New

Ministry

Public Safety and Emergency Services

Describe: Basic Job Details

Position

Position ID

Position Name (30 characters)

Data Scientist

Requested Class

Job Focus

Supervisory Level

Agency (ministry) code

Cost Centre

Program Code: (enter if required)

Employee

Employee Name (or Vacant)

Organizational Structure

Division, Branch/Unit

☐ 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 *Police Act* was amended in December 2022 to create the legislative authority to establish a new arm's-length agency to manage complaints against the police and conduct disciplinary proceedings. The Police Review Commission (PRC) will be established upon proclamation of relevant sections of the *Police Amendment Act* (2022) in 2025.

The PRC will be responsible for overseeing the police complaints process for all police services in Alberta and will have approximately 150 staff. At implementation, the PRC will be at the forefront of leading and supporting police services through a significant change in process and philosophy.

Reporting to the Director of Corporate Supports the Data Scientist is responsible for analyzing strategic data to support the mandate of the PRC on delivering transparent oversight of the police complaints process in Alberta. This position will use their strong understanding of data creation and analysis to lead the development of the agency's evaluation framework, explore data generated by the PRC and other sources, develop analytic reporting, and present visualizations to diverse audiences.

This position is also responsible for advancing the PRC ability to make data-driven, evidence-based decisions. The data scientist will be expected to develop new approaches to data analyses, information reporting and data dissemination to anticipate, react to emerging information requirements and to support new policy initiatives and address emergent issues. This position exhibits leadership in the application of creativity and originality to all responsibilities, including

conceptualizing new and innovative approaches for providing information to internal and external stakeholders.

Responsibilities

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

1. Development of products - Supports evidence-based decision-making at all levels of the PRC through the creation of specialized information products that provide leaders, staff and external partners with convenient access to data and other products.
- Leads the creation, implementation, and maintenance of the PRC's evaluation framework to assess program effectiveness, measure outcomes, and inform continuous improvement.
- Develops and maintains performance metrics and evaluation tools to assess the impact of PRC initiatives, ensuring data-driven decision-making and accountability.
- Designs data modeling processes and creates algorithms and predictive models to extract the data the program needs.
- Processes and cleans data, engaging in exploratory and investigative data analysis to determine gaps, limitations, and challenges in the data.
- Applies data science techniques, such as statistical modeling and artificial intelligence technologies, including machine learning, to increase and optimize value for money, return on investment, and other business outcomes.
- Creates data visualizations and other reporting products, such as dashboards, reports, presentations to the PRC executive team and stakeholders (including, police commissions, police services, the public).
- Coordinates with different functional teams in the PRC, police services and government to implement models and monitor outcomes.

2. Research and analysis - Analysis of data from available data sources drives process optimization and evidence-based decision-making.
- Identifies valuable data sources and automates data collection.
- Undertakes pre-processing of structured and unstructured data.
- Analyzes large amounts of information to discover trends and patterns.
- Combines models through ensemble modeling.
- Implements new statistical or other mathematical methodologies, as needed for specific models or analysis.
- Researches and develops statistical learning models for data analysis.
- Formulates and leads guided, multifaceted analytic studies for large volumes of data.
- Interprets and analyzes data using exploratory mathematical and statistical techniques.
- Coordinates research and analytic activities utilizing various data points and employs programming to clean, massage, and organize the data.
- Assesses the accuracy of new data sources and data gathering techniques.
- Stays informed on current best practices, research standards, and emerging trends to ensure alignment with industry and regulatory standards.

3. Design and development of data products - Advances strategic and operational decision-making through timely and insightful data analysis and analytics.
- Works with senior leadership to Identify requirements for data marts, business catalogues, data models, multi-dimensional cubes and reports.
- Supports development of policies and frameworks for the collection, use, and analysis of race-based data, ensuring ethical data practices, privacy protection, and alignment with equity and inclusion principles.
- Designs and implements data quality frameworks and initiatives.
- Represents data analytics at PRC and cross-government working groups, committees, and initiatives as required.
- Provides support and input into the development of policies and standards relating to data integrity, privacy, security, standards, sharing, repository, and retention.
- Works with information technology standards committees within the GoA to ensure integration and consistency of standards.
- Anticipates and reacts to emerging technology developments.

4. Support and leadership - Supports the PRC by providing guidance on the value and use of data and data analytics in strategic and operational planning.

- Supervises analyst responsible for data research and analysis, ensuring accurate reporting, trend identification, and evidence-based decision-making.
- Assists staff and leaders across the PRC in developing and/or enhancing their data skills.
- Translates complex data findings into clear, practical insights, providing guidance and training to staff and leaders to enhance their ability to interpret and apply data effectively.
- Provides consultation, guidance, information, and shareable documentation/publications related to data analytics, business intelligence and reporting to clients and stakeholders.
- Promotes education and awareness relating to information and data management.
- Promotes user self-sufficiency in accessing data and information.
- Acts for the director, when required.

Problem Solving

Typical problems solved:

This position will develop processes and structures for data mining, extraction, cleaning, analysis, and visualization. It is responsible for shaping the PRC's data analytics approach, leveraging data from the case management system and other internal and external sources. This role will establish documentation protocols to ensure data integrity and provide the Commission with reliable and actionable insights to support decision-making. This position will lead the development, implementation, and maintenance of the PRC's evaluation framework to assess program effectiveness, measure outcomes, and drive continuous improvement.

