

## ELECTRON MICROPROBE LABORATORY

The electron microprobe investigates solid materials at the micrometre-scale, allowing rapid identification, standards-based quantitative elemental analysis, and phase mapping with X-ray or electron images. Major and minor elements in the range B to U can be measured, and trace elements in the range Na to U can be analyzed, with detection limits down to 10 ppm in certain circumstances.

### TOP 3 SERVICES

- **Identify your minerals and manmade materials**
- **Measure elemental compositions at micron-scale**
- **Map element distributions at micron-scale**

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[uab.ca/microprobe](http://uab.ca/microprobe)

## MASS SPECTROMETRY FACILITY

The Mass Spectrometry (MS) Facility located in the Department of Chemistry is a modern, full-service laboratory. Most ionisation techniques are available to provide analysis for small organic compounds, pharmaceuticals, peptides, proteins, nucleotides, DNA, polymers and industrial samples. The wide array of available analyses includes confirmation of known compounds, purity determination, identification of unknown compounds and mixtures.

### TOP 3 SERVICES

- **HR EI – direct analysis of pure semi-volatiles, identify unknowns**
- **GCMS and LCMS – qualitative and quantitative analysis of compound mixtures**
- **HR ES – confirm or determine elemental composition of compound(s)**

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## NUCLEAR MAGNETIC RESONANCE FACILITY

The Nuclear Magnetic Resonance Spectroscopy (NMR) Facility in the Department of Chemistry is a fully equipped modern high resolution and ultra-sensitivity spectroscopic laboratory. Unique facility capabilities include: high through-put robotic sample handling (metabolomics), the detection of a vast range of atomic nuclei, broad sample temperature collection conditions, and liquid, semi-solid, solids measurement options.

### TOP 3 SERVICES

- **Liquids NMR – wide nuclei and temperature range liquids**
- **Solids NMR – multi-nuclear observation from solid samples**
- **Metabolomics – robotic sample handling and automated optimization**

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## X-RAY DIFFRACTION LABORATORY

The X-Ray Diffraction (XRD) Laboratory houses a Rigaku Ultima IV powder diffractometer, equipped with a cobalt X-ray tube. The lab investigates finely powdered crystalline materials and mixtures of minerals or inorganic materials, allowing quick identifications based on structure. The XRD data are interpreted using MDI-JADE software in conjunction with the Powder Diffraction File of the ICDD and the Inorganic Crystal Structure Database of FIZ Karlsruhe.

### TOP 3 SERVICES

- **Identify your minerals and manmade materials**
- **Identify your crystalline inorganic mixtures**
- **Examine your powders at non-ambient temperatures (-180 to 350°C, and 25 to 1400°C)**

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Faculty of  
**SCIENCE**  
University of Alberta

## FACILITIES & SERVICES

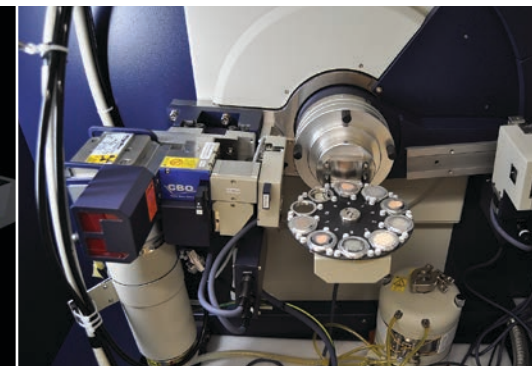
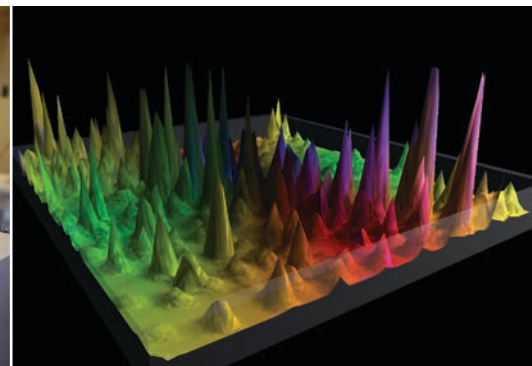
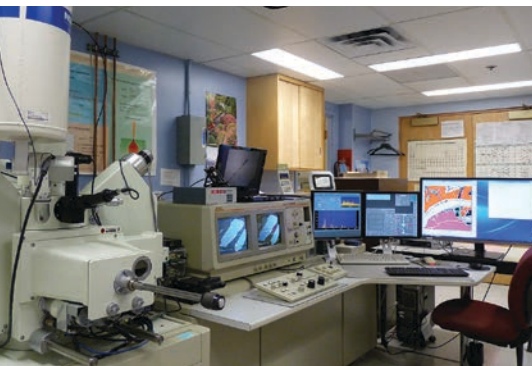
The Faculty of Science has a wide range of high value laboratory equipment that is available to companies (fee for sample). Some of our equipment is unique in the province and even in the country.

