Mathematics and Statistics

Year and Campus:	2016
Coordinator:	Professor Aihua Xia
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Overview:	**Entry Requirements:** Prior studies in Mathematics and Statistics including at least two first year and three second or higher level subjects, with at least an H3 (65%) mark for each of the two best second or higher level subjects. If students have completed accelerated subjects then one fewer subject can be deemed appropriate.
Learning Outcomes:	The objectives of this diploma are to: # further the understanding of Mathematics and Statistics across a wide range of theoretical and practical topics; # encourage the development of abilities to think critically and independently; # provide a pathway for entry into graduate study in Mathematics and Statistics for students whose main undergraduate field of study was not Mathematics and/or Statistics.
Structure & Available Subjects:	The Mathematics and Statistics program consists of eight Coursework subjects only (100 points). Subjects are chosen from three sources. 1. Advanced Discipline Subjects available to students enrolled into Master of Science (Mathematics and Statistics). The advanced discipline subjects are clustered into four areas: # Applied Mathematics & Mathematical Physics # Discrete Mathematics and Operations Research Specialisation # Pure Mathematics # Statistics & Stochastic Processes. 2. Students may choose MAST90045 Systems Modelling and Simulation. 3. Students may select up to four subjects from latter-year, normally third year, undergraduate Mathematics and Statistics subjects subject to Departmental Program Coordinator approval.
Subject Options:	***Subject prerequisites:*** For stream specific requirements please **click here (http://science.unimelb.edu.au/available-stream-requirements%20)** . **Coursework** It is recommended that students take at least three subjects from a single specialisation. - **Applied Mathematics and Mathematical Physics Specialisation**

Subject	Study Period Commencement:	Credit Points:
MAST90066 Continuum Mechanics and Applications	Not offered 2016	12.50
MAST90067 Advanced Methods: Transforms	Not offered 2016	12.50
MAST90069 Introduction to String Theory	Not offered 2016	12.50
MAST90060 Mathematical Statistical Mechanics	Not offered 2016	12.5
MAST90064 Advanced Methods: Differential Equations	Not offered 2016	12.5
MAST90065 Exactly Solvable Models	Not offered 2016	12.5
MAST90011 Mathematical Biology	Semester 2	12.5

MAST90026 Computational Differential Equations	Semester 1	12.5

Discrete Mathematics and Operations Research Specialisation

Subject	Study Period Commencement:	Credit Points:
MAST90014 Optimisation for Industry	Semester 1	12.50
MAST90030 Advanced Discrete Mathematics	Semester 2	12.50
MAST90050 Scheduling and Optimisation	Not offered 2016	12.50
MAST90013 Network Optimisation	Not offered 2016	12.5
MAST90031 Enumerative Combinatorics	Not offered 2016	12.5
MAST90053 Experimental Mathematics	Semester 1	12.5

Pure Mathematics Specialisation

Subject	Study Period Commencement:	Credit Points:
MAST90012 Measure Theory	Not offered 2016	12.5
MAST90017 Representation Theory	Not offered 2016	12.5
MAST90029 Differential Topology and Geometry	Not offered 2016	12.5
MAST90056 Riemann Surfaces and Complex Analysis	Not offered 2016	12.5
MAST90020 Functional Analysis	Semester 2	12.5
MAST90023 Algebraic Topology	Semester 1	12.5
MAST90025 Commutative and Multilinear Algebra	Semester 1	12.5
MAST90068 Groups, Categories & Homological Algebra	Semester 2	12.5

Statistics and Stochastic Processes Specialisation

Subject	Study Period Commencement:	Credit Points:
MAST90019 Random Processes	Semester 2	12.50
MAST90082 Mathematical Statistics	Semester 1	12.50
MAST90051 Mathematics of Risk	Not offered 2016	12.50
MAST90059 Stochastic Calculus with Applications	Not offered 2016	12.5
MAST90080 Advanced Modelling: Case Studies	Not offered 2016	12.5
MAST90083 Computational Statistics and Data Mining	Not offered 2016	12.5
MAST90085 Multivariate Statistical Techniques	Not offered 2016	12.5
MAST90027 The Practice of Statistics	Semester 2	12.5
MAST90081 Advanced Probability	Semester 1	12.5
MAST90084 Statistical Modelling	Semester 1	12.5

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Students may also choose the following:

	Subject	**Study Period Commencement:**	**Credit Points:**
	MAST90045 Systems Modelling and Simulation	Semester 1	12.50
Links to further information:	http://graduate.science.unimelb.edu.au		
Notes:	This program has a start-year and a mid-year intake.		
Related Course(s):	Graduate Diploma in Science (Advanced)		