

# STUDY PLAN - BACHELOR OF SCIENCE

For student admitted from SP52 2022 onwards



## COURSE STRUCTURE FOR BSCI (AQUACULTURE & TECHNOLOGY MAJOR)



## COURSE STRUCTURE FOR BSCI (DATA SCIENCE MAJOR)



## COURSE STRUCTURE FOR BSCI (INTERNET OF THINGS MAJOR)



**Important Note:**  
Students must successfully complete 16 credit points of Level 1 and 2 science subjects before attempting any Level 3 science subject.

## 7 GENERAL CORE SUBJECTS For All Majors

Subject Code	Subject Name	Pre-requisites	Year 2023			Year 2024		
			SP51	SP52	SP53	SP51	TR2	TR3
CH100 <i>(or any 101-1)</i>	Preparatory Chemistry or any Level 1, 2 or 3 subjects if already satisfied via previous study		✓	✓	✓	✓	✓	✓
MA1000 <i>(or any 101-1)</i>	Preparatory Mathematics or any Level 1, 2 or 3 subjects if already satisfied via previous study		✓	✓	✓	✓	✓	✓
BS1101	Science, Technology And Truth		✓	✓	✓	✓	✓	✓
BS1102	Modelling Natural Systems	MA1000/MA2000/Server Maths or equivalent.	✓	✓	✓	✓	✓	✓
SC2202	Quantitative Methods In Science	BS1102 or admitted to Bachelor of Business & Environmental Science program. Assumed knowledge: good understanding of Level 1 science, including at least two from 1-3 subjects.	✓	✓	✓	✓	✓	✓
SC3008	Professional Placement	Offered every term. To request enrolment in this subject students should (1) obtain approval from a research supervisor (usually an academic or research staff member in the College), (2) identify a project in consultation with the supervisor and (3) email confirmation from supervisor and a brief description of the project to the subject coordinator.						
SC3001	Special Topic 1							

## 17 SUBJECTS FOR Aquaculture Science & Technology Major

Subject Code	Subject Name	Pre-requisites	Year 2023			Year 2024		
			SP51	SP52	SP53	SP51	TR2	TR3
BS1001	Introduction To Biological Processes		✓	✓	✓	✓	✓	✓
BS1007	Introduction To Biodiversity		✓	✓	✓	✓	✓	✓
AG2001	Introduction To Aquaculture	4 Level 1 Science subjects (Subjects with Prefix BS, BZ, CH, EA, EV, MA, MB, PH or SC)	✓	✓	✓	✓	✓	✓
BS2470	Evolution	BS1001	✓	✓	✓	✓	✓	✓
MA2031	Diagnosis Of Bacterial Diseases In Aquaculture		✓	✓	✓	✓	✓	✓
AG2002	Aquaculture: Feeds and Nutrition	4 Level 2 Science subjects and 1 Level 2 Aquaculture subjects. Should have completed SC2202 & AG2001.	✓	✓	✓	✓	✓	✓
AG2003	Aquaculture: Propagation	AG2001 AND at least 4 Level 2 Science subjects (with Prefix AG, BC, BE, BZ, CH, EA, EV, MA, MB, PH or SC)	✓	✓	✓	✓	✓	✓
AG2004	Aquaculture: Stock Improvement	4 Level 2 Science subjects and 1 Level 2 Aquaculture subjects. Should have completed SC2202 & AG2001.	✓	✓	✓	✓	✓	✓
AG2015	Sustainable Aquaculture	4 Level 2 subjects	✓	✓	✓	✓	✓	✓

## 17 SUBJECTS FOR Data Science Major

Subject Code	Subject Name	Pre-requisites	Year 2023			Year 2024		
			SP51	SP52	SP53	SP51	TR2	TR3
MA1580	Foundations of Data Science	MA1000 or Maths B or MA1000	✓	✓	✓	✓	✓	✓
MA1000	Mathematical Foundations	MA1000 or Maths B or Maths C	✓	✓	✓	✓	✓	✓
MA2405	Advanced Statistical Modelling	SC2202 or MA1000	✓	✓	✓	✓	✓	✓
MA3405	Statistical Data Mining for Big Data	MA3405 or MA2000 or SC2202	✓	✓	✓	✓	✓	✓
MA3831	Natural Language Processing, Web Scraping and Large Data Processing	CP1404 and MA3405	✓	✓	✓	✓	✓	✓
MA3832	Neural Network and Deep Learning	MA3405 and CP1404	✓	✓	✓	✓	✓	✓
MA3212	Optimisation and Operations Research	MA2000 and MA2210	✓	✓	✓	✓	✓	✓

