

Faculty of SCIENCE

UR Learning and Career Opportunities

What programs and specializations are offered?

There are many programs and options for completing a four-year Bachelor of Science (BSc). Please visit the [Faculty of Science](#) (website) for details, including the combined, pre-professional, joint and certificate programs. Graduate programs also are offered in specialized fields.

What careers are related to a Science degree?

Review examples of learning and career opportunities for fields of interest.

Science Programs

(Ctrl and Click to follow link)

[Biology](#)

[Chemistry and Biochemistry](#)

[Computer Science](#)

[Economics](#)

[Geography](#)

[Geology](#)

[Mathematics and Statistics](#)

(includes [Actuarial Science](#))

[Physics](#)

[Psychology](#)

Joint Programs

(Ctrl and Click to follow link)

[Chemical Technology](#) (BSc)

[Environmental Biology](#) (BSc)

[Medical Laboratory Science](#) (BMLS)

[Medical Imaging](#) (BMI)

(Programs offered in collaboration with Saskatchewan Polytechnic and other institutions.)

Can I complete Transfer and Pre-Professional Programs at the U of R?

Yes, students can complete the courses required by other institutions for admission to specialized transfer and professional programs including:

Agriculture and Bioresources

Chiropractic

Dentistry

Law

Medicine

Nutrition

Occupational Therapy

Optometry

Pharmacy

Veterinary Medicine

For details, please visit [Pre-Professional Programs](#) (website).

What is the Co-operative Education Program?

Co-op Education allows students to alternate semesters of taking courses with semesters of paid work experience (full-time). To learn more, visit [Co-operative Education and Internships](#) (website).

What is the Internship Program in Actuarial Science?

BSc students in Actuarial Science have the option of completing a one-year paid Internship of work experience (full-time) in the field. Visit [Co-operative Education and Internships](#) (website) for details.

What are the requirements for admission to the Faculty of Science?

Review [Admission Requirements](#) for the Faculty of Science. Note that admission to a Joint Program requires the completion of prerequisite studies.

BIOLOGY offers opportunities to develop...

Knowledge

- Evolution, structure, function and interaction of living organisms at the molecular, cellular, organismal, population and ecosystem levels
- Classification of diverse living forms
- Plant and animal biology
- Human biology
- Cell and molecular biology
- Microbiology
- Genetics and DNA analysis
- Physiology
- Aquatic chemistry and ecology
- Population and community ecology
- Environmental biology
- Impacts of environmental change
- Field and lab research methodologies
- Biometric applications for experiment design and data analysis

Skills and Abilities

- Apply biological facts, concepts and principles
- Design experiments and projects
- Conduct field and lab research
- Analyze and interpret data
- Apply statistical techniques
- Assess and solve complex problems
- Think analytically and critically
- Write clear and accurate technical reports

A career in various fields and occupations, for example...

Biochemist (e.g., manufacturing & pharmaceutical industries)	Gene Technologist	Pathology Assistant
Biogeographer	Health Care Consultant	Pharmacologist
Biologist	Health Professional	Plant Physiologist
Biostatistician	(e.g., dentist, nutritionist, ophthalmologist, pharmacist, physician, veterinarian)	Pollution Control
Biotechnology	Immunologist	Quality Assurance Officer
Ecologist (e.g., fisheries, forestry, wildlife)	Microbiologist	Research Assistant
Educator (e.g., museums, parks, zoos)	Molecular Biologist	Science Journalism
Environmental Impact Assessor	Natural Resources	Science Policy Analyst
Food Processing		Teacher
Forensics		Toxicologist

Advanced education and specialized qualifications are required for some fields and occupations.
(e.g., completion of a professional program, graduate degree and/or other qualification)

Visit the [Department of Biology](#) for more program and career information.

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CHEMISTRY and BIOCHEMISTRY offer opportunities to develop...

Knowledge

- Nature and behaviour of elements, compounds and chemical reactions
- Analytical, computational, inorganic, organic, physical and theoretical chemistry
- Metabolism, nutritional and regulatory chemistry, enzymes, nucleic acids, biophysics and molecular genetics (biochemistry)
- Synthesis of new compounds or materials
- Detection and measurement of chemicals
- Quality control
- Environmental protection
- Health and safety practices
- Scientific research methodology and data analysis

Skills and Abilities

- Plan, set up and conduct chemical analyses (e.g., soil, hormones, water)
- Design, synthesize and test new chemical products—for example, drugs, foods, fuels, paints, new materials, nanochemicals)
- Measure pollutants in the air, water and soil
- Examine evidence and DNA
- Assess and solve complex problems
- Think logically, creatively and independently
- Interpret and write detailed technical reports
- Observe health and safety practices
- Apply computer skills and statistical techniques

A career in various fields and occupations, for example...

