

CV

TARIQ MUNIR

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PROFESSIONAL SUMMARY

I have demonstrated my strong teaching competencies at University of Calgary and St. Mary's University (Calgary) during the last six years of teaching lecture and laboratory classes and training students for field-based Soil Science research projects. I am committed to continue my diverse laboratory/lecture teaching passion and keep updating my research in Physical Geography or Soil Sciences across physical or global systems being impacted by the industrial disturbance or climate change.

My teaching competencies are built on my BSc (Hons) and MSc (Hons) degrees in Soil Science and a PhD degree in Physical Geography, and rigorous research and teaching experiences across Soil and Physical Geography sciences. The teaching and research expertise are backed up by 15+ years of experience in research designing, execution and conduction in agricultural, forest and industrial settings.

During my inventive PhD research, I developed predictive models capable of determining the responses of soil-water-atmosphere biogeochemistry and forest productivity to potential impacts of climate change or global warming in space and time (Biogeography). My strong commitment to author the results led to five refereed publications in "Ecosystems", "Biogeosciences", "Ecological Engineering" and "Science of the Total Environment" journals. Several more publications are under review process with reputed journals.

I am a Canadian citizen and committed to observe high Canadian teaching standards and research ethics.

EDUCATION

- **PhD**, Physical Geography, University of Calgary, Alberta 2014
Thesis: Peatland biogeochemistry and plant productivity responses to field-based hydrological and temperature simulations of climate change
- **Post Doc**, Physical Geography/Environment, Imperial Oil Resources, Alberta, Canada 2015
Project: Remote monitoring of a reclaimed wetland (soil-vegetation-atmosphere) and treatment function modelling of treatment wetland
- **MSc (Hons)**, Soil and Environmental Sciences, University of Agriculture, Faisalabad 1992
Thesis: Physical, chemical and nutritional status of soils under citrus orchards in Sargodha district
- **BSc (Hons)**, Soil and Environmental Sciences, University of Agriculture, Faisalabad 1990
Thesis: Reclamation requirements of a salt affected soil under rice-based cropping system

TEACHING EXPERIENCE

ADJUNCT ASSISTANT PROFESSOR, SESSIONAL INSTRUCTOR, MENTOR & FIELD RESEARCH TEAM LEAD

University of Calgary

Sep. 2010 - present | Calgary, Alberta, Canada

- Geog 415 (physical hydrology) – full course teaching
- Geog 313 (soils and vegetation) – full course teaching

- Geog 413 (Soil Character and Formation) – full course teaching
- ENSC 504 (Peatland Ecohydrology) – laboratory teaching
- Geog 313 (Soils and Vegetation) – laboratory teaching
- Geog 413 (Soil Character and Formation) – laboratory teaching
- Geog 516 (Ecohydrology) – laboratory teaching
- **Mentored** several undergraduate students / thesis, based on soil science research supervised in boreal forest, e.g., Peatland vegetation functional groups affected by warming and water-table-drawdown
- **Individually Trained** 13 undergrad or grad students for biogeochemical (e.g., CO₂, CH₄, DOC, soil-plant Nutrients), biophysical (e.g., vegetation) and environmental measurements at various research sites in northern Alberta

St. Mary's University

Sep. 2014 – Present | Calgary, Alberta, Canada

- Geog 381 (Canada: Regional Geography) – full course teaching
- Geog 203 (Human and Environment) – full course teaching

RESEARCH/EXPERIENCE

WETLANDS ENGINEER POST DOC (Soil and Environment)

Imperial Oil Resources Ltd. (Esso/Exxon Mobil)

Feb 2015 – Feb 2016 | Calgary, Alberta, Canada

- Project team coordination for modeling a runoff water or oil sands produced water (OSPW) treatment wetland. Determination of requisites for HSSE implementation and regulatory criteria compliance, and coordination with diverse teams with cross-functional roles to collect and process data, and monitor and model the wetland for quality water release to downstream environment (Athabasca River) or reuse for heavy oil extraction
- Project research designing for monitoring and ensuring reclamation success of oil sands impacted wetland by using remote and manual carbon measurements. Grant proposal writing, obtaining buy-ins, team development and training, and organizing for wetland instrumentation.
- Review of Environmental Technology Assessment Portal (ETAP) proposals on area fugitive emissions and recommendation to COSIA's GHG work group. Coordination with various HSSE representatives across company to achieve common HSSE goals

RESEARCH ASSISTANT (Wetland Soil and Eco-Hydrology Lab)

