmood, T. H.,** Pomeroy, J. W., Wheater, H. S., Elliott, J. A., Baulch, H., and Lindenschmidt, K. 2023. Nutrient model development at multiple scales from streamflow-nutrient concentration relationship. (*In submission in* **Hydrologic Science Journal after reject and resubmit**).
2. Wainty and **Mahmood** (2023); Changes in the streamflow generation mechanism during a deluge period (experiencing cooling and warming). (In submission to Water Resources Research).
3. Jeannotte, T. and **Mahmood,** T.H., (2023) Impacts of Climatic Variability to Distributed Snow Observations in a Cold Region Agricultural Basin. (In submission to Journal of Hydrology).
4. Archambault, A. L. and **Mahmood**, T.H., (2023) A Remote Sensing Approach for Quantifying Surface Water Storage Changes and their Relationships to Streamflow Generation in a Prairie Pothole Region Watershed. (In submission to Journal of Hydrology)

Graduate students

- **Diane Van Hoy** (MS in Geological Engineering, graduated in summer, 2018):
  - Van Hoy, D.F., **Mahmood, T.H**., Todhunter, P.E. and Jeannotte, T.L., 2020. Mechanisms of Cold Region Hydrologic Change to Recent Wetting in a Northern Glaciated Landscape ***Water Resources Research,*** *56*(7), p.e2019WR026932.

- **Tyson Jeannotte** (MS in Geological Engineering, graduated in spring 2019, now Environmental Engineer, Houston Engineering, ND and PhD student in Environmental Engineering, UND) (**Turtle Band of Chippewa**).
  - Jeannotte, T.L., **Mahmood, T.H**., Vandeberg, G.S., Matheney, R.K., Hou, X. and Van Hoy, D.F., 2020. Impacts of Cold Region Hydroclimatic Variability on Phosphorus Exports: Insights from Concentration-Discharge Relationship. ***Journal of Hydrology***, 591, p.125312.

- **Alexis Archambault** (**MS** in Geological Engineering, 2017-2019, **PhD** in Geological Engineering, 2019-present). (**Standing Rock Tribe, Hunkpapa Lakota**).
  - **Archambault A.L.,** Mahmood T.H., Todhunter, P., (2020). Wetland dynamics of a terminal lake basin from remotely sensed imagery over last four decades: implications to hydro-climatic evolutions. (*Under review* in **Journal of Hydrology**).

- **Archambault A.,** Mahmood T.H. 2018. Wetland Dynamics in a Terminal Lake Basin Using Remotely Sensed Imagery: Implication to Recent Hydroclimatic Evolution. In AGU Fall Meeting Abstracts, Washington DC, DC. **(Selected for oral presentation).**
- Storage change to recent wetting and its impact to fill-spill hydrology in a terminal lake basin.

- **Stevie Holmes** (PhD in Environmental Engineering, started spring, 2019)
  - Hydrological Changes Due to Recent Wetting in a Cold Region Riverine Headwaters Environment.

- **Jeffrey Whitten** (PhD in Environmental Engineering, started spring, 2019)
  - Fate and transport of environmental neonicotinoid in vadose zone.

- **Eric Roth** (MS in Geological Engineering, started Fall, 2019, on-leave due to medical condition).

- **Miranda Shanks** (MS in Geology, co-advised with Dr. Putkonen, 2019-2021).
  - Mapping of Debris Covered Ice Masses; Transantarctic Mountains.
- **Ngoyi Kamamba** (MS in Energy System Science, 2019-2021)
  - CONCENTRATION-STREAMFLOW RELATIONSHIP IN THE RED RIVER TO NORTH NEAR GRAND FORKS, NORTH DAKOTA.
- **Sharhad Wainty** (PhD in Geological Engineering, 2022-present).
- **Ashly Hall** (**Crow Creek Lakota Sioux**, PhD in Geological Engineering, 2022-present).
- **Michaela Neal (**MS in Geological Engineering, 2022-present**)**
- **Hesham Mahmoud** (PhD in Geological Engineering, 2022-present).
- **MD Helal Ahmmad (**PhD in Geological Engineering, 2023-present).
- **Ayon Saha (**MS in Geology, 2013-present**)**
- **Julian Niewiaroski (**MS in Geology, 2021-present**)**

