New

Ministry

Treasury Board and Finance

Describe: Basic Job Details

Position

Position ID

Position Name (30 characters)

Data Scientist

Requested Class

Program Services 3

Job Focus

Operations/Program

Supervisory Level

00 - No Supervision

Agency (ministry) code

Cost Centre

Program Code: (enter if required)

Employee

Employee Name (or Vacant)

Organizational Structure

Division, Branch/Unit

Automobile Insurance Rate Board

☑ Current organizational chart attached?

Supervisor's Position ID

Supervisor's Position Name (30 characters)

Supervisor's Current Class

Design: Identify Job Duties and Value

Job Purpose and Organizational Context

Why the job exists:

The AIRB was established by legislation to regulate the pricing of automobile insurance in Alberta, as an independent agency reporting to the President of Treasury Board and Minister Finance. Its mission is to independently regulate automobile insurance rating programs and educate consumers to ensure Albertans have access to a robust automobile insurance marketplace.

This position works with the Senior Data Scientist as a member of the data science team, which is crucial to the AIRB's ability to conduct market analysis, review industry trends, recommend changes to the market, review machine learning and other complex methods used in insurance pricing, and move some actuarial analysis in house instead of relying solely on our consulting actuary. The incumbent will also be required to act independently on projects such as the creation of statistical reports and the analysis of insurer pricing models. The position will focus on creation of dashboards for internal and public use, conducting statistical analysis to report on trends, and supporting the Senior Data Scientist where required, on complex reports and projects involving significant actuarial, legal and/or statistical analysis.

The position will act for the Senior Data Scientist during any absence, and therefore must be comfortable creating complex statistical research, dashboards, and reviewing complex pricing models.

Responsibilities

Job outcomes (4-6 core results), and for each outcome, 4-6 corresponding activities:

Market intelligence and analytical analysis

- Designs and leads the development of automated reporting for enterprise level dashboards and analytical tools used by the AIRB and Albertans. Works in consultation with key internal and external stakeholders to enable evidence-based, outcome focused regulatory decision-making efforts.
- Works with the Senior Data Scientist to develop and implement data collection for health claim outcomes for auto insurance, and create complex dashboards for a varied audience including policy makers and Albertans.
- Conducts data analysis utilizing our multi billion row database of auto insurance premium and claims information to synthesize multi-source data to inform regulatory strategy and market oversight.
- Works closely with AIRB staff outside the data science team to create info graphics, and tools to provide data in order to better educate Albertans on auto insurance.
- Retrieves data for data requests made by the Rate review team, Senior Data Scientist, or Executive Director.

Works as part of the data science team

- Works closely with the Senior Data Scientist by collaborating on code, peer-reviewing each others work, and providing support where needed.
- Follows the strategic vision of the AIRB to meet the AIRB's various data related goals.
- Leads the data science team when the Senior Data Scientist is absent
- Appropriately represents Alberta and its analytical capabilities when meeting with various groups such as government, industry, and others.
- Follows best practices set out by the Senior Data Scientist such as code and chart formatting to ensure consistent and documented work across the data science team.
- Excels in a collaborative environment and provides feedback on reports and analysis conducted by other team members, including the Senior Data Scientist.

Translation of complex information to interpretable results for a variety of stakeholders

- Leads communication of complex data analysis in a clear and concise manner on a variety of topics to diverse audiences. This may include writing reports, creating dashboards and presentations to translate complex information and technical insights into actionable recommendations for a wide audience, such as Board Members, Albertans, and the government.
- Independently considers the impact to the various stakeholders (consumers, insurers, government) in the evaluation of complex information. Evaluates how the use of data sources aligns with existing AIRB practices and guidance.
- Considers the broader context they work in, such as legislated mandates and organization goals when communicating and making recommendations to their audience, no matter the format.

Provide consultation and advice to a broad audience, including but not limited to the AIRB staff, Board Members on appropriateness of models, methods and approaches used by insurers.

- Evaluates insurer pricing models for fairness and bias, advises staff on ethical risk, identifies systemic bias, and advises on mitigating strategies and contributes to regulatory decisions through expert analysis of machine learning and actuarial methods. Collaborates with the Senior Data Scientist on the review of complex models.
- Understands and analyzes business and data requirements and evaluates proposed models based on machine learning or advanced statistical models.

- Develops and manages strategic partnerships with data analysts, actuaries, data scientists and other provincial and federal regulators in the automobile insurance industry to strengthen Alberta's reputation as data-driven, and explore synergies with other organizations. The incumbent will build consensus across technical and policy stakeholders to achieve desired outcomes.
- Collaborates with external actuarial contractors and AIRB staff to discuss and resolve issues regarding the development of models or segments of the models, including but not limited to biases, weaknesses in models, changes in pricing and to provide recommendations for change and resubmission of insurer models for underwriting, pricing and rates or to validate model results.

Problem Solving

Typical problems solved:

Automobile Insurance can be a highly political issue. The results of recommendations made by the AIRB have broad impact to the over 3 million Albertans who carry automobile insurance and affects the profitability of the over 30 insurance companies actively writing individually rated policies in Alberta.

Broad practices and regulations along with previous actions and precedents of the AIRB require this position to carry out its duties in a relatively unstructured environment without the benefit of defined solutions. The incumbent will require critical thinking and ability to propose well thought out solutions.

Types of guidance available for problem solving:

The Data Scientist will have access to the Senior Data Scientist, AIRB's Consulting Actuary, government IT and data resources, national rate regulators to obtain guidance and information to support problem solving, as well as our statistical and data providers such as GISA, IBM, and IBC.

