C09119 BACHELOR OF COMPUTING SCIENCE (HONOURS)

Quantum Information Science major, Autumn commencing, full time

The program below shows a suggested sequence of subjects for the **Quantum Information Science major (MAJ02901)** for a student commencing the course in Autumn session. The study plan is intended as a guide only and do not take into account such factors as recognition of prior learning, changes in attendance mode and subject availability, or satisfactory academic progress.

Students should consult the Timetable Planner to confirm the availability of subjects in the current academic year.

	Year 1			
AUTUMN	Mathematics 1 33130 6 CPs	Discrete Mathematics 37181 6 CPs	Programming 1 41039 6 CPs	**CBK92127 Sub-major/Electives Choice** 6 CPs
SPRING	Mathematics 2 33230 6 CPs	Communication for IT Professionals 31265 6 CPs	Business Requirements Modelling 31269 6 CPs	Database Fundamentals 31271 6 CPs
	Year 2			
AUTUMN	Programming 2 48024 6 CPs	Computing Science Studio 1 41078 6 CPs	Linear Algebra 37233 6 CPs	Introduction to Quantum Computing 43025 6 CPs
SPRING	Theory of Computing Science 41080 6 CPs	Network Fundamentals 41092 6 CPs	Methods in Quantum Computing 41076 6 CPs	Quantum Software and Programming 41173 6 CPs
	Year 3			
AUTUMN	Data Structures and Algorithms 31251 6 CPs	Computing Science Studio 2 41079 6 CPs	Professional Practice in Computing 43030 6 CPs	Web Systems 31268 6 CPs
SPRING	Technology Research Preparation 32144 6 CPs	MAJ02901 Quantum Information Science Options-24CP 6 CPs	**CBK92127 Sub-major/Electives Choice** 12 CPs	
	Year 4			
AUTUMN	Technology Research Methods 32931 6 CPs	Project Management and the Professional 31272 6 CPs	MAJ02901 Quantum Information Science Options-24CP 6 CPs	**CBK92127 Sub-major/Electives Choice** 6 CPs
SPRING	Honours Project 31482 12 CPs	MAJ02901 Quantum Information Science Options-24CP 12 CPs		

COURSE STRUCTURE

Core subjects (Computing Science) (STM91173) - 96CP
- **33130 Mathematics 1**
- **33230 Mathematics 2**
- **31265 Communication for IT Professionals**
- **37181 Discrete Mathematics**
- **43030 Professional Practice in Computing**
- **31251 Data Structures and Algorithms**
- **48024 Programming 2**
- **41080 Theory of Computing Science**
- **31268 Web Systems**
- **31272 Project Management and the Professional**
- **31269 Business Requirements Modelling**
- **31271 Database Fundamentals**
- **41078 Computing Science Studio 1**
- **41079 Computing Science Studio 2**
- **41092 Network Fundamentals**
- **41039 Programming 1**

Core Honours subjects (Computing Science) (STM91172) - 24CP
- 32144 Technology Research Preparation
- 32931 Technology Research Methods
- 31482 Honours Project

Major choice (CBK91220) - 48CP
- Artificial Intelligence and Data Analytics major (MAJ10053)
- Business Information Systems Management major (MAJ02080)
- Cybersecurity and Privacy major (MAJ02900)
- Enterprise Software Development major (MAJ03519)
- Interaction Design major (MAJ02092)
- Mathematical Analysis major (MAJ01156)
- Networking and Cybersecurity major (MAJ03445)
- Quantum Information Science major (MAJ02901)

Sub-Major/Electives Choice (CBK92127) - 24CP
- Select 24CP of options:
- SMJ10165 Applied and Industrial Optimisation Sub-major
- SMJ10166 Statistical Analysis Sub-major
- SMJ10167 Mathematical Analysis Extension Sub-major
- CBK90783 Electives/Sub-major Choice Block 1

MAJORS

CORE	OPTIONS
QUANTUM INFORMATION SCIENCE (MAJ02901)	**MAJ02901 Quantum Information Science Options-24CP**
37233 Linear Algebra	Select 24 credit points from the options:
43025 Introduction to Quantum Computing	41171 Quantum Computer Architectures
41076 Methods in Quantum Computing	41174 Quantum Algorithms
41173 Quantum Software and Programming	41172 Quantum Information Theory
MAJ02901 Quantum Information Science Options-24CP	41175 Emerging Topics in Quantum Information Science
	37161 Probability and Random Variables
	31250 Introduction to Data Analytics
	31005 Machine Learning
	42028 Deep Learning and Convolutional Neural Network
	37262 Mathematical Statistics
	41052 Advanced Algorithms