6. Professional presentations

Presentations and abstracts since my hire at Aug 2015

1. **Mahmood,** T. H., Pomeroy, J. W., Wheater, H. S., Elliott, J. A., Baulch, H., and Lindenschmidt, K. 2015. Nutrient Models Developments Using Runoff-Nutrient Relationships in an Agricultural Prairie Basin, Manitoba, American Geophysical Union 2015 Fall Meeting, San Francisco, CA. (**Poster**)
2. **Mahmood**, T.H. and Van Hoy, D., 2016, Impacts of Recent Wetting on Snow Processes and Runoff Generation in a Terminal Lake Basin, Devils Lake, North Dakota. In AGU Fall Meeting Abstracts, San Francisco, CA. (Poster)
3. Van Hoy, D., **Mahmood, T.H.,** Jeannotte T., Todhunter, P. 2017. Impacts of Recent Climatic Wetting on Distributed Snow and Streamflow Responses in a Terminal Lake Basin. In AGU Fall Meeting Abstracts, New Orleans, LA. (Poster)
4. Jeannotte, T., **Mahmood, T.H.,** Matheney, R., Hou, X. 2017. Phosphorus Export Model Development in a Terminal Lake Basin using Concentration-Streamflow Relationship. In AGU Fall Meeting Abstracts, New Orleans, LA. (Poster)

5. Van Hoy, D., **Mahmood, T.H**., Jeannotte T. 2017. Hydrological Responses to Climate Change in the Mauvais Coulee Basin. ND EPSCoR 2017 Conference, Fargo, ND. (Poster).
6. Van Hoy, D., **Mahmood, T.H.,** Jeannotte T., Todhunter, P. 2018. Impacts of Recent Climatic Variability on Cold Region Hydrologic Responses in a Terminal Lake Basin. ND EPSCoR 2018 Conference, Grand Forks, ND.
7. Jeannotte, T., **Mahmood, T.H.,** Matheney, R., Hou, X., Van Hoy, D. 2018. Phosphorus Export Model Development in a Headwater Basin to Devils Lake. ND EPSCoR 2018 Conference, Grand Forks, ND.
8. Archambault A., **Mahmood T.H.** 2018. Wetland Dynamics in a Terminal Lake Basin Using Remotely Sensing Imagery. EPSCoR 2018 Conference, Grand Forks, ND.
9. Archambault A., **Mahmood T.H.** 2018. Wetland Dynamics in a Terminal Lake Basin Using Remotely Sensed Imagery: Implication to Recent Hydroclimatic Evolution. In AGU Fall Meeting Abstracts, Washington DC, DC. **(Selected for oral presentation).**
10. Jeannotte, T., **Mahmood, T.H.,** 2018. Impacts of Land Management Practices on Phosphorous Concentration-Stream flow Relationship. In AGU Fall Meeting Abstracts, Washington DC, DC. (Poster)
11. Archambault A., **Mahmood T.H.** 2019. Wetland Hysteresis Under Various Climatic Conditions in a Terminal Lake Basin. EPSCoR 2019 Conference, Fargo, ND. (Poster).
12. Archambault, A.L., **Mahmood, T.H.,** 2019, Remotely Sensed Surface Water Dynamics in a Terminal Lake Basin: Implications to Recent Hydroclimatic Evolution. In AGU Fall Meeting Abstracts, San Francisco, CA (Poster).
13. Holmes S., **Mahmood, T.H.,** Mann, M., 2020. Cold Region Hydrologic Variability Due to Recent Wetting in the Northern Great Plains. In AGU Fall Meeting Abstracts, San Francisco, CA.
14. Archambault AL., **Mahmood TH. (2021):** Impacts of Climatic Variability on Water Storage Change Using Remotely Sensed Imagery. ND EPSCoR 2021 State Conference (Poster Presentation).

