

STUDY PLAN - BACHELOR OF SCIENCE

For student admitted from SP52 2022 onwards

Students commences in Carouse/Block intake (SP82, SP84, SP86) please refer to page 2 for subjects offering of the respective intake.

COURSE STRUCTURE FOR BSCI (AQUACULTURE & TECHNOLOGY MAJOR)

7 General core subjects
4 Subjects at Level 1
1 Subject at Level 2
1 Subject at Level 3
Plus
1 Skill Subject (List 2)



8 Core subjects
under
Aqua Culture &
Technology Major



8 Core subjects
under
Data Science Major



COURSE STRUCTURE FOR BSCI (DATA SCIENCE MAJOR)

7 General core subjects
4 Subjects at Level 1
1 Subject at Level 2
1 Subject at Level 3
Plus
1 Skill Subject (List 2)



8 Core subjects
under
Data Science Major



8 Core subjects
under
Data Science Major

COURSE STRUCTURE FOR BSCI (INTERNET OF THINGS MAJOR)

7 General core subjects
4 Subjects at Level 1
1 Subject at Level 2
1 Subject at Level 3
Plus
1 Skill Subject (List 2)



8 Core subjects
under
Internet of Things
Major



8 Core subjects
under
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

GENERAL CORE SUBJECTS FOR All Majors				Year 2023			Year 2024	
	Subject Code	Subject Name	Pre-requisites	SP51	SP52	SP53	TR2	TR3
5 Level 1, 2	CH1020 (or any L1/L2)	Preparatory Chemistry or any Level 1, 2 or 3 subjects if already satisfied via previous study						
	MA1020 (or any L1/L2)	Preparatory Mathematics or any Level 1, 2 or 3 subjects if already satisfied via previous study						
	SC1101	Science, Technology and Truth		✓	✓	✓	✓	✓
	SC1102	Modelling Natural Systems	MA1020/2000 or Maths in equivalent	✓	✓	✓	✓	✓
	SC2202	Quantitative Methods in Science	SC1102 OR Students from Mathematics/Astronomy Knowledge: Good understanding of Level 1 science, including at least 2 Level 1 subjects	✓	✓	✓	✓	✓
1 Level 3 subject	SC3008	Professional Placement	Offered every term. Completed 4 second year units & enrolled in BSCI first year. To apply for this subject student must be eligible to Commence Office at least 1 term ahead (commence-enrolment/offer/offer). To enrol 1 trimester of studies on Professional Internship is the best subject remaining.					
	SC3601	Special Topic 1	Offered every term. To request enrolment in the 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.					
1 Skill Subject from List 2	Select 1 Skill Subject from List 2 (Refer to Appendix List of Skill Subjects)							
Student from IOT major must select MA2000 in order to meet pre-req requirement of core subject EE2201.								

17 SUBJECTS FOR Aquaculture Science & Technology Major

SUBJECTS For Aquaculture Science & Technology Major				Year 2023			Year 2024		
	Subject Code	Subject Name	Pre-requisite	SP51	SP52	SP53	SP51	TR2	TR3
8 Core subjects	BS1001	Introduction to Biological Processes	Assumed Knowledge: Good understanding of English to Grade 12 (or equivalent).						
	BS1007	Introduction to Biodiversity	Assumed Knowledge: Good understanding of English to Grade 12 (Swimmers) or equivalent.	✓	✓	✓			
	AQ2001	Introduction to Aquaculture	4 Level 1 Science subjects Assumed Knowledge: Good understanding of level 1 Science, particularly ecology. A basic understanding of biology, and statistics is highly recommended. BS1001						
	BSA470	Evolution	Assumed Knowledge: Have completed 12 credit points of level 1 science subjects, have an understanding of the fundamentals of biology (BS1001 or equivalent).	✓	✓	✓			
	MA2031	Diagnosis of Bacterial Diseases in Aquaculture							
	AQ3002	Aquaculture: Feeds and Nutrition	4 Level 2 F2C, BS, SC, BA, EV, MA, MB or PS science subjects and 1 of level 2 aquaculture subjects.						
	AQ3003	Aquaculture: Propagation	AQ2001 and at least 4 subjects of Level 2 science subjects. Assumed Knowledge: Good understanding of basic biology and aquaculture principles.						
	AQ3004	Aquaculture: Stock Improvement	At least 4 subjects of Level 2 science subjects and 1 subject of level 2 aquaculture subjects. Assumed Knowledge: Good understanding of basic biology, physiology, genetics and aquaculture, and should have completed SC2202 AND AQ2001 or equivalent.						
	AQ3015	Sustainable Aquaculture	4 Level 2 subjects						
	Select 2 subjects of List 1: Breadth Subjects (See List of Breadth Subjects at Appendix 1)								
Plus 2 breadth subjects									
Plus 7 elective subjects	Select 3 subjects from any Level 2, 3 or 5 Science subjects (See List of Science Subjects Level 2, 3, 5 at Appendix 1)								
	Select 2 subjects from any Level 3 or 5 Science subjects (Can choose from other majors or refer to Study Plan of other undergraduate program e.g. Business, Arts, Psychology) - Make sure you meet pre-requisite requirement.								

