

## Professional Job Position Description

### Section I: Position Information

Effective Date	2024-05-01	<input type="checkbox"/> Update Only	<input checked="" type="checkbox"/> Classification Review
Position Title	Data Acquisition and Analysis Technician		
Position Number	998510		
Classification Level	A		
Position Affiliation	<input checked="" type="checkbox"/> AUFA <input type="checkbox"/> Excluded		
Location	Athabasca		
Department	FST/Research Centre		
Reports To	Microbioreactor Lab Platform Coordinator		

#### Position Summary

Briefly describe the main purpose(s) of the position.

Bioremediation is essential to Canada's oilsands sector; however, we lack critical understandings of how soil and microbial communities interact. This position is involved in the development of an integrated microbioreactor laboratory platform for enhanced bioremediation, and biodegradation research in soils. The platform integrates microreactors, microbial fuel cells, and laser Raman spectroscopy, examining the coupled physical, chemical, and biological processes in soils that govern pore-scale pollutant dynamics and microbial activity in bioremediation. This project is supported by the Canada Foundation for Innovation.

The incumbent will be responsible for data acquisition, modelling and analysis, database, and supervising students. The technical aspects of this position will include database design, software installation and testing, data/signal acquisition, and analysis of various software platforms. This technician will also be responsible for the smooth connection with and utilization of existing IT systems at AU by the hardware and software of the platform.

#### Duties and Responsibilities

Organize by key responsibility area and include % of time spent where possible.

- Ensure the smooth connection and utilization of existing IT systems at AU with the hardware and software of the platform (e.g., of the LRS, the flow transducers, and the GC-MS) during platform development.
- Set up hardware and software for the instruments and equipment.
- Provide the development team with access to the required systems and software.
- Convert and transfer data into forms usable by the remediation research community. The technician will design and develop a dedicated database and related software programs for the platform.



- Convert data formats (biological, physical, and chemical) and transferring data from the various instruments and equipment into usable reference units.
- Merge, fuse, analyze, and organize various data to enable their use by the remediation research community.
- Design and develop structural databases and systems to integrate various data.
- Pilot the implementation phases of the biological, physical, and chemical data systems.
- Develop user guides (together with the Microbioreactor Lab Platform Coordinator).
- Communicate, meet and report regularly with the two principal investigators to plan technical aspects of data system.
- Troubleshoot any reported problems of software and data system.
- Ensure that the data system fulfills the project requirements of the research platform.

### Occupational Health and Safety

Employees:

Responsible to participate in the AU OHS Program as required.

See: <https://ohs-pubstore.labour.alberta.ca/li008>

### Classification Factors

#### Communication

Assists communication flow within the project development team. Must be able to efficiently respond to information requests; be able to communicate in technical terminology and interpret and communicate analysis of data information; be able to write and create user guides and to assist with publishing results in peer-reviewed journals. Interpersonal skills are required to secure the cooperation and respect of the project team and user community.

#### Supervision

Provide occasional supervisory coverage for the Microbioreactor Lab Platform Coordinator of postdoctoral fellows, students, and contractors as required. Will assist with on-site supervision in the absence of the Microbioreactor Lab Platform Coordinator.

#### Impact of Service or Product

Successful implementation of data acquisition of integrated microbioreactor laboratory platform. Assist the team with publishing research results in peer-reviewed journals.

#### Independence of Action

Ability in designing and implementing data acquisition, modelling, and analysis independently.

### Complexity

Interdisciplinary skills and the knowledge of several areas including environment, microbioreactors, data analysis, microfluidics, databases, instrumentation, and project management as required.

### Planning

The ability to plan and prioritize work is integral to this position. The incumbent is responsible for ensuring data acquisition and analysis, including the technical aspects of project. The utilization of resources and project timelines must be adhered to as per the funding agreement

### Signatures for Section I

Incumbent Signature		Date Select a date.
Supervisor Signature		Date Select a date.

## Section II: Qualifications

### Qualifications

Includes education, experience, skills, abilities and any other special qualifications required. The qualifications relate to the position not the incumbent.

- A university degree or higher degree in computer, environment, engineering, microbiology or related field, 3 years of work experience and or training in an area related to academic programs, experience in working with students/interns, and with external organizations, institutions, etc.
- Strong ability to perform experiment of biofilms and fluid flow, scientific instrument, and data acquisition, such as laser Raman spectroscopy, high-speed camera, and GC-MS.
- Good experience of data modelling and analysis, and database development.
- A good set of interdisciplinary skills and involves knowledge of several areas including environment, microbioreactors, microfluidics, databases, and project management techniques.
- Good publication record.
- Good ability to effectively manage/coordinate numerous ongoing tasks and projects and be able to follow through with successful completion.
- Good oral and written communication skills, effective use of technology to convey concepts and arguments, and a high degree of tact, diplomacy, and persuasiveness.



- Excellent interpersonal skills, to secure the cooperation and respect of the project team and user community.

Signatures for Sections I and II

Department Head Signature		Date Select a date.
Executive Officer Signature		Date Select a date.
Human Resources Review		Date Select a date.