6. Courses taught

University of North Dakota 2015-present

Fall, 2015

- GEOE 484, Geological Engineering Senior Design, 3 credits, 8 students

Spring, 2016

- GEOE 485, Geological Engineering Senior Design, 3 credits, 8 students

1. Lider, CB, 2016. An Engineering Safety Analysis of Slope Failure along the Banks of the Red Lake River of Crookston, MN. An Honors Thesis submitted and Poster presented at ***University of North Dakota Honors Program Undergraduate Research Conference***, Grand Forks, ND. **Advisor: Dr. Taufique Mahmood.** (**Best Poster Award**).

2. Lider CB, Kniech D, Erickson E, and Joos, C, 2016. An Analysis of Long Term Slope Stabilization Methods along the Red Lake River. Poster presented at ***College of Engineering, UND Design Exposition Conference***, Grand Forks, ND. **Advisor: Dr. Taufique Mahmood.** *(***Best Poster Award** *in outstanding senior prototype design).*

3. Bogers BL, Gelhar D, Hoffert B, Preston K. 2016. Flood Mitigation Plan using Small Upstream Reservoirs in Devils Lake Drainage Basin, North Dakota. ***Poster presented at College of Engineering, UND Design Exposition Conference***, Grand Forks, ND. **Advisor: Dr. Taufique Mahmood.**

- GEOE 419, Groundwater Monitoring and Remediation, 3 credits, 4 students

Fall, 2016

- GEOE 484, Geological Engineering Senior Design, 3 credits, 10 students.
- GEOE 493, Special Topic in Geological Engineering (Cold Region Hydrologic Modeling), 3 credits, 4 students

Spring, 2017

- GEOE 485, Geological Engineering Senior Design, 3 credits, 9 students.

1. Scharold, K., Ali, M. 2017. Use of LIDER derived snow depth on evaluating a physically based distributed hydrologic model: Implications for watershed design and future climate change studies. ***Poster presented at College of Engineering, UND Design Exposition Conference,*** Grand Forks, ND. Advisor: Dr. Taufique Mahmood.
2. Tesfu, M., Nelson, C, Nelson, K. 2017. Perfluorinated Compound Contamination and Remediation in the Groundwater of St. Paul Suburb. Poster presented at College of Engineering, ***UND Design Exposition Conference***, Grand Forks, ND. Advisor: Dr. Taufique Mahmood.

- GEOE 419, Groundwater Monitoring and Remediation, 3 credits, 11 students
- GEOE 540, Water Sampling and Analyses, 3 credits, 8 students (co-taught with Dr. Matheney).
- GEOL 591, Directed Studies, 1 student.

Summer, 2017

- GEOE 996, Continued Enrollment, 1 student.

Fall, 2017

- GEOE 484, Geological Engineering Senior Design, 3 credits, 8 students.
- GEOE 493, Special Topic in Geological Engineering (Cold Region Hydrologic Modeling), 3 credits, 9 students (7 face to face + 2 Online).
- GEOL 591, Directed Studies, 1 student.
- GEOE 998, Thesis, 2 students.

Spring, 2018

- GEOE 485, Geological Engineering Senior Design, 3 credits, 8 students.

1. Muvundamina K, Johnson C, Sprengelmeyer D, and Weatherford, M, 2018. Multi-Well Numerical Reservoir Simulation For Infill Drilling. Poster presented at ***College of Engineering, UND Design Exposition Conference***, Grand Forks, ND. **Advisor: Dr. Taufique Mahmood.**
2. Schmidt B, Sobbe A, Renner W, and Brandenburger, W, 2018. Mechanisms and Mitigation of the 2011 Souris River Flood near Minot, North Dakota. Poster presented at ***College of Engineering, UND Design Exposition Conference***, Grand Forks, ND. **Advisor: Dr. Taufique Mahmood.**

- GEOE 419, Groundwater Monitoring and Remediation, 3 credits, 15 students (12 face to face + 3 Online).
- GEOL 540, Water Sampling and Analyses, 3 credits, 6 students (co-taught with Dr. Matheney).
- GEOE 998, Thesis, 2 students.

