



# POSITION DESCRIPTION

<b>Position Title:</b>	Mathematical Modeller for Disease Surveillance and Epidemic Forecasting
<b>Position Reference Number:</b>	ECRLD011
<b>Division</b>	Land Division
<b>Position Classification:</b>	S&T3-4 (APS4/5-6) Below / Above
<b>Position Location:</b>	Fishermans Bend, Melbourne Victoria
<b>Security Level:</b>	Neg Vet 1
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## Academic Disciplines

Aerospace/ Aeronautical Engineering, Naval Architecture	Chemical, Radiological, Biological, Food sciences	Materials Science
Computer Sciences, IT, Software Engineering, Telecommunications	Mathematics and physics	Psychology and Social Sciences
Mechanical and Mechatronic Engineering (including robotics)	Electronic/ Electrical Engineering	Other

## Position Overview

The Bioterrorism Preparedness Strategic Research Initiative team performs innovative and award winning research into disease surveillance and epidemic modelling, with the goals of developing software tools for:

- The early detection of disease outbreaks and biological attacks.
- Forecasting disease outbreaks of Defence and public health concern.
- Providing decision support tools for the control of epidemics/pandemics.
- Modelling disease outbreaks to inform military preparedness.

The team collaborates closely with leading teams from Australian and international universities, as well as with partner defence S&T agencies in allied nations.

### Duties and Key Result Areas:

- Contribute to R&D into epidemic modelling and early warning algorithms. This will involve a combination of mathematical modelling, programming and data analysis.
- Work with stakeholders in Defence and public health to understand their needs, as well as the properties of available datasets.
- Collaborate with researchers in academia and allied defence research agencies on common goals for infectious disease outbreak control and management.
- Work with the team to provide advice to Government based on epidemic modelling.
- Support defence exercises involving disease outbreak scenarios.
- Demonstrated ability to shape and execute an R&D program in support of client outcomes.

## Position Duties

- Demonstrated capability in mathematical modelling, statistics and probability theory.
- Ability to apply those capabilities to epidemic modelling and simulation, with Python, R or MATLAB.
- Demonstrated ability to shape and execute an R&D program in support of client outcomes.

## Other Requirements

PhD in Epidemic Modelling, Physics, Mathematics, Statistics, Informatics, Computer Science or Engineering.  
The candidate's university education must include significant content on modelling physical systems using mathematics, as well as experience in advanced statistics and probability theory  
Experience working with particle filters and Bayesian networks.  
Experience modelling disease outbreaks and/or disease surveillance systems.  
Experience working with health data and/or health workers.

- Programming skills in at least one of: Python , R , MATLAB



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