Course Title:	**Financial Modelling and Computation**
Course Code:	**MATH700**
Descriptor Start Date:	**01/01/2026**
POINTS:	**15.00**
LEVEL:	**7**
PREREQUISITE/S:	**MATH607**
COREQUISITE/S:	**None**
RESTRICTION/S:	**None**

LEARNING HOURS

Hours may include lectures, tutorials, online forums, laboratories. Refer to your timetable and course information in Canvas for detailed information.

Total learning hours: 150

PRESCRIPTOR

Advanced mathematical models in the areas of financial mathematics. Apply mathematical concepts and analytic techniques to solve financial, engineering and/or industrial problems.

LEARNING OUTCOMES

1. Apply the concepts of life insurance and survival models.
2. Critically analyse investment strategies and choose an optimal portfolio.
3. Develop mathematical models of financial problems.
4. Analytically solve equations that are used to model financial problems.
5. Use simulations and numerical experimentation to test mathematical models.

CONTENT

- Mortality rate & survival models
- Life insurance with survival models
- Financial markets, financial derivatives, binomial models and Black-Scholes mode
- Risk measures, Markowitz mean-variance analysis
- Diversification and investment portfolios
- Hedging, investment strategies and optimal portfolios
- Capital asset pricing model
- Value-at-risk, measure of portfolio management

LEARNING & TEACHING STRATEGIES

Lectures and computer laboratory sessions.

ASSESSMENT PLAN

Assessment Event	Weighting %	Learning Outcomes
Financial Modelling Project	40.00	3,4,5
Life Insurance and Portfolio Optimisation Assignment	60.00	1,2,4,5

Grade Map **MAP1**

A+ A A- Pass with Distinction
B+ B B- Pass with Merit
C+ C C- Pass
D Fail

Overall requirement/s to pass the course:

To pass this course, students must attempt all summative assessments and achieve a minimum overall grade of C-.

LEARNING RESOURCES

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For further information, contact: Te Ara Auaha - Faculty of Design & Creative Technologies

Principal Programme:	**DJ1041, Bachelor of Science**
Related Programme/s:	**AK1271** **AK1301** **AK1302** **AK2040** **AK3001** **DJ1042** **DJ1043** **HA1041** **HA1042** **HA1043** **ICE1** **INEXCH1** **SABRD1**