17 SUBJECTS FOR Data Science Major

	Subject Code	Subject Name	Pre-requisites	Year 2023			Year 2024		
				SP51	SP52	SP53	SP51	TR2	TR3
8 Core subjects	MA1000	Foundations of Data Science	MA1000 or MA1020 or Maths B						
	MA1000	Mathematical Foundations	MA1020 OR Maths B OR Maths U						
	MA2405	Advanced Statistical Modelling	SC2202 AND MA1000						
	MA3405	Statistical Data Mining for Big Data	MA2405 or MA2000 or SC2202						
	MA3811	Natural Language Processing, Web Scraping and Large Data Processing	CP1404 and MA2405						
	MA3812	Neural Networks and Deep Learning	MA2405 and CP1404						
	MA3212	Optimisation and Operations Research	MA2000 and MA2210						
	Plus 2 subjects from below list (Don't select the subject that's already taken in List 2: Skill Subjects List).								
	CP2404	Database Modelling							
	MA2210	Linear Algebra	MA1003, Recommended to complete MA2005.						
Plus 2 breadth subjects	MA2211	Discrete Mathematics	Maths B or MA1020						
	MA2830	Data Visualisation							
	CP1401	Problem Solving and Programming I							
	CP1404	Programming II	CP1401						
	Select 3 subjects from any Level 2, 3 or 5 Science subjects (See List of Science Subjects Level 2, 3, 5 at Appendix 1)								
Plus 7 elective subjects	Select 2 subjects from any Level 1, 2, 3 or 5 Science subjects (Can choose from other majors or refer to Study Plan of other undergraduate program e.g. Business, Arts, Psychology) - Make sure you meet pre-requisite requirement. Note: Student must select MA1003 as an elective Level 1 in this option too if you wish to study MA2005, MA2210 & MA3212 (Student must meet pre-req of MA2005 & MA2210 before studying MA3212).								
	Select 2 subjects from any Level 3 or Level 5 subjects (Can choose from other majors or refer to Study Plan of other undergraduate program e.g. Business, Arts, Psychology) - Make sure you meet pre-requisite requirement.								

17 SUBJECTS FOR Internet of Things Major (IOT)

	Subject Code	Subject Name	Pre-requisites	Year 2023			Year 2024		
				SP51	SP52	SP53	SP51	TR2	TR3
8 Core subjects	EE1012	Basic Circuits	Assumed Knowledge: This subject requires prior knowledge of Senior Mathematics B or MA1020 (or equivalent).						
	CC1003	Introduction to Microcontroller Programming	CC1003 and EE1012						
	CC2003	Internet of Things Devices and Software	EE1012 & MA2000: Allow concurrent enrolment for MA2000.						
	EE2201	Circuit Theory	CC2003						
	CC3003	Internet of Things Systems and Security	EE2201 and CC2003						
	EE3601	Sensor Technologies	EE2201 and CC2003						
	MA2405	Advanced Statistical Modelling	SC2202 AND MA1000						
	MA3405	Statistical Data Mining for Big Data	MA2405 or MA2000 or SC2202						
	MA1000	Mathematical Foundations	MA1020 OR Maths B OR Maths U						
	MA1003	Mathematical Techniques	MA1000						
Plus 2 breadth subjects	Select 3 subjects from any Level 2, 3 or 5 Science subjects (See List of Science Subjects Level 2, 3, 5 at Appendix 1)								
Plus 7 elective subjects	Select 2 subjects from any Level 1, 2, 3 or 5 subjects (Can choose from other majors or refer to Study Plan of other undergraduate program e.g. Business, Arts, Psychology) - Make sure you meet pre-requisite requirement.								
	Select 2 subjects from any Level 3 or Level 5 subjects (Can choose from other majors or refer to Study Plan of other undergraduate program e.g. Business, Arts, Psychology) - Make sure you meet pre-requisite requirement.								

