

Saint Mary's University

Overview

Tracing its earliest beginnings to 1802, Saint Mary's received degree-granting status in 1841 and formally became a university in 1952. It is home to one of the first commerce faculties in Canada and currently ranks among the top five primarily undergraduate universities in Canada, according to Maclean's magazine. Saint Mary's has a history of achievement, strong collaborations with partners at institutions all over the world, and a tradition of engaging undergraduate students in hands-on research.

Research Capabilities

Biology

- Biological Pest Control
- Managing bacteria in legume crop fields
- Native plant performance on green roof systems
- Improving sucrose-rich crops for biofuel production
- Impacts of built structures such as wind turbines on migratory winged species

Business & Data Analytics

- Business optimization for healthcare to reduce wait times and expenses
- Data mining to better understand and serve understand consumers, increasing customer loyalty and business profits
- Human-Computer Interactions & Adaptive Interfaces

Psychology

- CN Centre for Occupational Health and Safety – works directly with the business community to assess and improve workplace standards and regulations, making workplaces healthy and safe - characteristics shown to increase work productivity, reduce business and government medical costs, and improve the health and well-being of employees.

Chemistry

- Ionic liquids and other green polymeric solvents applied in areas such as: waste water remediation, carbon capture, CF light bulb cleanup, etc...
- Using nanotechnology sensing to detect human disease biomarkers (Christa)

Earth Sciences

- Diagenesis, quantitative fluid and melt inclusions, and biostratigraphy to support energy exploration

- Using environmentally sustainable coastal engineering principles to mitigate the effects of climate change in inter-tidal zones and salt-marsh wetlands.
- Analysis of current and historical international trade to recommend local or regional actions that could stimulate trade with particular countries.

Engineering

- Improving efficiency of hybrid wind-diesel system for power generation
- Development of control systems for wind energy applications such as turbines
- Measuring below-ground conductivity from the surface, in order to develop preventive solutions for maintenance and design of built structures in extreme climates.

Business & Commerce

- Operations Management:
 - Mathematical modeling of strategic, tactical, and operational production planning problems, Modeling distribution planning problems (vehicle routing, trawler routing) and scheduling and planning of manpower resources.
 - Applying sophisticated quantitative techniques such as simulation, statistical analysis, linear and nonlinear optimization and other operations research methods in solving business-related problems.
- Marketing
 - 'Green marketing' – effective use of social media to help small businesses grow.
 - Helping companies learn how to grow sustainably, especially those that actively care about their community and environment.
 - Analyzing customer experience and customer satisfaction to develop brand strategy.

Centre for Environmental Analysis and Remediation (CEAR)

Instrumentation technology, sample analysis and methodology development for chemical analysis in the areas of chromatography, mass spectrometry and element analyses. These technologies are particularly suitable for:

- Separation and purification of compounds in mixtures
- Structural interpretation and identification of analytes
- Quantification of elements and compounds
- Evaluation of purity of synthesized compounds
- Characterization of unknown substances

Maritime Provinces Spatial Analysis and Research Center (MP_SpARC)

- Large-format digitizing table.
- Large-bed scanner (large documents, including aerial photography).
- Millimeter level of accuracy for: Recording the location of points of interest, measuring differences in elevation, or quickly survey topographic conditions.

- Easily plot civic addresses on maps, overlay data from different sources and scales, convert coordinates between different projections and datums, and model and measure your data in three-dimensions.
- Subsurface geology software for efficient interpretation of horizons and faults, as well as the ability to convert time surfaces to depth surfaces, and 3D visualization and modeling.

Regional Geochemical Centre

- Analytical x-ray fluorescence (XRF) determines elemental concentrations in environmental samples.
- Geologic samples analyzed by crushing whole rocks into fine particles less than one-tenth of one millimeter in diameter. These powders then can either be pressed into flat pellets at high pressure or melted with a fluxing agent to form a glass like disk prior to analysis.
- Measures loose powder or even liquid samples directly. We can typically analyze most elements down to the low parts per million levels using this technique.

Electron Microscopy Centre

- Scanning/transmission electron microscopy of geological, chemical and biological materials.
- Specimen preparation includes: microtomes, ultra-microtomes, critical point drier, tissue dryer, and the sputter coater.
- Advanced techniques in specimen preparation and analysis, such as observation of frozen dehydrated samples at the SEM level, elemental analysis using Liquid Nitrogen free 80mm² SDD INCA energy dispersive X-ray microanalysis (EDS) and cathodoluminescence imaging system (Mini CL) of small specimens.

ACENet / Data Cave

The Data Cave is a virtual reality environment that allows researchers to explore large datasets in three dimensions. Images or datasets are projected on three 8'x8' screens and the floor while the user wears head-tracking 3D glasses and navigates through the immersive environment with a hand-held remote. The Cave has been used for projects ranging from the small of molecular structures to human-scale industrial product design, landscape architecture and building design, to the galactic scales of astrophysics.

Contact

General Inquiry

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