Summer, 2018
- GEOL 111, Views of Earth and Planets (Lecture) (Online), 3 credits, (8 Online students).
- GEOL 419, Groundwater Monitoring and Remediation (Online), 3 credits, (1 Online student).
- GEOL 591,Directed studies, 3 credits, (1 face to face student).

Fall, 2018
- GEOL 101, Introduction to Geology, 3 credits, 24 students.
- GEOE 419, Groundwater Monitoring and Remediation (Online), 3 credits, (1 Online).
- GEOE 493, Special Topic in Geological Engineering (Cold Region Hydrologic Modeling), 3 credits, 5 students (5 face to face).
- GEOE 998, Thesis, 2 students.

Spring, 2019
- GEOL 101, Introduction to Geology, 3 credits, 63 students (face to face).
- GEOL 540, Water Sampling and Analyses, 3 credits, 6 students (co-taught with Dr. Matheney).
- GEOE 998, Thesis, 1 student.
- GEOL 591,Directed studies, 1 credits, (1 face to face student).
- ENVE 591,Environmental Engineering Research, 3/6 credits, (2 online students).

Fall, 2019
- GEOL 101, Introduction to Geology, 3 credits, 41 students.
- GEOE 419, Groundwater Monitoring and Remediation, 3 credits, 13 students (10 face to face students+3 online students).
- GEOE 417, Hydrogeology, 3 credits, 14 students (8 face to face students+ 6 online students).

Spring, 2020
- GEOL 101, Introduction to Geology, 3 credits, 39 students (face to face).
- GEOL 540, Water Sampling and Analyses, 3 credits, 4 students (co-taught with Dr. Matheney).
- GEOL 591,Directed studies, 1 credits, (1 face to face student).
- ENVE 591,Environmental Engineering Research, 3/6 credits, (2 online students).

Summer, 2020
- GEOL 419, Groundwater Monitoring and Remediation (Online), 3 credits, (3 Online students).
- GEOL 417, Hydrogeology (Online), 3 credits, (5 Online students).

Fall, 2020
- GEOL 101, Introduction to Geology, 3 credits, 46 students.
- GEOE 417, Hydrogeology, 3 credits, 23 students (14 face to face students+ 9 online students).

Spring, 2021

- GEOL 101, Introduction to Geology, 3 credits, 22 students (face to face).
- GEOE 419, Groundwater Monitoring and Remediation, 3 credits, 12 students (9 face to face students+3 online students).
- GEOL 591,Directed studies, 1 credits, (1 face to face student).
- ENVE 591,Environmental Engineering Research, 3/6 credits, (4 online students).

Fall, 2021

- GEOL 101, Introduction to Geology, 3 credits, 46 students.
- GEOE 417, Hydrogeology, 3 credits, 21 students (11 face to face students+ 10 online students).

Spring, 2022

- GEOL 342, Conservation of Hydrology, 3 credits, 10 students (face to face).
- GEOE 419, Groundwater Monitoring and Remediation, 3 credits, 8 students (94 face to face students+4 online students).

Fall, 2022

- GEOE 417, Hydrogeology, 3 credits, 20 students (12 face to face students+ 8 online students).
- GEOE 421, Cold Region Hydrologic Model, 3 credits, 16 students (11 face to face students+ 5 online students).

Spring, 2023

- GEOL 540, Water Sampling and Analyses, 3 credits, 6 students (co-taught with Dr. Matheney).

Undergraduate advisee:

