Position Description

Australian Medical Council Limited

Position number:	PN203	**Last reviewed:**	**October 2026**
Designation:	**Data Scientist**		
Classification:	**Permanent, full time**	**Salary band:**	AMC Band 4
Business area:	**SPAR**		
Reports to:	Senior Strategist		
Key stakeholders:	AMC assessment, policy, research, data and ICT teams; examination committees and expert groups; external partners		

Organisational purpose

The Australian Medical Council Limited is established to improve health and the provision of health care, principally for the people of Australia and Aotearoa New Zealand.

AMC values

- Integrity
- Cultural safety and cultural competence
- Collaboration
- Openness and accountability
- Striving for excellence
- Innovation

Business area purpose

The Strategy Policy and Research Section manages and contributes to projects to meet the AMC's aim of excellence in healthcare through a highly trained medical workforce. Staff work with AMC business teams and external partners to support strategy, policy and research projects. The section includes the AMC Communications section.

Position purpose

The Data Scientist will apply advanced analytical methods, statistical reasoning and emerging technologies to improve the quality, effectiveness and efficiency of the Australian Medical Council's (AMC) assessment programs and other activities.

Working under the general direction of the Senior Strategist and in collaboration with the AMC's Psychometrician, assessment teams, Indigenous Policy and Programs, and other subject matter experts, the role undertakes applied research, develops and maintains analytical tools and reporting solutions, and contributes to improvements in assessment design, cultural safety, quality assurance and fairness.

The position will have a particular focus on identifying and solving complex problems, extracting meaningful insights from data, and evaluating innovative approaches, including artificial intelligence and large language

models (LLMs). The role will combine sound quantitative judgement with practical technical capability to translate analytical ideas into useful and reliable organisational outcomes. The role displays and models adherence to the AMC's values and is accountable for identifying, addressing and reporting on cultural safety matters. It is responsible for driving cultural safety accountability with all stakeholders in the AMC and demonstrates a commitment to Indigenous Data Sovereignty through collaboration with Indigenous Policy and Programs.

AMC commitment to cultural safety, diversity, and inclusion in the workplace

The AMC aims for a diverse workforce to reflect the Australian community we serve. We believe diversity improves ideas and results in better outcomes, and our employment policies reflect our commitment to diversity and inclusion.

The AMC is committed to a working environment that is inclusive and culturally safe for all. The AMC works closely with a number of Aboriginal and/or Torres Strait Islander and Māori stakeholders. It is a requirement that staff must ensure a working environment that is inclusive and culturally safe at all times.

All AMC staff are required to participate in ongoing cultural safety training.

To ensure we meet our strategic goal of ensuring culturally safe practice to improve health outcomes, the AMC understands that we require Aboriginal and/or Torres Strait Islander and Māori Peoples in our workforce. ***The AMC encourages applications from Aboriginal and/or Torres Strait Islander and Māori Peoples for all roles advertised.***

Position responsibilities and key results areas

The Data Scientist will be responsible for the following activities:

1. Applied research and analytical problem-solving

- Identify and investigate significant analytical questions affecting AMC assessment programs and other organisational activities.
- Develop hypotheses, select appropriate statistical and computational methods, and critically evaluate findings and alternative explanations.
- Apply quantitative methods, modelling, simulation and exploratory analysis to generate new insights and practical recommendations.
- Design and undertake research projects that contribute to improvements in assessment quality, effectiveness, fairness and efficiency.
- Exercise sound judgement within the role's area of responsibility, provide evidence-based recommendations, and refer matters with significant policy, legal, cultural safety, security, assessment-integrity or organisational implications to the Senior Strategist or relevant subject matter expert.

2. Psychometric analysis and assessment quality assurance

- Work closely with the Psychometrician to support the analysis and evaluation of AMC assessments, including MCQ, clinical and other assessment formats.

- Develop and maintain analytical tools to support the monitoring of candidate performance, item and station characteristics, examiner behaviour, assessment difficulty and other quality indicators.
- Assist with investigations of assessment anomalies, item pre-knowledge, changes in assessment performance and other threats to assessment validity and integrity.
- Develop, evaluate and maintain algorithmic tools to support assessment quality, including optimisation of consistency in difficulty, stringency and other assessment characteristics across administrations.

3. Artificial intelligence and assessment innovation

- Investigate, prototype and evaluate applications of artificial intelligence, machine learning and LLMs to AMC activities.
- Explore LLM-assisted generation, review and refinement of assessment items, clinical scenarios and other assessment content, in collaboration with content experts.
- Develop and evaluate approaches to automated assessment-content analysis, including quality, blueprint alignment, duplication, cultural safety and bias considerations.
- Assess the effectiveness, limitations, security and risks of emerging analytical technologies, with appropriate validation and human oversight.
- Prepare prototypes, evidence and recommendations for consideration by relevant managers, governance groups and subject matter experts; the role does not independently approve the operational use of AI tools in high-stakes assessment or decision-making.
-

4. Data analysis, reporting and automation

- Develop analytical workflows and automated reporting systems to support assessment quality assurance, operational decision-making and organisational research.
- Design and maintain reproducible analyses, automated reports and data products that communicate important findings clearly and accurately.
- Work with dashboard developers, assessment teams and subject matter experts to identify useful performance indicators and develop effective reporting solutions.
- Use contemporary analytical tools, including AI-assisted programming, to improve the efficiency, accuracy and maintainability of analytical processes.