Analytical Chemist	Laboratory Analyst	Pharmacologist
Biochemist (e.g., manufacturing & pharmaceutical industries)	Health/Safety Inspector	Plant Physiologist
Biotechnology	Health Professional (e.g., dentist, nutritionist, pharmacist, physician)	Pollution Control
Chemical Technologist	Immunologist	Professor
Clinical Chemist	Industrial Chemist (e.g., agriculture, cosmetics, forestry, petroleum, plastics)	Research Assistant
Environmental Chemist	Medical Lab Technologist	Research Chemist
Food Scientist	Pharmaceutical Chemist	Sales Manager
Forensics	Pathology Assistant	Science Writer
Gene Technologist		Teacher
		Toxicologist

Advanced education and specialized qualifications are required for some fields and occupations.
(e.g., completion of a professional program, graduate degree and/or other qualification)

Visit the [Department of Chemistry & Biochemistry](#) for more program and career information.

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COMPUTER SCIENCE offers opportunities to develop...

Knowledge

- Programming language and problem solving
- Operating systems and networks
- Basic logic and circuit design
- Computer architecture
- Software design and development
- Human-computer interaction and design
- Multimedia systems, including graphics, video, audio, animation, and image processing
- Types, sources and uses of data in organizations
- Designing new techniques for data processing and interpretation
- Database and information retrieval
- Artificial intelligence
- Numerical analysis

Skills and Abilities

- Develop and implement software projects
- Analyze and problem solve in various programming languages
- Design human-computer interfaces
- Define and solve problems
- Think analytically and creatively

A career in various fields and occupations, for example...

Analyst	Multimedia Designer	Software Developer
Artificial Intelligence Researcher	Network Manager	Software Project Manager
Computer Games Designer	Programmer Analyst	Software Security Analyst
Computer Graphics Developer	Quality Control Specialist	Systems Administrator
Database Administrator	Research Assistant	Systems Analyst
Information Technologist	Scientific Programmer	Technical Support
IT Consultant	Software Designer	Website Designer
Management Trainee		

Advanced education and specialized qualifications are required for some fields and occupations.
(e.g., completion of a professional program, graduate degree and/or other qualification)

Visit the [Department of Computer Science](#) for more program and career information.

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ECONOMICS offers opportunities to develop...

Knowledge

- Production, distribution and consumption of goods and services
- Development of economic policy
- Regional, national and international economies
- Currency, banking and financial markets
- Historical analyses of economic events (e.g., agriculture crises, trade disputes, war)
- Application of research methods, statistical tools and information technology
- Economic analysis of complex societal issues—including consumer and corporate behaviour, crime, health care, inflation, international development, natural resource management, public education, social assistance, taxation, unemployment, urban planning and wages

Skills and Abilities

- Integrate theoretical and quantitative analyses
- Monitor and forecast economic trends
- Collect and analyze data using statistical techniques
- Evaluate and debate economic arguments
- Analyze policy and propose recommendations
- Think analytically and logically
- Write well-organized detailed reports

A career in various fields and occupations, for example...

Account Manager	Fiscal Policy Analyst	Portfolio Manager
Actuary	Foreign Exchange Trader	Purchasing Agent
Advisor (e.g., agriculture, finance, labour, transportation)	International Trade Advisor	Quantitative Analyst
Assets Management	Investment Analyst	Real Estate
Bank Economist	Labour Relations Negotiator	Research Analyst
Business Analyst	Lobbyist	Risk & Insurance
Crown Corporation Executive	Market Analyst	Statistics Canada Analyst
Economic Development	Merchandiser	Stockbroker
Economist (e.g., government, non-profit, private sectors)	Mutual Fund Manager	Trader (e.g., bank, currency, energy)
Employee Benefits	Natural Resource Planner	Urban Planning
Financial Manager	Policy Analyst (e.g., business, environment, finance, health)	

Advanced education and specialized qualifications are required for some fields and occupations.
(e.g., completion of a professional program, graduate degree and/or other qualification)

Visit the [Department of Economics](#) for more program and career information.

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GEOGRAPHY offers opportunities to develop...

Knowledge

- The earth's physical features, resources and climate (e.g., landforms, water, storms)
- Interactions between humans and the natural environment
- Geographic analysis of culture, economic development, gender, history, politics, recreation and tourism
- Demography, and rural and urban geography
- Distribution of plants and animals (biogeography)
- Cartography
- Remote sensing and spatial data analysis using geographic information systems (GIS)
- Fieldwork methods, data collection and statistical analysis

Skills and Abilities

- Conduct environmental assessments
- Manage resources and develop policy
- Use computer applications for spatial analysis
- Apply statistical techniques
- Develop graphical presentations of data and concepts
- Think analytically
- Write well-organized detailed reports

A career in various fields and occupations, for example...