- **2015-16:** Bryan Boger, Carleigh Lider, Daniel Gelhar, Kathleen Preston, Emily Erickson, Cody Joos, Daniel Kniech and Bridget Hoffert.
- **2016-17:** Karis Scharold, Collette Nelson, Colt Nelson, Merry Tesfu, Shelby Johnson, Phillip Horn, Rylan Limesand, Mohamed Ali and Jason Myrvold.
- **2017-18:** Aaron Sobbe, Will Brandenberger, Cassie Johnson, Kabedi Muvundamina, Bradley Schmidt, Daniel Sprengelmeyer, Renner William and Michael Weatherford.
- **2018-2021:** Makayla Mather (McNair scholar, NSF funded undergraduate fellowship, **Tlingit and Haida's Indian Tribe** of Alaska): Numerical simulations of an alpine glaciers in the Rocky Mountain range.
- **2020-2021: Logan Dietrich:** Impacts of land cover types (agricultural and urban) on nutrient export to Red River to North.
- **2020-2021: Makayla Mather:** Impacts of recent wetting on the Edmore Coulee sub basin in the Devils Lake Basin.
- **2020-2021: Alyssa Schultz:** Impacts of recent wetting on the Stump Lake in the Devils Lake Basin.
- **2021-22: Rebecca May:** Winter Nitrification in Northern Great Plain Lakes and Wetlands.
- **2021-22: Noah Galloway:** Detecting trends and hotspots of nutrients in the Devils Lake during 1991-2020 **period.**
- **2022-23: Morgan Rach:** Recent wetting events on Hobart Lake in the Prairie Pothole Region, Barnes, ND.

- **2022-23: Jena Webber:** Urbanization growth and its impact on groundwater levels in West Fargo.

Undergraduate Research Assistant worked on various projects

- **Bryan Boger,** Undergraduate Research Assistant in Geological Engineering, University of North Dakota (2015-2016). (current position: Graduate research assistant in Geological Engineering, University of Wisconsin, Madison)
- **Carleigh Lider,** Undergraduate Honors thesis advisee, Geological Engineering, University of North Dakota (2015-2016).
- **Karis Scharold,** Undergraduate Research Assistant in Geological Engineering, University of North Dakota (2016-2017). (Current position: Geotechnical Engineer, Northern GN).
- **Aaron Sobbe,** Undergraduate Research Assistant in Geological Engineering, University of North Dakota (2016-2017).
- **MD Ahsan Habib**, Graduate Research Assistant in Geological Engineering, University of North Dakota (2016). (Current position: Graduate research assistant in Mechanical Engineering, University of Alabama, Huntsville).

ND EPSCoR Nature Summer Camp, 2018 Native American students: Curtis Ferris, Taylor Peltier, Wilma Little Bear and Mhaddie Poitra.

ND EPSCoR Nature Summer Camp, 2019 Native American students: Curtis Ferris and Mhaddie Poitra.

ND EPSCoR Nature Summer Camp, 2019 Native American students: Curtis Ferris, Mhaddie Poitra and Devin Black Fox.

Tribal College Student Summer Research 2022: Denver LaRoque, Marisela Madrid and Sheena Grant.

Tribal College Student Summer Research 2022: Shyanna LaRoque, RaeAna Cromwell and Caitlyn Davis.

Master's Thesis Committee

- Diane Van Hoy, Chair of Committee (Geological Engineering)
- Tyson Jeannotte, Chair of Committee (Geological Engineering)
- Alexis Archambault, Chair of Committee (Geological Engineering)
- Eric Roth, Chair of Committee (Geological Engineering)
- Kelsey Forward, member of Committee (Geology)
- Ogochukwu Ozotta, member of Committee
- Will Brandenberger, member of Committee (Geological Engineering)
- Sidike Abudureyimu, member of Committee (Geological Engineering)
- Courtney Jackson, member of Committee (Department of Geography and GIS)
- Timothy Wuenscher, member of Committee (Geology)
- Justin Mark, member of Committee (Environmental Engineering)

- Daniel Fife, member of Committee (Department of Civil Engineering)
- Ryan Hason, member of Committee (Department of Civil Engineering)
- Alexa Docioame, member of Committee (Department of Civil Engineering)
- Brianna Speldrich, member of Committee (Geology)
- Eohjin Lee, member of Committee (Department of Geography)
- Zachary Ranisate, member of Committee (Department of Civil Engineering)
- Miranda Shanks, co-Chair of Committee (Geology)