Each facility has its own service listing, pricing, and contact.

For general information, contact:

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## ALBERTA GLYCOMICS CENTRE/GLYCONET

The Alberta Glycomics Centre and GlycoNet (a Networks of Centres of Excellence) comprise teams of motivated individuals whose research interests span a multidisciplinary array of biological processes and technologies specific to carbohydrate research. Building on the expertise, capacity, and state-of-the-art infrastructure, the group offers core services targeted to glycomics research and will work with clients to facilitate the analysis and data interpretation from even the most complex glycoconjugates.

### TOP 3 SERVICES

- **Synthesis of carbohydrates and glycoconjugates**
- **Screening of carbohydrate libraries against target proteins**
- **Carbohydrate structure elucidation**

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## ANALYTICAL AND INSTRUMENTATION LABORATORY

The Analytical and Instrumentation Laboratory (A & I Lab) provides specialized analytical support to the University of Alberta community, other North American educational institutions, industrial companies, and engineering firms. From one-off testing to complex failure analysis, the A & I Lab provides analytical testing support tailored to customer requirements. Data obtained during the analytical investigation may be provided directly or as a summary report.

### TOP 3 SERVICES

- **FTIR – Failure Analysis, Identification, Impurity**
- **Elemental Analysis CHNS + O Purity, Organic/Inorganic**
- **Thermal Analysis – DSC (-150 to 600C), TGA (25 to 950C)**

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## ARCTIC RESOURCES LABORATORY

This world-class geochemistry facility contains 3 ICP-MS, 2 Triton Plus TIMS, a Neptune Plus MC-ICPMS, 2 laser systems, and a 2200ft trace-metal free clean lab enables trace element analysis and radiogenic isotope dating of many geological materials (including silicates/rutiles/zircons/sulphides utilizing Re-Os, U-Pb, Rb-Sr, Sm-Nd and Lu-Hf systems).

### TOP 3 SERVICES

- **Laser ablation trace element analysis/ dating**
- **High precision multi-collector isotopic dating**
- **PGE analysis of mafic & ultramafic samples**

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## BIOGEOCHEMICAL ANALYTICAL SERVICE LABORATORY

The Biogeochemical Analytical Service Laboratory (BASL) is a premier research, teaching, and service centre equipped with state-of-the-art instrumentation located in a 550 square meter facility in the Centennial Centre for Interdisciplinary Science (CCIS). Accredited to ISO 17025, the BASL provides cost-effective chemical analytical services in environmental, ecological and medical disciplines for university researchers, government agencies, and private sector.

### TOP 3 SERVICES

- **Trace level mercury, methylmercury, water, soil**
- **Nutrients analysis in water**
- **Isotope ratio, carbon, nitrogen**

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## CANADIAN CENTRE FOR ISOTOPIC MICROANALYSIS

The Canadian Centre for Isotopic Microanalysis (CCIM) is a research facility for analysis of geological and biological solids at the micro-scale using secondary ion mass spectrometry. The flagship instrument is the Cameca IMS 1280 multi-collector ion microprobe, complemented by dedicated facilities for scanning electron microscopy and sample preparation.

### TOP 3 SERVICES

- **Light stable isotopes**
- **Trace elements**
- **Sample preparation and SEM imaging**

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