Air Photo Interpreter	Environmental Technologist	Regional Development
Business Development	Geomorphologist	Research Analyst
Cartographer	GIS Technician/Analyst	Resource Economist
Climatologist	Heritage Planner	Resource Planner
Conservationist	Industry Development Planner	Teacher
Ecologist	Land Surveyor	Transportation Planner
Economic Development	Marketing Analyst	Urban Planning
Ecotourism	Parks Planner	Water Use Analyst
Environmental Law	Photogrammetric Technician	

Advanced education and specialized qualifications are required for some fields and occupations.
(e.g., completion of a professional program, graduate degree and/or other qualification)

Visit the [Department of Geography and Environmental Studies](#) for more program and career information.

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GEOLOGY offers opportunities to develop...

Knowledge

- Composition, structure and natural processes of the earth and other planets
- Mineralogy and petrology (e.g., igneous rocks)
- Geological history of Earth
- Evolution of life
- Characteristics and habitats of fossil animals and plants
- Understanding past and present major geological global events (e.g., tsunamis, earthquakes, volcanoes)
- Analysis of sedimentary deposits and geologic time
- Exploration and extraction of natural resources (e.g., ground water, petroleum & metals)
- Environmental contamination and clean up
- Fundamental scientific concepts
- Fieldwork techniques and geologic mapping

Skills and Abilities

- Interpret data about the earth
- Describe earth materials in thin section, hand specimen, outcrop and core
- Analyze complex geological and environmental problems (e.g., subsurface geology, climate change)
- Apply fundamental scientific concepts
- Identify the location of natural resources (e.g., petroleum)
- Conduct scientific field and lab research
- Construct models of geologic events and processes
- Produce detailed geological maps, cross-sections and reports
- Think analytically and work independently

A career in various fields and occupations, for example...

Cartographer	Glacial Geologist	Prospector
Economic Geologist	Hydrogeologist	Resource Analyst (e.g., oil, ore, water)
Environmental Consultant	Hydrologist	Researcher
Environmental Law	Metallurgist	Resource Analyst
Exploration Geologist	Mineralogist	Sedimentologist
Field Geologist (e.g., mining, petroleum, water resources)	Museum Curator	Seismologists
Geochemist	Parks & Natural Resources	Structural Geologist
Geological Consultant	Palaeontologist	Teacher
Geological Technician	Petroleum Geologist	Technical Writer
Geophysical Technologist	Petrologist	Volcanologist
Geophysicist	Pollution Control	Waste Management
	Pollution Remediation	

Advanced education and specialized qualifications are required for some fields and occupations.
(e.g., completion of a professional program, graduate degree and/or other qualification)

Visit the [Department of Geology](#) for more program and career information.

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MATHEMATICS and STATISTICS offer opportunities to develop...

Knowledge

- Pure mathematics (e.g., algebra, calculus, geometry, number theory, topology)
- Mathematical applications for assessing and solving “real” problems (e.g., employment trends)
- Statistical methods (e.g., sampling techniques) and data analysis
- Actuarial mathematics, statistics and risk theories in the design of insurance, pension and other programs
- Statistical software and computing

Skills and Abilities

- Analyze the structure of proof
- Deduce theorems and construct mathematical models
- Apply quantitative knowledge and reasoning to theoretical and applied sciences (e.g., population biology, computer graphics, internet security)
- Apply statistical methods to survey development and analysis
- Utilize statistical software
- Think logically and analytically

A career in various fields and occupations, for example...

Account Manager	Curriculum Developer	Materials Management
Actuary (visit Actuarial Science)	Data Analyst	Operations Research
Applied Mathematician (various fields including finance, health, marketing, manufacturing, mining, science)	Economist	Purchasing Agent (e.g., construction, hospitals, government, schools)
Biostatistician	Epidemiology	Pure Research
Budget Analyst	Financial Analyst	Retail Buyer
Buyer (e.g., industry, institutions, retail)	Industry Researcher	Risk Assessment
Clinical Data Coordinator	Information Technology	Statistician (e.g., law, government, industry)
Computer Scientist	Insurance	Teacher/Professor
Contracts Specialist	Internet Researcher	
Cryptologist	Investment Analyst	
	Market Analyst (e.g., advertising, oil, hospitality)	

Advanced education and specialized qualifications are required for some fields and occupations.
(e.g., completion of a professional program, graduate degree and/or other qualification)

Visit the [Department of Mathematics and Statistics](#) for more program and career information.

