

Job Description

Job Title:	Smart Sensors Network Technician
Department:	Chemistry
Reports To:	Prof. Juewen Liu
Jobs Reporting:	None
Salary Grade:	USG 8
Effective Date:	July 2017

Primary Purpose

The Smart Sensors Network Technician will work as part of a core technical support team of the Global Water Futures (GWF) program. The University of Waterloo core technical team will include a Remote Sensing Scientist, a Sensors Network Technician, a Water Quality and Aquatic Ecosystems Technician, a Smart Watershed Field Technician, and a Smart Watershed Laboratory Technician. It will bring together the necessary expertise and capacity to fully implement “smart”, interoperable water and watershed monitoring approaches, including linking “live” data streams with legacy data associated with relevant GWF projects.

The GWF program is a collaborative initiative between multiple Canadian universities and partner organizations funded, in part, through the Canada First Research Excellence Fund (<http://gwf.usask.ca/>) and led by the University of Saskatchewan. GWF aims to deliver risk management solutions for water resources and services - informed by leading edge water science and supported by innovative decision-making tools - in Canada and throughout the cold regions of the world.

Key Accountabilities

List the major responsibilities of the job, divided into 3 to 5 broad categories. These should reflect 80 - 90% of “what” the job does not the “how”. Insert a category heading and in bullet form below, state specific responsibilities.

Technical Design

- Support the design and operation of autonomous and semiautonomous “smart” sensor networks
- Develop and field-proof sensors that are able to function under rigorous “cold” climate conditions

Laboratory Management and Quality Control

- Maintain laboratory equipment in good working order; schedule maintenance/servicing for equipment as required; document and keep records of equipment use, failure, diagnostics, and repair
- Contact repair technicians and vendors and initiate purchases as needed
- Improve, ensure and document scientific quality control
- Establish and maintain standard operating procedures (SOP) and good laboratory practices (GLP)
- Ensure the proper, safe and clean use of the laboratory and equipment: ensure (and document) that lab users (e.g. casual hires, students, other researchers) have all required safety training for working in the lab and that they are trained on the specific procedures/equipment that they will be using
- Hire and supervise casual laboratory research assistants

Analytical Work

- Perform (hydro)geochemical, contaminated water, and related environmental analyses
- Develop protocols for high-level (bio)geochemical analyses of environmental samples.
- Develop new biosensors for environmentally important analyses

Field Work

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- Participate in/organize collection of field samples and deployment of sensors in groundwater, streams, beaches, reservoirs/lakes, soils and sediments as required

Communication/Dissemination and Data Network Support

- Communicate results and research activities at meetings
- Communicate with external lab users
- Share quality-checked data with GWF data repository

Required Qualifications

If hiring today, what would be the required education, experience, knowledge, skills and abilities?

Education

- University degree in chemistry, environmental science or engineering or equivalent education and experience. PhD in chemistry environmental science or engineering preferred

Experience

- 2-5 years' experience in a research background in analytical chemistry or microfluidics with strong publication record on related topics.

• Knowledge/Skills/Abilities

- Proven experience in the detection of heavy metals or other environmental analytes. Capable of writing papers, reports and proposals.
- Ability to work independently as well as part of a team and network.
- Experience with designing biosensors preferred
- Intermediate MS Office along with basic data processing and management skills; Presentation skills would be an asset.

Nature and Scope

- **Contacts:** This position is part of the core technical support team for the Global Water Futures program, which involves 4 major University partners (U of Saskatchewan, McMaster U, W Laurier U, and UW) and multiple Canadian and international institutional, government, community, and industrial partners.
- **Level of Responsibility:** The job has specialized work with some supervision of others (casual hires) but provides considerable guidance and authority to support others (e.g. clients, students). The position will require the safe operation of the laboratory, management of work load, training of staff, students and collaborating researchers, maintenance of advanced instrumentation, and providing and reporting on QA/QC. They will review and manage budgets and prepare invoices for lab services. They will participate in the administration of major training initiatives and programs
- **Decision-Making Authority:** Decisions related to the management of the lab and its budget; some supervision of students, equipment maintenance, safety training.
- **Physical and Sensory Demands:** i.e. distractions, attention to detail, lifting, carrying
- **Working Environment:** This position is primarily lab-based, but some field work (10-20%) will be required to test and deploy sensors.