

## CEPAR Summer Scholarship Application Form 2021/2022

**Project Code:** CEPARSP2021\_01

### Project title

Provide a short descriptive title of no more than 20 words.

Modelling systematic mortality risk with affine models

### Supervisor

<b>Name:</b> Michael Sherris Len Garces	<b>Location:</b> UNSW Sydney	<b>Email:</b> m.sherris@unsw.edu.au
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### Project summary

This project extends previous CEPAR research developing affine models for systematic mortality risk. The project develops advanced risk modelling for longevity and health risk, including development of affine multi-cohort models with age dependent trends, volatility, and correlation and incorporation of regularization methods into model estimation. The models have application for the development of innovative product solutions using Long Term Care insurance, health, annuities and life insurance, the integration of these products with Australian aged pensions, health insurance and aged care support as well as demonstration of benefits of private market solutions on long term government budget costs.

### Role of the scholarship holder(s) in the project

The scholarship holder will

- Review and summarise current research papers on multi-factor affine mortality models.
- Develop and test R code to input, simulate and output results for future age-cohort mortality curves using a multi-factor affine mortality model.
- Compare simulated future age-cohort curves with historical data.

### Required knowledge, skills and/or training

Completing actuarial studies  
Knowledge of Quantitative finance, Term Structure Models  
Computing including R code

### Preference

Applicants with an interest in pursuing an Honours program in Actuarial Studies  
Applicants with combined Actuarial Studies and Science or Computing

**Work period**

The work period may be broken into two parts as students will not be expected to work during the UNSW shutdown over Christmas/New Year.

Total work weeks: up	The supervisor and the scholarship holder will discuss a mutually acceptable 6 week period over the summer term.
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