University of Calgary, Calgary, AB

Sep. 2010 - Dec. 2014

- Coordinating field teams during 10, week-long trips to northern Alberta research sites, each year
- Installing micrometeorological equipment, e.g. PAR sensor, Net Radiometer, Soil Heat Flux Plates, Tipping Bucket Rain Gauge and synced with weather station at site. Measuring forest/wetland greenhouse gas (GHG; CO₂, CH₄), dissolved organic carbon (DOC) and soil-plant nutrient cycling related to hydrological, micro-climatic and biophysical factors, at natural and disturbed sites across space and time (Biogeography). Handling large data sets and, developing and validating land-atmosphere carbon gas flux models

- Advanced use of various softwares (e.g., Word, Excel, Power Point, Outlook, SPSS, Minitab, Sigma Plot, LIMS) for environmental data analyses and modeling, or graphics. Advanced use of meteorological softwares (e.g., LoggerNet, HOBOWare, and Levellogger) for environmental monitoring, and programming softwares (e.g., CRBasic) for programming environmental sensors. Planning, designing, and conduction of vegetation surveys on restored peatlands

RESEARCH ASSISTANT (Renewable Resources)

University of Alberta

2009 | Calgary, Alberta, Canada

- Team coordination for forest soil reclamation (remediation or re-vegetation) experiments in Northern Alberta. Use of tree seedlings were for the re-vegetation of restored sections of the boreal forest in Alberta
- Understanding seed germination, propagation and boreal native plant delivery for restoration of the disturbed boreal forest
- Management of a team of graduate and undergraduate students for all field logistics and Lab experimentation

MANAGER HEALTH SAFETY SECURITY AND ENVIRONMENT | (RETAIL SITES)

Shell Canada Products Ltd.

January 2005 – October 2009 | Alberta & British Columbia, Canada

- Administration of mid-sized teams, management of gasoline inventories, monitoring of gas wells and piezometers, and ensuring contamination-free surface and ground water and soil while allowing for sustainable sales
- Effective management of leaks and spills. Containment of spills by management of storm water runoff, maintaining positive limiting barriers and sumps and enforcing best management practices. Supervision of decommissioned sites remediation in alignment with Alberta EPEA legislation and regulations
- Adapting and enforcing due diligence approaches for protection of human health and environment in compliance with Alberta EPEA and Water Act. HSSE stewardships including accomplishments or lessons learned, risk scenarios, forecasting and recommendations for future planning

LABORATORY SUPERVISOR (AGRICULTURE & ENVIRONMENT)

ALS Environmental – North America (Ex-EnviroTest Labs)

July 2002 – November 2004 | Calgary, Alberta, Canada

- Supervising analyses of contaminated soil, water and vegetation samples supplied by agricultural and/or environmental entrepreneurs. Consultancy services for remediation, reclamation, re-vegetation and restoration of contaminated sites at environmentally sensitive ecosystems
- Leadership and administration of mid-sized team of technicians for analyzing agricultural and environmental samples, monitoring QA and QC and reporting into lab information management system. Authoring analysis reports and communication to clients
- Supervisory responsibility for direct weekly, monthly and yearly reporting to senior management

ACADEMIC/RESEARCH CONTRIBUTIONS

RECENT REFEREED PUBLICATIONS

<http://www.researcherid.com/rid/I-6886-2012>

- Khadka B, **Munir TM**, Strack M. 2015. Effect of environmental factors on production and bioavailability of dissolved organic carbon from substrates available in a constructed and reference fens in the Athabasca oil sands development region. *Ecological Engineering* 84:596-606.
- **Munir TM**, Perkins M, Kaing E and Strack M. 2015. Carbon dioxide flux and net primary production of a boreal treed bog: Responses to warming and water-table-lowering simulations of climate change. *Biogeosciences* 12(4): 1-21.
- **Munir TM**, Strack M. 2014. Methane Flux Influenced by Experimental Water Table Drawdown and Soil Warming in a Dry Boreal Continental Bog. *Ecosystems* 17(7): 1271-1285.
- **Munir TM**, Xu B, Perkins M, Strack M. 2014. Responses of carbon dioxide flux and plant biomass to water table drawdown in a treed peatland in northern Alberta: a climate change perspective. *Biogeosciences* 11: 807-820.
- Khadka B, **Munir TM**, Strack M. 2016. Dissolved organic carbon in a constructed and natural fens in the Athabasca oil sands region, Alberta, Canada. *Science of the Total Environment* 557-558: 579-589.