5. Cultural safety, fairness and equity in assessment

- Work collaboratively with Indigenous Policy and Programs, Aboriginal and/or Torres Strait Islander and Māori stakeholders, and relevant experts to support culturally safe assessment practices.
- Contribute analytical and research expertise to the development, review and evaluation of assessment content and methods, including the assessment of cultural safety.
- Investigate potential bias, differential performance and unintended consequences in assessment outcomes, recognising the limitations of statistical evidence and the importance of cultural context.
- Apply the principles of Indigenous Data Sovereignty and Indigenous Data Governance in the collection, analysis, interpretation and reporting of assessment data, ensuring Indigenous peoples have a meaningful voice in how data about them is used, interpreted and shared.
- Support the ethical use of assessment data by ensuring Indigenous data is contextualised appropriately, strengths-based perspectives are considered, and findings are communicated in ways that respect Indigenous knowledge systems, cultures and community priorities.
- Identify, address and report cultural safety matters within the scope of the role, promote accountability in relevant stakeholder interactions, and escalate matters requiring cultural authority or specialist advice to Indigenous Policy and Programs or the appropriate decision-maker.
-

- Support cultural safety, equity and bias in assessment or other high-stakes decision-making environments.

6. Data quality, integration and governance

- Work with teams to identify and address data quality issues affecting assessment analysis, reporting and research.
- Contribute to the design and improvement of analytical datasets, data integration processes, validation procedures and reproducible workflows.
- Support sound data governance, documentation, information security and responsible use of sensitive candidate and assessment data.

7. Collaboration, communication and capability development

- Collaborate with the Psychometrician, clinicians, assessment staff, researchers, ICT specialists and external partners on multidisciplinary projects.
- Translate complex analytical findings into clear, accessible advice, reports and presentations for technical and non-technical audiences.
- Contribute to the AMC's analytical capability through knowledge sharing, documentation and evaluation of new methods and tools.
- Assist with the specification and technical evaluation of analytical work undertaken by external providers and research partners.

Key selection criteria

Behaviours

- **Analytical curiosity and initiative**: Demonstrates intellectual curiosity, **identifies and investigates relevant analytical questions within the role's area of responsibility**, and actively seeks practical improvements to analytical methods and processes.
-
- **Critical thinking and integrity**: Approaches evidence objectively, challenges assumptions, recognises uncertainty and limitations, and maintains high standards of analytical integrity.
- **Innovation and adaptability**: Demonstrates willingness to explore new methods and technologies, while critically evaluating their usefulness and risks.
- **Commitment to fairness and cultural safety**: Demonstrates respect for diverse perspectives and a commitment to culturally safe, fair and equitable assessment practices.
- **Collaboration**: Works constructively with colleagues from different professional backgrounds and contributes to shared organisational outcomes.

Experience/Knowledge

- Degree in mathematics, statistics, physics, data science, computer science, engineering or another discipline with substantial quantitative and analytical content. Postgraduate qualifications or equivalent applied research experience are desirable.
- Demonstrated experience applying statistical, mathematical or computational methods to complex real-world problems, including the ability to formulate questions, design analyses and interpret results.
- Strong understanding of statistical reasoning, research methods, quantitative modelling and the appropriate interpretation of evidence.
- Experience using programming or analytical tools to undertake data analysis, develop models or create reproducible analytical workflows.
- Familiarity with contemporary artificial intelligence and machine-learning methods, including an understanding of the opportunities and limitations of LLMs.
- Understanding of data quality, validation, privacy, confidentiality and responsible data management.

Skills

- **Advanced analytical and problem-solving ability**: Demonstrated capacity to understand unfamiliar and complex problems, **select and adapt appropriate analytical approaches**, evaluate competing explanations and develop well-supported findings and recommendations.
- **Quantitative reasoning**: Strong ability to apply mathematical, statistical and logical reasoning to practical problems.
- **Research and experimental design**: Ability to formulate hypotheses, design investigations and critically assess the strength of evidence.
- **Technical adaptability**: Ability to use analytical software, programming tools and AI-assisted development effectively, including critically evaluating and validating results.
- **Communication**: Ability to explain complex concepts and analytical findings clearly to audiences with different levels of technical expertise.
- **Independence and initiative**: Ability to undertake exploratory work with limited supervision, exercise sound judgement and identify opportunities for improvement.
- **Planning and delivery**: Ability to manage analytical projects from initial problem definition through to reliable, practical outputs.

Desirable but not essential

- Experience in educational assessment, psychometrics, medical education or health-professions regulation.

- Familiarity with item response theory, Rasch measurement, classical test theory or other educational measurement methods.
- Experience with LLM-assisted content generation, natural language processing or automated evaluation of written material.
- Experience developing automated analytical reports, dashboards or decision-support tools.
- Experience with R, Python, SQL or specialist statistical software, including AI-assisted programming and reproducible analytical workflows.
- Experience in simulation, optimisation, mathematical modelling or computational research.
- Experience conducting applied research, publishing findings or collaborating with multidisciplinary research teams.

Other information

- The AMC supports flexible and remote working. The AMC's national office is in Canberra, and the Data Scientist must be able to work in the Canberra office when business requires.
- The role may require occasional interstate travel.
- The Data Scientist will have access to highly confidential assessment content and candidate information and must maintain assessment security and confidentiality at all times.