## 17 SUBJECTS FOR Internet of Things Major (IoT)

Subject Code	Subject Name	Pre-requisites	Year 2023			Year 2024		
			SP51	SP52	SP53	SP51	TR2	TR3
EG1012	Electric Circuits		✓	✓	✓	✓	✓	✓
OC1003	Introduction to Microcontroller Programming		✓	✓	✓	✓	✓	✓
CC2003	Internet of Things Devices and Software	CC1003 and EG1012	✓	✓	✓	✓	✓	✓
EE2201	Circuit Theory	EG1012 & MA2000. Allow concurrent enrolment for MA2000.	✓	✓	✓	✓	✓	✓
CC3003	Internet of Things Systems and Security	CC2003	✓	✓	✓	✓	✓	✓
EE3001	Sensor Technologies	EE2201 and CC3003	✓	✓	✓	✓	✓	✓
MA3405	Advanced Statistical Modelling	MA1000 and SC2202	✓	✓	✓	✓	✓	✓
MA3405	Statistical Data Mining for Big Data	MA3405 or MA2000 or SC2202	✓	✓	✓	✓	✓	✓

**Note:** Subjects with *IT/EE* in italic format reflects a recent name change with effect from SP53 2022 onwards.

**Note:** Changes that are recently made will be highlighted in yellow and/or red font.

**Disclaimer:** The above information is correct as below date. Due to unforeseen situations, there might be changes done in subject offerings before each trimester. Your understanding is greatly appreciated.

## APPENDIX

### 1. LIST 1 - LIST OF BREADTH SUBJECTS (STUDENTS MUST SELECT 2)

Subject Code	Subject Name	Pre-requisites	Year 2023			Year 2024		
			SP51	SP52	SP53	SP51	TR2	TR3
BS1001	Introduction To Biological Processes		✓	✓	✓	✓	✓	✓
BS1007	Introduction To Biodiversity		✓	✓	✓	✓	✓	✓
CP1401	Problem Solving And Programming I		✓	✓	✓	✓	✓	✓
CP1404	Programming II	CP1401	✓	✓	✓	✓	✓	✓
EA1110	Evolution Of The Earth		✓	✓	✓	✓	✓	✓
EV1005	Environmental Processes And Global Change		✓	✓	✓	✓	✓	✓
MA1003	Mathematical Foundations	MA1000 OR Maths B OR Maths C	✓	✓	✓	✓	✓	✓
MA1003	Mathematical Techniques	MA1000	✓	✓	✓	✓	✓	✓
MA1580	Foundations of Data Science	MA1000 or MA1000 or Maths B	✓	✓	✓	✓	✓	✓

### 2. LIST 2 - LIST OF SKILL SUBJECTS (STUDENTS MUST SELECT 1)

Subject Code	Subject Name	Pre-requisites	Year 2023			Year 2024		
			SP51	SP52	SP53	SP51	TR2	TR3
CP2404	Database Modelling		✓	✓	✓	✓	✓	✓
EV2502	Introduction To Geographic Information Systems	4 Level 1 subjects	✓	✓	✓	✓	✓	✓
MA2000	Mathematics For Scientists and Engineers	MA1003	✓	✓	✓	✓	✓	✓
MA2210	Linear Algebra	MA1003. Recommended to complete MA2000.	✓	✓	✓	✓	✓	✓
MA2301	Data Visualisation		✓	✓	✓	✓	✓	✓