RECENT CONFERENCE PRESENTATIONS

- **Munir TM**, Khadka B, Xu B, Strack M. 2017. Dissolved organic carbon production affected by warming and water-table lowering in a boreal forested bog: A climate impact perspective
- **Munir TM** and Young MA. 2016. Carbon sequestration at reclaimed wetlands and modelling of treatment wetlands. Canadian Oil Sands Innovation Alliance Workshop. Calgary, AB, Canada, Feb 09.
- **Munir TM**, Young MA, Bekele A. 2015. Wetlands: Carbon gas flux monitoring and treatment function modeling. Conservation and Reclamation workshop, Imperial. Cold Lake, AB, Oct 01.
- **Munir TM**, Khadka B, Strack M. 2015. Dissolved Organic Carbon concentration and chemistry affected by warming and water-table-lowering in a Boreal treed continental bog in Alberta. Canadian Geophysical Union. Montreal, QC, May 07.
- **Munir TM**, Khadka B, Strack M. 2015. Responses of nutrient dynamics to warming and water-table-lowering in a northern treed bog in Alberta. Canadian Geophysical Union. Montreal, QC, May 06.
- **Munir TM**, Kaing E, Strack M. 2014. Carbon dioxide flux and plant biomass affected by warming and water table drawdown in a boreal peatland in Alberta. Canadian Geophysical Union. Banff, AB, May 5.
- **Munir TM**, Kaing E, Strack M. 2014. Carbon dioxide flux and plant biomass at a boreal Alberta peatland affected by warming and water table drawdown. Alberta Soil Science Workshop. Calgary, AB, Feb 13.
- Strack M, **Munir TM**. 2014. Potential impact of climate change on northern peatland carbon exchange. Peatland Ecology Research Group. University of Laval, Quebec, Feb 20.
- **Munir TM**, Strack M. 2013. Peatland-atmosphere methane flux influenced by experimental warming and water table drawdown in northern Alberta. Biological Solutions Forum. Calgary, AB, Oct 9.
- **Munir TM**, Xu B, Perkins M, Strack M. 2013. Responses of carbon dioxide flux and plant biomass to experimental drought in a treed peatland in northern Alberta: A climate change perspective. Canadian Geophysical Union. Saskatoon, SK, May 27.
- **Munir TM**, Strack M. 2013. Potential Effects of climate change on Methane Dynamics of a Boreal Alberta Peatland. Alberta Soil Science Workshop. Lethbridge, AB, Feb 20.
- **Munir TM**, Perkins M, Xu B, Strack M. 2012. Effects of water table drawdown on carbon dynamics and plant biomass of a boreal Alberta peatland. Alberta Soil Science Workshop. Edmonton, AB, Feb 15.
- PEER REVIEW (Referee)
- *Biogeosciences*, *Ecological Engineering*, *Environmental Research Letters* journals

RECENT AWARDS, GRANTS or FELLOWSHIPS

- Dr. Karl C. Ivarson Award (Agricultural Institute of Canada Foundation) 2012
- http://static1.squarespace.com/static/54a56598e4b039f26feee199/t/54c7a89be4b0c1039946ad6d/1422370971416/2012_Ivarson_Soils_Recipients.pdf
- Scholarly Activity Grant, University of Calgary 2017
- Queen Elizabeth II Doctoral Scholarships 2011 - 2014
- John D. Petrie Memorial Bursary Award 2011 - 2012
- Best Presentation Award (Alberta Biological Solutions Forum and CCEMC) 2013
- Physical Geography Teaching Fellow_ University of Calgary 2012, 2014

PERSONAL SKILLS

- Demonstrated flexibility skills for building relationships of trust, respect and productive interactions amongst colleagues or collaborators
- Effectively interacted with cross functional teams
- Practised strong verbal/written communication, interpersonal and analytical skills
- Completed the jobs independently as well as in a team setting in an environment friendly manner
- Welcomed new sustainability ideas and approaches

PROFESSIONAL DESIGNATIONS, CERTIFICATIONS or AFFILIATIONS

- Environmental Professional (CEP, EP)
- University Teaching Certificate (U o C)
- Alberta Institute of Agrologists (AIA)
- Environmental Careers Organization (ECO)
- Canadian Met and Oceanographic Society
- Professional Agrologist (PAg)
- Canadian Society of Soil Science (CSSS)
- Australian Society of Soil Science (ASSS)
- Agricultural Institute of Canada (AIC)
- Canadian Geophysical Union (CGU)

REFERENCES

- **Dr. Maria Strack**, Associate Professor (Canada Research Chair), Department of Geography and Environmental Management, University of Waterloo. 200 University Avenue West, Waterloo, ON N2L 3G1. Email: mstrack@uwaterloo.ca; Phone: 1 (403) 771-6842
- **Dr. Bin Xu**, NSERC Industrial Research Chair – Peatland Restoration, NAIT Boreal Research Institute, 8102 99 Avenue, Peace River, AB T8S 1R2. Email: binx@nait.ca; Phone 1 (780) 618-2603
- **Dr. Gayle Thrift**, Assistant Professor Interdisciplinary Studies, St. Mary's University. 14500 Bannister Road SE Calgary, AB T2X 1Z4. Email: Gayle.Thrift@stmu.ca; Phone: 1 (403) 254-3714