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PHYSICS offers opportunities to develop...

Knowledge

- Properties and behaviour of matter and energy
- Origin, evolution and structure of the universe
- Fundamental laws of nature
- Mechanics, waves and optics
- Electricity and magnetism
- Heat and thermodynamics
- Health physics
- Atomic and nuclear physics
- Quantum mechanics and relativity (e.g., gravitation, black holes and cosmology)
- Solid state physics
- Research methods and data analysis using specialized electronic and computer equipment

Skills and Abilities

- Apply principles of physics and mathematics to understand and solve problems in different fields (e.g., aerospace, health, mining, technology)
- Design and perform experiments with specialized equipment (e.g., lasers and spectrometers)
- Think analytically and creatively
- Write precise technical reports

A career in various fields and occupations, for example...

Aeronautics & Space Industries (e.g., flight simulator)	Health Physicist (e.g., radiation safety in hospitals, labs, mines, reactors)	National Defence Physicist
Applied Mathematics (e.g., data analysis: business, finance, health)	Industrial Physicist (e.g., computer simulation, instrumentation, film)	Planetariums
Astronomer	Management/Administration	Quality Assurance
Astrophysicist	Medical Physicist (e.g., radiation therapy, diagnostic imaging)	Remote Sensing Research
Biophysics (e.g., biotechnology, environment, pharmaceuticals)	Laser Technician	Science Museums
Computers/Information Technology (e.g., analyst, programmer)	Meteorology	Science Writer
Design Development (e.g., buildings, electronics, TV, vehicles)	Nanotechnology (e.g., microchips, metallurgy)	Synchrotron Research
Geophysicist (e.g., exploration, mining, petroleum, water, weather)		Telecommunications
		Teacher/Professor
		X-Ray Crystallographer

Advanced education and specialized qualifications are required for some fields and occupations.
(e.g., completion of a professional program, graduate degree and/or other qualification)

Visit the [Department of Physics](#) for more program and career information.

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PSYCHOLOGY offers opportunities to develop...

Knowledge

- Normal and disordered patterns of mental and behavioural functioning
- Natural science of psychology, including the brain and behaviour, perception, learning, memory, cognition, motivation and emotion
- Social science of psychology, including adjustment, disorders, development, personality and influence of the social environment
- Structure and function of the nervous system
- Brain mechanisms and related theories of influence normal and abnormal behaviour
- Human information processing, including theory and research on thought, skills, problem-solving and expertise
- Quantitative and qualitative research methods (e.g., surveys and interviews) and statistical analysis

Skills and Abilities

- Understand individual and group behaviour
- Develop plans for enhancing quality of life and solving human problems
- Analyze complex problems from multiple perspectives
- Conduct research with understanding of ethical issues and cultural sensitivity
- Perform statistical analyses (descriptive and inferential)
- Learn independently and think critically
- Write clear and concise papers and reports

A career in various fields and occupations, for example...

Activity Coordinator (e.g., care home, youth centre)	Disability Services	Parole/Probation Officer
Addictions/Withdrawal Management	Educator/Facilitator	Post-Secondary Teaching
Autism Services	Ergonomist	Psychometrist
Behavioural Therapy (e.g., Analyst, Associate, Instructor)	Family Service Worker	Psychologist (various specializations)
Case Manager	Forensic Psychology	Public Relations
Child Psychology	Group Home Coordinator	Rehabilitation Services (e.g., Assistant, Case Manager, Therapist)
Child/Youth Care Worker	Human Resources (e.g., Recruitment, Training & Development)	Research Analyst
Client Care Counsellor	Lab Coordinator	Residential Counsellor
Client Health Services Coordinator	Learning & Development Specialist	Research Assistant
Clinical Therapist/Psychologist	Leisure Services	Social Services
Comparative Psychologist	Mediation	Therapist
Community Development	Neuropsychology	Training Consultant
Community Prevention Worker	Non-Profit Organizations (e.g., Program Coordinator, Support Worker, Volunteer Coordinator)	Vocational Rehabilitation
Counsellor		
Crisis Worker		

Advanced education and specialized qualifications are required for some fields and occupations.
(e.g., completion of a professional program, graduate degree and/or other qualification)

Visit the [Department of Psychology](#) for more program and career information.

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Joint Programs

Faculty of Science

Saskatchewan Polytechnic and Other Institutions

CHEMICAL TECHNOLOGY offers opportunities to develop...