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

Disclaimer: The above information is correct as below dates. Due to unforeseen situations, there might be change/s 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	Assumed Knowledge: Good understanding of English to Grade 12 or equivalent.						
BS1007	Introduction to Biodiversity	Assumed Knowledge: Good understanding of English to Grade 12 (Swimmers) or equivalent.						
CP1401	Problem Solving and Programming I	CP1401						
CP1404	Programming II	CP1401						
EA1110	Evolution of the Earth							
EV1008	Environmental Processes and Global Change							
MA1003	Mathematical Foundations	MA1000 or MA1020 or Maths B						
MA1005	Mathematical Techniques	MA1003						
MA1000	Foundations of Data Science	MA1000 or MA1020 or Maths B						

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

Subject Code	Subject Name	Pre-requisite	Year 2023			Year 2024		
			SP51	SP52	SP53	SP51	TR2	TR3
CP2404	Database Modelling	4 level 1 subjects						
EV2502	Introduction to Geographic Information Systems	4 level 1 subjects						
MA2000	Mathematics for Scientists and Engineers	MA1003						
MA2210	Linear Algebra	MA1003, Recommended to complete MA2005.						
MA2830	Data Visualisation							

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

Subject Code	Subject Name	Pre-requisite	SP51	SP52	SP53	SP51	TR2	TR3
AQ2001	Introduction to Aquaculture	4 Level 1 Science subjects Assumed Knowledge: Good understanding of level 1 biology, particularly ecology. A basic understanding of biology, and statistics is highly recommended.		✓	✓			
AQ2002	Aquaculture of Tropical Species	Assumed Knowledge: Good understanding of basic biology.	✓				✓	
AQ3002	Aquaculture: Feeds and Nutrition	4 Level 2 F2C, BS, SC, BA, EV, MA, MB or PS science subjects and 1 of level 2 aquaculture subjects.		✓	✓		✓	
AQ3003	Aquaculture: Propagation	AQ2001 and at least 4 subjects of level 2 science subjects. Assumed Knowledge: Good understanding of basic biology and aquaculture principles.		✓	✓		✓	
AQ3004	Aquaculture: Stock Improvement	At least 4 subjects of level 2 science subjects and 1 subject of level 2 aquaculture subjects. Assumed Knowledge: Good understanding of basic biology, physiology, genetics and aquaculture, and should have completed SC2202 AND AQ2001 or equivalent.		✓	✓		✓	
AQ3015	Sustainable Aquaculture	4 Level 2 F2C/BS/SC/BA/PS science subjects.		✓	✓		✓	
BS2400	Fundamentals of Ecology	4 Level 2 F2C/BS/SC/BA/PS science subjects and 1 of level 2 ecology subjects.		✓	✓		✓	
BS2470	Evolution	Assumed Knowledge: Have completed 12 credit points of level 1 science subjects, have an understanding of the fundamentals of biology (BS1001 or equivalent).		✓	✓		✓	
CP2403	Information Processing and Visualisation	Minimum 16 credit points. (Inclusive with CP1401)		✓	✓		✓	
CP2404	Database Modelling	Minimum 16 credit points.		✓	✓		✓	
CP2405	Collective Intelligence and Entrepreneurship	Minimum 16 credit points.		✓	✓		✓	
CP2406	Programming II	CP1401		✓	✓		✓	
CP2408	Design Thinking II	CP1401		✓	✓		✓	
CP2409	Network Forensics and Data Communications	CP1402		✓	✓		✓	
CP2410	Algorithms and Data Structures	8 credit points of CP subjects		✓	✓		✓	
CP2411	3D Modelling and Animation	8 credit points of CP subjects		✓	✓		✓	