Direct or indirect impacts of decisions:

The Senior Data Scientist will rely on work done by the Data Scientist when creating scripts, dashboards, and reports. Work conducted by this position will inform and educate Alberta drivers and government officials who rely on data on auto insurance trends to make purchasing and regulatory decisions. This position's work will impact the 3 million drivers, and the over 30 insurers who write over $4 billion a year in the province.

Key Relationships

Major stakeholders and purpose of interactions:

Senior Data Scientist to support their work and collaborate on complex analysis, learn from their experience, and follow their guidance to reach the goals of the organization.

Rate review team members who will request data extracts, dashboards or review of reports to assist with achieving the mandate of the AIRB with respect to insurer rating programs.

Government IT and data resources to leverage their expertise in our data solutions.

AIRB Board Members to present statistical information for an audience relying on their input and advice.

Consumers by creating public facing dashboards and short-form reports like info graphics to empower the average Albertan to make better decisions when purchasing auto insurance.

Data providers like GISA and IBM who provide our primary data sources we work with day-to-day.

Consulting actuaries for actuarial work Data Scientist is unable to complete themselves, or needs to seek peer review on

Insurer actuaries and data scientists to communicate the AIRB's data requirements and to make inquires during the review of rate filing submissions.

Required Education, Experience and Technical Competencies

Education Level	Focus/Major	2nd Major/Minor if applicable	Designation
Bachelor's Degree (4 year)	Science	Other	Other

If other, specify:

Statistics, Actuarial Science, Computer Science, Economics, or other relevant quantitative field

Job-specific experience, technical competencies, certification and/or training:

Minimum 3 - 5 years' experience in collecting, analyzing and interpreting large amounts of data and authoring statistical and actuarial reports, particularly within the insurance or financial sector.
Experience with Automobile insurance related databases and data sources an asset.
Excellent knowledge of R for statistical analysis such as GLM models, figure creation, and general analysis.
Comfortable with Python for creating basic machine learning models and PowerBI to create dashboards.
Comfortable working with SQL databases to pull data for ad hoc reports and variety of dashboards, and experience with large databases (> 2TB) an asset.
Familiarity with the concepts of underwriting, insurance pricing, working within government legislation and mandates, and working knowledge of standard business and analytics software are an asset.
Effective written and oral communication skills to deal with insurance companies and other stakeholders to automobile insurance regulation along with the ability to make written and verbal presentations to the Board.
Ability to organize and prioritize tasks/projects to meet deadlines and provide reasonable turnaround time for insurers submissions.
Excellent analytical and problem solving capabilities along with an exceptional attention to detail.

Behavioral Competencies

Pick 4-5 representative behavioral competencies and their level.

Competency	Level A B C D E	Level Definition	Examples of how this level best represents the job
Drive for Results	○ ○ ○ ◉ ○	Works to remove barriers to outcomes, sticking to principles: • Forecasts and proactively addresses project challenges • Removes barriers to collaboration and achievement of outcomes • Upholds principles and confronts problems directly • Considers complex factors and aligns solutions with broader organization mission	The goal of this position is to further the AIRB's data driven decision making. That means working on several reports and dashboards and accepting the responsibility of decisions used making that information. Devotion to the health of the Alberta consumer and consistently advocating on their behalf.
Build Collaborative Environments	○ ○ ○ ◉ ○	Involves a wide group of stakeholders when working on outcomes: • Involves stakeholders and shares resources • Positively resolves conflict through coaching and facilitated discussion • Uses enthusiasm to motivate and guide others • Acknowledges and works with diverse perspectives for achieving outcomes	Be part of a heavily collaborative environment within the data science team that encourages knowledge sharing. Work closely with individuals on the data science team to peer review each others work to elevate the level of AIRB's analysis.

			Partner regularly with subject matter experts such as GISA, IBM, and AIRB's consulting actuary for their expertise in auto insurance data and actuarial science.
Agility	○ ○ ◉ ○ ○	Identifies and manages required change and the associated risks: • Identifies alternative approaches and supports others to do the same • Proactively explains impact of changes • Anticipates and mitigates emotions of others • Anticipates obstacles and stays focused on goals • Makes decisions and takes action in uncertain situations and creates a backup plan	Incumbent must manage timelines and data input from several stakeholders while working towards fixed board meeting delivery dates. Expected to challenge existing processes and suggest improvements where they identify them. Thinks strategically and attempts to anticipate obstacles and arrives prepared for any challenge.
Develop Networks	○ ○ ○ ◉ ○	Makes working with a wide range of parties an imperative: • Creates impactful relationships with the right people • Ensures needs of varying groups are represented • Goes beyond to meet stakeholder needs • Ensures all needs are heard and understood	Success in the role requires ability to establish and maintain strategic partnerships with insurers (data analysts, actuaries, data scientists), and other provincial government counterparts and other stakeholders, including other provincial rate regulators, government policy personnel and the Superintendent of Insurance. These partnerships and relationships will strengthen Alberta's reputation as data-driven, and explore synergies and opportunities to collaborate with other organizations. The position builds consensus across technical and policy stakeholders to achieve desired outcomes.

			Incumbent must anticipate the needs of various stakeholders and seek to meet or mitigate risks related to those needs. Must recommend solutions to address issues at hand.

Benchmarks

List 1-2 potential comparable Government of Alberta:

Social Data Scientist

Assign

The signatures below indicate that all parties have read and agree that the job description accurately reflects the work assigned and required in the organization.

Employee Name	Date yyyy-mm-dd	Employee Signature
Supervisor / Manager Name	Date yyyy-mm-dd	Supervisor / Manager Signature
Director / Executive Director Name	Date yyyy-mm-dd	Director / Executive Director Signature
ADM Name	Date yyyy-mm-dd	ADM Signature
DM Name	Date yyyy-mm-dd	DM Signature