Types of guidance available for problem solving:

Some guidance is available from the director. Some guidance may be available from other data scientists with the Government of Alberta. However, data science is a highly specialized skillset and must draw from their education and experience, take initiative and develop recommendations with limited guidance from the director or others in the PRC.

General direction is received at the beginning of significant projects, with objectives and timelines established by the director or senior leadership team of the PRC.

Direct or indirect impacts of decisions:

The data scientist leads the development of data analytics products that provide internal and external clients and stakeholders with convenient access to insightful data about police complaints. In turn, this will have an impact on all Albertans, police services and community partners that interact with the police complaints process and the Alberta Serious Incident Response Team (ASIRT). The effectiveness of the police complaints process will contribute to or detract from public trust in policing in Alberta.

Senior management, elected officials, and at times the public, academics, and the media, will rely on system trends and business insights that emerge from the use of data mined and analyzed by the data scientist. If not done with attention to detail, as well as timely problem solving and technical precision, the PRC is at risk of using unreliable or incomplete information to make decisions, misrepresenting police complaint trends or policy changes.

Key Relationships

Major stakeholders and purpose of interactions:

Internal
- Manager, Policy and Planning - maintain a strong collaborative relationship to integrate research and data to support evidence-based decision making.
- Director - strategic and operational direction, immediate supervisory direction, assignment of projects, and limited advice on analytics solutions.
- Data and Research Analyst - to provide direction, review assignments, immediate supervisory direction, advice and guidance.
- Police Review Commission staff - to share information, seek direction and approvals, collaborate on policies and processes.

- Colleagues within team - information sources, seek input into data product development, and leverage different subject matter expertise.
- Police Review Commission senior leadership team - receive strategic direction, share information, and collaborate on policies, processes, and best practices.
- Public Safety and Emergency Services - share information, collaborate, and seek input in the design of data products.
- Cross-ministry colleagues - exchange information; to provide/receive direction/guidance; share leading practices, lessons learned, issues and challenges, solutions, and related opportunities.

External
- Academic institutions - to provide information, data and collaborate on approved special projects.
- Representatives from municipal and Indigenous police services, and the RCMP - to update, manage and share information on the data collected and used by the PRC.
- National oversight agencies and associations - to update, share information, and collaborate on policy accountability, and discuss best practices based on data analysis in the context of police oversight.
- Police associations - to provide updates and share information on data and trends captured by the Police Review Commission.

Required Education, Experience and Technical Competencies

Education Level	Focus/Major	2nd Major/Minor if applicable	Designation
Master's Degree			

If other, specify:

Master's degree in computer science, statistics, applied mathematics or a related discipline plus four years

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

- Knowledge of a variety of machine learning techniques (regressions, clustering, decision tree learning, artificial neural networks, etc.) and their real-world advantages/drawbacks.
- Knowledge of advanced statistical techniques and concepts (statistical inference, probability theory, hypothesis testing, linear and non-linear programming) and experience with applications
- Extensive knowledge in developing and implementing applied statistical and machine learning models.
- Experience using data visualization software (Tableau, SAS Viya, PowerBI, etc.)
- Demonstrated experience applying data science methods to real-world data problems.
- Strong communication skills to effectively communicate actionable insights using data, often for a non-technical audience.
- Excellent written and verbal communication skills for coordinating across teams.
- Strong collaboration and facilitation skills to connect with programs and stakeholders to gain a full understanding of the business behind the data and the problems they are looking to solve.
- Excellent analytical, problem-solving, and critical-thinking skills.
- Proficient with one or more programming languages (Python, Java, C++, R, SQL, etc.)
- Strong ability to identify patterns in data. This includes having a keen sense of pattern and anomaly detection.
- Experience querying databases.
- Experience working with and creating data architectures.
- Experience in conducting analysis and modeling involving complex data linkages, calculations, and validation.
- Strong understanding of databases, data models, as well as ETL and data warehouse tools.
- Highly proficient in using Microsoft Office tools such as PowerBI, Word, Excel, Publisher, and PowerPoint.

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
Systems Thinking	○ ○ ◉ ○ ○	Takes a long-term view towards organization's objectives and how to	Strong strategic orientation, including ability to conceptualize and support a

		achieve them: • Takes holistic long-term view of challenges and opportunities • Anticipates outcomes and potential impacts, seeks stakeholder perspectives • Works towards actions and plans aligned with APS values • Works with others to identify areas for collaboration	common vision/direction. Apply their understanding of police complaints data to create innovative, accurate and timely data analytics products to support the strategic goals of the PRC.
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	Lead and coordinate multiple complex projects with competing and strict deadlines. Work in a dynamic environment with shifting priorities. Proactively anticipate and plan for program area requirements.
Develop Networks	○ ○ ◉ ○ ○	Leverages relationships to build input and perspective: • Looks broadly to engage stakeholders • Open to perspectives towards long-term goals • Actively seeks input into change initiatives • Maintains stakeholder relationships	Develop and maintain collaborative working relationships with PRC staff, stakeholders and consultants. Identifies individuals that have significant potential for contribution throughout phases of evaluation and data collection. Brings the right people together to inform evaluation planning and contextual interpretation of results.

Drive for Results	○ ○ ◉ ○ ○	Takes and delegates responsibility for outcomes: • Uses variety of resources to monitor own performance standards • Acknowledges even indirect responsibility • Commits to what is good for Albertans even if not immediately accepted • Reaches goals consistent with APS direction	Works efficiently to complete tasks and manage own performance. Actions are completed in a way consistent with direction and required timelines.