CP2412	Game Design and Technologies	8 credit points of CP subjects		✓	✓		✓	
CP2414	Network Security	PH 1001, PH 1002, PH 1003, PH 1004, PH 1005, PH 1006, PH 1007, PH 1008, PH 1009, PH 1010, PH 1011, PH 1012, PH 1013, PH 1014, PH 1015, PH 1016, PH 1017, PH 1018, PH 1019, PH 1020, PH 1021, PH 1022, PH 1023, PH 1024, PH 1025, PH 1026, PH 1027, PH 1028, PH 1029, PH 1030, PH 1031, PH 1032, PH 1033, PH 1034, PH 1035, PH 1036, PH 1037, PH 1038, PH 1039, PH 1040, PH 1041, PH 1042, PH 1043, PH 1044, PH 1045, PH 1046, PH 1047, PH 1048, PH 1049, PH 1050, PH 1051, PH 1052, PH 1053, PH 1054, PH 1055, PH 1056, PH 1057, PH 1058, PH 1059, PH 1060, PH 1061, PH 1062, PH 1063, PH 1064, PH 1065, PH 1066, PH 1067, PH 1068, PH 1069, PH 1070, PH 1071, PH 1072, PH 1073, PH 1074, PH 1075, PH 1076, PH 1077, PH 1078, PH 1079, PH 1080, PH 1081, PH 1082, PH 1083, PH 1084, PH 1085, PH 1086, PH 1087, PH 1088, PH 1089, PH 1090, PH 1091, PH 1092, PH 1093, PH 1094, PH 1095, PH 1096, PH 1097, PH 1098, PH 1099, PH 1100, PH 1101, PH 1102, PH 1103, PH 1104, PH 1105, PH 1106, PH 1107, PH 1108, PH 1109, PH 1110, PH 1111, PH 1112, PH 1113, PH 1114, PH 1115, PH 1116, PH 1117, PH 1118, PH 1119, PH 1120, PH 1121, PH 1122, PH 1123, PH 1124, PH 1125, PH 1126, PH 1127, PH 1128, PH 1129, PH 1130, PH 1131, PH 1132, PH 1133, PH 1134, PH 1135, PH 1136, PH 1137, PH 1138, PH 1139, PH 1140, PH 1141, PH 1142, PH 1143, PH 1144, PH 1145, PH 1146, PH 1147, PH 1148, PH 1149, PH 1150, PH 1151, PH 1152, PH 1153, PH 1154, PH 1155, PH 1156, PH 1157, PH 1158, PH 1159, PH 1160, PH 1161, PH 1162, PH 1163, PH 1164, PH 1165, PH 1166, PH 1167, PH 1168, PH 1169, PH 1170, PH 1171, PH 1172, PH 1173, PH 1174, PH 1175, PH 1176, PH 1177, PH 1178, PH 1179, PH 1180, PH 1181, PH 1182, PH 1183, PH 1184, PH 1185, PH 1186, PH 1187, PH 1188, PH 1189, PH 1190, PH 1191, PH 1192, PH 1193, PH 1194, PH 1195, PH 1196, PH 1197, PH 1198, PH 1199, PH 1200, PH 1201, PH 1202, PH 1203, PH 1204, PH 1205, PH 1206, PH 1207, PH 1208, PH 1209, PH 1210, PH 1211, PH 1212, PH 1213, PH 1214, PH 1215, PH 1216, PH 1217, PH 1218, PH 1219, PH 1220, PH 1221, PH 1222, PH 1223, PH 1224, PH 1225, PH 1226, PH 1227, PH 1228, PH 1229, PH 1230, PH 1231, PH 1232, PH 1233, PH 1234, PH 1235, PH 1236, PH 1237, PH 1238, PH 1239, PH 1240, PH 1241, PH 1242, PH 1243, PH 1244, PH 1245, PH 1246, PH 1247, PH 1248, PH 1249, PH 1250, PH 1251, PH 1252, PH 1253, PH 1254, PH 1255, PH 1256, PH 1257, PH 1258, PH 1259, PH 1260, PH 1261, PH 1262, PH 1263, PH 1264, PH 1265, PH 1266, PH 1267, PH 1268, PH 1269, PH 1270						
CP2421	Machine Learning for Cybersecurity	CP1401 and CP1410		✓	✓		✓	
CP2422	Cloud and Data Centre Security	CP1401 and CP1410		✓	✓		✓	
CP2423	Cybersecurity Infrastructure and Management	CP1401 and CP1410		✓	✓		✓	
CP2424	Cybersecurity Risk Management	12 credit points of CP subjects including CP1410		✓	✓		✓	
CP2425	IS-Strategic Management	Minimum of 24 credit points		✓	✓		✓	
CP2426	Content Management Systems	CP1401 and CP1410 and 24 credit points of CP subjects		✓	✓		✓	
CP2427	Data Mining	CP1401 and PH1001 or 16 credit points of subjects including 8 credit points of CP subjects/Inclusive Subject: CP2024		✓	✓		✓	
CP2428	Information Security	CP2410 or 16 credit points of subjects including CP1401		✓	✓		✓	