Doctoral Dissertation Committee

- Bahareh Shoghli, member of Committee (Department of Civil Engineering)
- Stevie Holmes, chair of Committee (Department of Environmental Engineering)
- Jeffrey Whitten, chair of Committee (Department of Environmental Engineering)
- Alexis Archambault, chair of Committee (Department of Geological Engineering)
- Scott Aaron, member of Committee (Department of Atmospheric Science)
- Jared Marquis, member of Committee (Department of Atmospheric Science)
- Ali Alinezhad, member of Committee (Department of Environmental Engineering)
- Moones Alamooti, member of Committee (Department of Geology)
- Daniel Bruson, member of Committee (Department of Geology)
- Sidike Abudureyimu, member of Committee (Department of Geological Engineering)
- Vida Atashi, member of Committee (Department of Civil Engineering)

7. Service

Department (Harold Hamm School of Geology and Geological Engineering**)**

- Member of the Geological Engineering curriculum committee (2016-present).
- Member of the scholarship committee (2016-17).
- Member of the graduate program Committee (2017-present).
- Manage and oversee Environmental and Analytical Research Laboratory (EARL) renovation (chemically resistant sink, countertop, storage and table), a new classroom development and in process of acquisition of ICP-OES.
- GGE ABET coordinator.
- Member of the GGE curriculum committee (2018-present).
- Faculty in-charge for Environmental and Analytical Laboratory (EARL).

College of Engineering and Mines (CEM**)**

- Member of the scholarship committee (2016-present).

Professional:

- Reviewed 45 manuscripts for leading scientific journals such as Journal of Hydrology, Geocarto International, Hydrologic Sciences Journal, Water Resources Research, Water and Hydrology and Earth System Sciences.
- **ABET Self study report for Fall, 2021 visit**
    - **Mahmood, TH. (2021):** ABET Self-Study Report for the GEOLOGICAL ENGINEERING PROGRAM. Submitted for review to ABET PEV.

Invited talks

- 10/2/2015: Hillslope Scale Hydrologic Spatial Patterns in a Patchy Ponderosa Pine Landscape. LEEPS lecture, Harold Hamm School of Geology and Geological Engineering, University of North Dakota.
- 2/10/2016: Impacts of climatic variability on cold region hydrologic response and nutrient export. Weekly seminar, Department of Geography and Geographic Information Science, University of North Dakota.

Community/Outreach

- 6/8/2017: Hydrology and Water Quality of North Dakota. A talk presented to ND EPSCoR NATURE summer camp students (Native American students from North Dakota), University of North Dakota.
- 6/9/2018: Water sampling from the aquifer and stream. An on-field talk presented to ND EPSCoR NATURE summer camp students (Native American students from North Dakota), University of North Dakota.
- 6/6/2019: Water sampling from the aquifer and stream. An on-field talk presented to ND EPSCoR NATURE summer camp students (Native American students from North Dakota), University of North Dakota.
- ND EPSCoR video (Prepared by me) for online Nature Camp Outreach: https://www.youtube.com/watch?v=A6Bu51_xhgo&list=PLtz3kYc9fwTmEishawC8JA4QN-Urp0xAf&index=2&t=0s
- **Summer (2022) Research for Turtle Mountain Community College Students.**
- **Summer (2023) Research for Turtle Mountain Community College Students.**
- Service as a research advisor for AIHEC sponsored **Summer Research Camp** Tribal Community College students in 2021 and 2022.
- **Cold Region Hydrology Workshop** for White Shield High School (MHA nations, Feb 16 and Apr 17 of 2023)

Served as an External examiner and Reviewer for following dissertation

- **Nikul Kumari – PhD candidate in University of New Castle (2021)**
  Title: A Global Eco-Hydro-Geomorphic Analysis in Aspect-driven Semiarid Ecosystems
- **Ankur Srivastava- PhD candidate in University of New Castle (2021)**
  Title: Climate – Soil – Vegetation Interactions: Eco-hydro-geomorphic Inferences from Landscape Evolution Models

Faculty Advisor of following association

- Sigma Gamma Epsolon (SGE, 2016-2019), Bangladesh Student Association at UND (2015-2017) and Association of Environmental and Engineering Geologist (2015-2016).

8. Media

- NSF Award UND press.
- Grand Forks Herald Interview.