### 3. LIST OF SCIENCE SUBJECTS LEVEL 2,3,5

Subject Code	Subject Name	Pre-requisites	Year 2023			Year 2024		
			SP51	SP52	SP53	SP51	TR2	TR3
AQ2001	Introduction To Aquaculture	4 Level 1 science subjects (Subjects with Prefix BS, BZ, CH, EA, EV, MA, MB, PH or SC)	✓	✓	✓	✓	✓	✓
AQ2002	Aquaculture: Feeds and Nutrition	4 Level 1 science subjects (Subjects with Prefix BS, BZ, CH, EA, EV, MA, MB, PH or SC)	✓	✓	✓	✓	✓	✓
AQ2003	Aquaculture: Propagation	4 Level 2 science subjects and 1 Level 2 aquaculture subjects. Should have completed SC2202 and AG2001 or equivalent.	✓	✓	✓	✓	✓	✓
AQ2004	Aquaculture: Stock Improvement	AG2001 AND 4 Level 2 science AG, BC, BE, BZ, CH, EA, EV, MA, MB, PH or SC subjects.	✓	✓	✓	✓	✓	✓
AQ2015	Sustainable Aquaculture	4 Level 2 science subjects and 1 Level 2 aquaculture subjects. Should have completed SC2202 & AG2001 or equivalent.	✓	✓	✓	✓	✓	✓
BS2469	Fundamentals of Ecology	2 Level 1 or 2 BS or EV subjects	✓	✓	✓	✓	✓	✓
BS2470	Evolution	BS1001	✓	✓	✓	✓	✓	✓
CP2403	Information Processing and Visualisation	4 Subjects. Inadmissible with CP2413	✓	✓	✓	✓	✓	✓
CP2404	Database Modelling		✓	✓	✓	✓	✓	✓
CP2405	Collective Intelligence and Entrepreneurship	8 Subjects	✓	✓	✓	✓	✓	✓
CP2406	Programming III	CP1404	✓	✓	✓	✓	✓	✓
CP2408	Design Thinking II	CP1403	✓	✓	✓	✓	✓	✓
CP2409	Network Forensics and Data Communications	CP1402	✓	✓	✓	✓	✓	✓
CP2410	Algorithms and Data Structures	2 Subjects with CP Prefix	✓	✓	✓	✓	✓	✓
CP2411	3D Modelling and Animation	2 Subjects with CP Prefix	✓	✓	✓	✓	✓	✓
CP2412	Game Design and Technologies	2 Subjects with CP Prefix	✓	✓	✓	✓	✓	✓
CP2414	Network Security	CP1402	✓	✓	✓	✓	✓	✓
CP2421	Machine Learning for Cybersecurity	CP1401, MA1580	✓	✓	✓	✓	✓	✓
CP2422	Cloud and Data Center Security	CP1401	✓	✓	✓	✓	✓	✓
CP2423	Cybersecurity Infrastructure and Management	CP1401 and CP1410	✓	✓	✓	✓	✓	✓
CP2424	Cybersecurity Risk Management	12 credit points of CP subjects including CP1410	✓	✓	✓	✓	✓	✓
CP2425	IT-Strategic Management	8 Subjects	✓	✓	✓	✓	✓	✓
CP2402	Content Management Systems	CP1404 AND CP1408 AND 8 Subjects with CP Prefix	✓	✓	✓	✓	✓	✓
CP2403	Data Mining	CP2403 and CP2404 or 6 Subjects including any 2 with CP Prefix	✓	✓	✓	✓	✓	✓
CP2404	Information Security	CP2414 or 6 Subjects including CP1402	✓	✓	✓	✓	✓	✓
CP2405	Design Thinking III	CP2408	✓	✓	✓	✓	✓	✓
CP2406	Mobile Computing	CP1404 and 18 credit points of CP subjects	✓	✓	✓	✓	✓	✓
CP2407	Advanced Software Engineering	CP1404 and 8 Subjects with CP Prefix	✓	✓	✓	✓	✓	✓
CP2408	Game Engine and Simulation	CP1404 and 8 Subjects with CP Prefix	✓	✓	✓	✓	✓	✓
CP2412	Information Processing and Visualisation	4 Subjects with BS/BS or EV. Inadmissible with CP2403	✓	✓	✓	✓	✓	✓
CP2414	Ethical Hacking	CP2422 and CP2423	✓	✓	✓	✓	✓	✓
CP2415	Strategy and Governance	CP2424	✓	✓	✓	✓	✓	✓
CP2418	Behavioural Cybersecurity	12 Subjects with MA / CP Prefix	✓	✓	✓	✓	✓	✓
CP2411	Cybersecurity for Operational Technology	CP2423	✓	✓	✓	✓	✓	✓
CP2416	Best Practices in Cybersecurity	CP2414	✓	✓	✓	✓	✓	✓
EE2201	Circuit Theory	EG1012 and MA2000. Allow concurrent enrolment for MA2000.	✓	✓	✓	✓	✓	✓
EE3001	Sensor Technologies	EE2201 and CC2003	✓	✓	✓	✓	✓	✓
EV2011	The Case for Sustainability		✓	✓	✓	✓	✓	✓
EV2502	Introduction to Geographic Information Systems	4 Level 1 subjects	✓	✓	✓	✓	✓	✓
EV2501	Sustainability in Practice	4 Level 2 subjects	✓	✓	✓	✓	✓	✓
EV2510	Environmental and Social Impact Assessment	4 Level 2 subjects	✓	✓	✓	✓	✓	✓
MA2000	Mathematics For Scientists and Engineers	MA1003	✓	✓	✓	✓	✓	✓
MA2210	Linear Algebra	MA1003. Recommended to complete MA2000.	✓	✓	✓	✓	✓	✓
MA2211	Discrete Mathematics	Maths B or MA1000	✓	✓	✓	✓	✓	✓
MA2301	Data Visualisation	SC2202 and MA1000	✓	✓	✓	✓	✓	✓
MA2312	Optimisation and Operations Research	MA2000 and MA2210	✓	✓	✓	✓	✓	✓
MA2405	Advanced Statistical Modelling	MA2405 or MA2000 or SC2202	✓	✓	✓	✓	✓	✓
MA3831	Natural Language Processing, Web Scraping and Large Data Processing	CP1404 AND MA3405	✓	✓	✓	✓	✓	✓
MA3832	Neural Network and Deep Learning	MA3405 and CP1404	✓	✓	✓	✓	✓	✓
MS2200	Name Convention Biology	SC2202 or BS2469	✓	✓	✓	✓	✓	✓
MS2001	Tropical Marine Ecology and Coastal Impacts	Available to undergraduate students in their third year with a GPA >= 5 with permission of subject coordinator.	✓	✓	✓	✓	✓	✓
MA2001	Diagnosis Of Bacterial Diseases In Aquaculture		✓	✓	✓	✓	✓	✓

**Note:** To request enrolment in this subject students should (1) obtain approval from a research supervisor (usually an academic or research staff member in the College), (2) identify a project in consultation with the supervisor, and (3) email confirmation from supervisor and a brief description of the project to the subject coordinator.

Updated on 07 August 2023