Knowledge

- Advanced analytical, organic, and inorganic chemistry
- Analytical instrumentation
- Chemical engineering
- Quality assurance testing
- Chemical plant operation
- Health and safety
- Chemical research and development

Skills and Abilities

- Plan, set up and conduct chemical analysis
- Conduct experiments and develop chemical products
- Apply safety practices
- Logical and innovative thinking
- Write technical reports

A career in various fields and occupations, for example...

Chemical Technologist (CT)
Environmental Inspector
Instructor
Laboratory Analyst
Laboratory Technologist
Process Operator
Research Assistant
Sales Manager

Related positions in various fields including:

- Chemical production
- Commercial and industrial laboratories
- Environmental protection
- Fine chemicals manufacturing
- Industrial chemicals (e.g., paints, plastics, soaps)
- Mining
- Primary industries (e.g., petroleum, mining, pulp and paper)
- Research (e.g., agriculture and food, biotechnology)
- Synchrotron research
- Technical sales

Advanced education and specialized qualifications are required for some fields and occupations.

(e.g., completion of a professional program, graduate degree and/or other qualification)

For prerequisite and program details, visit the [Department of Chemistry and Biochemistry](#).

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ENVIRONMENTAL BIOLOGY offers opportunities to develop...

Knowledge

- Structure, physiology, ecology, evolution and reproduction of diverse life forms genetics
- Human interaction with the natural environment
- Foundations of contemporary environmental issues
- Management of fish, wildlife, forestry and parks
- Mapping and remote sensing
- Research design and statistical analysis

Skills and Abilities

- Monitor, assess and manage the use of natural resources
- Apply mapping and remote sensing techniques
- Conduct research
- Think analytically and critically
- Write clear and well-organized reports

A career in various fields and occupations, for example...

Band Manager
 Entry-Level Supervisor
 Environmental Consultant
 Research Assistant
 Technical Specialist
 (e.g., wildlife, fisheries, forestry)

Related positions in:

- Fisheries
- Forestry
- Wildlife
- Park areas
- Computer resource technology
- Parks management

Advanced education and specialized qualifications are required for some fields and occupations.
 (e.g., completion of a professional program, graduate degree and/or other qualification)

For prerequisite and program details, visit the [Department of Biology](#).

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MEDICAL LABORATORY SCIENCE offers opportunities to develop...

Knowledge

- Scientific, technical and medical principles of performing and evaluating medical laboratory tests
- Cell biology, anatomy and physiology
- Transfusions and anemias
- Metabolism, enzymes and nucleic acids
- Biochemical compounds (e.g., proteins, steroids, vitamins)
- Synthesis of organic compounds
- Genetics and DNA technology/ genetic engineering
- Infection control and safety
- Research methodologies in health care
- Biometrics and statistics
- Indian perspectives on health
- Organizational behaviour (e.g., teams)
- Professional communication (oral and written)

Skills and Abilities

- Perform lab procedures for analytical testing in clinical chemistry, hematology and transfusion labs, as well as processing in histotechnology labs
- Use diagnostic techniques to identify nucleic acid sequences
- Apply procedures for investigating biochemical compounds (e.g., proteins, steroids, vitamins)
- Identify and interpret microorganisms in body sites
- Apply research methods and techniques; write concise technical reports

A career in various fields and occupations, for example...

Environmental Inspector

General Duty Technologist

Laboratory Technologist

Medical Laboratory Technologist (MLT)

Process Operator

Research Assistant

Sales Manager

Related positions in medical laboratories in hospitals, medical clinics, and industries including:

- Environmental protection
- Research (e.g., agriculture and food, biotechnology, pharmaceutical)

Advanced education and specialized qualifications are required for some fields and occupations.
(e.g., completion of a professional program, graduate degree and/or other qualification)

For prerequisite and program details, visit the [Faculty of Science](#).

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MEDICAL IMAGING offers opportunities to develop...

Knowledge

- Anatomy
- Physiology
- Pathology
- Patient care
- Radiobiology
- Health and safety
- Nature and behaviour of matter and energy
- Analytical and logical thinking

Skills and Abilities

- Apply radiological and radiographic techniques
- Operate X-ray equipment
- Conduct diagnostic medical imaging examinations
- Analyze data
- Write technical reports

A career, for example...

Medical Radiologic Technologist (MRT)
Research Assistant
Clinical Instructor

Related positions in:

- Hospitals
- Medical clinics
- Veterinary clinics
- Computer tomography
- Mammography
- Specialized radiography

Advanced education and specialized qualifications are required for some fields and occupations.
(e.g., completion of a professional program, graduate degree and/or other qualification)

For prerequisite and program details, visit the [Faculty of Science](#).

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