A. IDENTIFICATION

<table>
<thead>
<tr>
<th>Position Title:</th>
<th>Supervisor, NMR and MS Systems and Operations</th>
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<tr>
<td>Department:</td>
<td>Chemistry</td>
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<td>Position Reports To (Title):</td>
<td>Chair of the Department</td>
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<tr>
<td>Date:</td>
<td>August 10, 2017</td>
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B. POSITION SUMMARY

The Supervisor, NMR and MS Systems and Operations provides high-level expertise in nuclear magnetic resonance (NMR), and oversees the operations, development, and administration of the NMR as well as mass spectrometry (MS) facilities within the Department of Chemistry. The incumbent consults with faculty, staff, post-doctoral fellows, and research students on the applications of nuclear magnetic resonance (NMR) and other characterization techniques to fulfill their research requirements. The supervisor is responsible for implementing new experiments and pulse sequences on the NMR instrumentation, and for assisting with experimental design and implementation. The Supervisor, NMR and MS Systems and Operations, participates in the preparation and submission of grant proposals for funding of the purchase and installation of sophisticated research equipment (i.e., nuclear magnetic resonance spectrometers and mass spectrometers); oversees the design and construction of research instrumentation; and participates in the acquisition of NMR and MS instrumentation, equipment upgrades, and software updates to enhance the capabilities of the NMR and MS facilities.

C. DUTIES AND RESPONSIBILITIES

Supervision and financial administration of NMR and MS Facilities

Oversees the operations, development, and administration of the NMR and MS facilities within the Department of Chemistry. Consults with faculty, staff, post-doctoral fellows, and research students on the applications of NMR, magnetic resonance (MR) imaging, and other characterization techniques (i.e., mass spectrometry) to fulfill their research requirements. Oversees equipment purchases and upgrades, maintenance, and compliance with safety protocols for the NMR and Mass Spectrometer MS facilities, working in consultation with the department Chair, the Chair of the Departmental Equipment Committee, and the SFU Environmental Health and Research Safety Department (EHRS), as appropriate. Oversees the implementation and upgrades of software applications used to operate and provide user analysis of NMR and MS data in order to provide efficient data collection and analysis for internal and external users. Oversees the design and construction of research instrumentation and participates in the acquisition of NMR and MS instrumentation, equipment upgrades, and software updates to enhance the technical capabilities of the NMR and MS facilities.

Administers the usage of NMR and MS instruments and recovers costs from users of the facility by setting fee structures; reviewing monthly lists of usage activity and charges; and authorizing/approving charges for internal and external users.

Participates in the preparation and submission of grant proposals for the purchase of sophisticated research instruments (e.g., NMR spectrometers, mass spectrometers) by consulting with principal investigators, equipment vendors, and other universities to research information on appropriate equipment and liaising with sales people to obtain quotes in order to meet the needs of research projects and satisfy user requirements.
Identifies and evaluates opportunities for new revenue generating and cost-recovery initiatives for the NMR and MS facilities. Participates as a member of the Chemistry Departmental Equipment Committee and provides consultation and recommendations regarding cost-recovery initiatives for the use of sophisticated research equipment/instrumentation.

Maintains instrumentation through regular servicing (e.g. cryogen fills for the NMR instruments). Diagnoses hardware problems and works with field engineers to resolve hardware failures in a timely manner.

Oversees the maintenance and repairs of NMR and MS instruments by technicians, equipment vendor’s service engineers, or external contractors, and ensures compliance with safety protocols of all NMR and MS systems and instruments.

Research Support

Provides consultation to researchers regarding the use of NMR and MS facilities and relevant software applications for their research activities to enable users to utilize the facilities to their maximum capabilities. Provides specialized advice, of an advanced technological nature, in the resolution of specific problems encountered by researchers in the use of the NMR facilities. Consults with faculty, staff, post-doctoral fellows, and research students on the applications of NMR to fulfil their research requirements.

Designs and implements NMR experiments in consultation with researchers to assist with research programs within the Department of Chemistry. Collaborates with principal investigators to understand their research project requirements and recommend new/updated techniques and methodologies in the use of NMR spectroscopy. Ensures that users are aware of the latest experimental techniques relevant to their research interests. Ensures that these experiments are set up and optimized on the NMR instruments within the Department of Chemistry.

Performs NMR experiments for industrial clients in consultation with researchers; interprets and evaluates data; and implements and tests experimental methods to ensure desired research outcomes are effectively achieved. Standardizes experimental methods for technicians to run similar experimental procedures. Generates reports for industrial clients, and ensures rapid turnaround for industrial samples.

External Relations and Industry Involvement

Develops and oversees the facilities’ marketing and communications activities by liaising with stakeholders both within the University and with other institutions; developing and delivering content; and scheduling the timely release of marketing materials.

Actively seeks commercial users of NMR and MS facilities and other sources of external income from the use of the NMR and MS facilities. Networks with potential researchers by arranging NMR and MS facilities open houses and providing information sessions and tours.

Maintains advanced/highly specialized knowledge and experimental capability in NMR spectroscopy and keeps well informed of the latest technological developments in the field of NMR spectroscopy by participating at seminars, workshops, and conferences. Attends and presents at various conferences in the field of NMR technology, with the goal of promoting collaboration and individual contracts within the NMR and MS facilities.

Supervision of Technical Staff

Supervises NMR and MS technical support staff; hires, facilitates training, evaluates performance, and disciplines technical support staff; and handles grievances to Step 2.

Determines semester workloads and special tasks to be assigned to technicians. Supervises technical staff in the handling of non-routine/complex problems.

Maintains technical staff job descriptions and oversees technical staff payroll reporting, vacation scheduling, and other human resources processes.

Research

Actively engages in research through collaborative research projects to maintain expertise at the forefront of NMR spectroscopy and to ensure that instrumentation used in the NMR and MS facilities remain at the forefront of the field.
D. DECISION MAKING

i) Makes decisions regarding:
   - Determination of day-to-day work priorities and activities of the NMR and MS facilities.
   - All technical matters affecting facility operation, instrumentation, and utilization.
   - Providing or removing user privileges for faculty, post-doctoral fellows, and research students.
   - When to bring in experts to the University for the purposes of instrument repairs.
   - Negotiation of ongoing service plans for NMR and MS systems with vendors.

ii) Refers decisions regarding:
   - Final approval regarding the purchase of new instrumentation.
   - Final approval of general guidelines concerning instrument usage and list of users.
   - Final approval of changes in fee structure to ensure financial stability of facility.

E. SUPERVISION EXERCISED

Number of continuing employees reporting directly to the position: 2
Total number of continuing employees for whom the position has direct responsibility: 2

F. SUPERVISION RECEIVED

Works under administrative direction with minimal guidance on operational or technical matters.

G. UNUSUAL WORKING CONDITIONS

Frequent exposure to strong magnetic fields.

H. ENTRANCE QUALIFICATIONS

PhD in Science and four years directly related experience with a focus on NMR in a research setting utilizing similar complex equipment, or an equivalent combination of education, training and experience.

- Excellent knowledge of NMR instrumentation, facilities, techniques, and operations, including solution NMR, and existing expertise or capability to develop expertise in solid-state NMR, and MR imaging.
- Good knowledge of MS instrumentation, facilities, techniques, and operations.
- Excellent scientific research, experimental design, data collection and analysis, and technical skills.
- Excellent interpersonal, communication (oral and written), organizational, and problem-solving skills.
- Excellent supervisory, team management, and human resource management skills.