CP2429	Design Thinking II	CP1401		✓	✓		✓	
CP2430	Mobile Computing	CP1401 and 16 credit points of CP subjects		✓	✓		✓	
CP2431	Advanced Software Engineering	CP1401 and 16 credit points of CP subjects		✓	✓		✓	
CP2432	Game Engine and Simulation	CP1401 and 16 credit points of CP subjects		✓	✓		✓	
CP2413	Information Processing and Visualisation	12 credit points of BS1001 subjects (Inclusive with CP2403)		✓	✓		✓	
CP2414	Ethical Hacking	CP2402, CP2403		✓	✓		✓	
CP2415	Strategy and Governance	CP2404		✓	✓		✓	
CP2416	Behavioural Cybersecurity	16 credit points of CP or BA subjects		✓	✓		✓	
CP2417	Cybersecurity for Operational Technology	CP2402		✓	✓		✓	
CP2418	Best Practices in Cybersecurity	CP2414		✓	✓		✓	
EE2012 & MA2001	Allow concurrent enrolment for MA2001.			✓	✓		✓	
EE2011	Circuit Theory			✓	✓		✓	
EE3001	Sensor Technologies	EE2201 and CG2002		✓	✓		✓	
EV2011	The Case for Sustainability	4 Level 1 subjects		✓	✓		✓	
EV2002	Introduction to Geographic Information Systems			✓	✓		✓	
EV2011	Sustainability in Practice	4 Level 1 subjects		✓	✓		✓	
EV2110	Environmental and Social Impact Assessment			✓	✓		✓	
MA2000	Mathematics for Scientists and Engineers	MA1003		✓	✓		✓	
MA2210	Linear Algebra	MA1001, Recommended to complete MA2000.		✓	✓		✓	
MA2211	Discrete Mathematics	MA2011 or MA1001		✓	✓		✓	
MA2405	Advanced Statistical Modelling	MA2001 AND MA1001		✓	✓		✓	
MA2830	Data Visualisation			✓	✓		✓	
MA3212	Optimisation and Operations Research	MA2001 and MA2210		✓	✓		✓	
MA3405	Statistical Data Mining for Big Data	MA2001 or MA2001 or SC2002		✓	✓		✓	
MA3831	Natural Language Processing, Web Scraping and Large Data Processing	CP1401 AND MA2001		✓	✓		✓	
MA3832	Neural Network and Deep Learning	MA2001 AND CP1401		✓	✓		✓	
MB2000	Marine Conservation Biology	SC2001 or BS2400		✓	✓		✓	
MB3001	Tropical Marine Ecosystem and Coastal Impacts	Available to undergraduate students in their third year with a GPA 1.0 Assumed Knowledge: Students are expected to have a good understanding of ecological principles and techniques as well as some understanding of marine biology and sampling design. A basic understanding of marine biostatistics is also assumed.		✓	✓		✓	
MB3011	Diagnosis of Bacterial Diseases in Aquaculture			✓	✓		✓	

SUBJECTS OFFERED IN CAROUSEL / BLOCK INTAKES (SP82,84,86)

(Applicable for students whose first study period is in Carousel/Block intake i.e. SP82 or SP84 or SP86)



General Information

- 1) 1 Subject is equal to 3 credit points
- 2) The subject's level is indicated in the subject code after the prefix, eg: CP1401 = Level 1

IMPORTANT NOTE:

Maximum enrolment load 2 subjects in Carousell intakes

From the second study period onwards, all students must enrol in Trimester intakes (for eg: TR2/24, TR3/24, TR1/25)

- For students who commences in SP82/24 , second study period will be TR2/24, followed by TR3/24, TR1/25, etc.
- For students who commences in SP84/24 , second study period will be TR3/24, followed by TR1/25, TR2/25, etc.
- For students who commences in SP86/24 , second study period will be TR1/25, followed by TR2/25, TR3/25, etc.

Please refer to page 1 to check subjects offering in TR1, TR2, TR3 intakes

BACHELOR OF SCIENCE: CORE / BREADTH SUBJECTS			Year 2024
Subjects codes	Subject title	Pre-requisites	SP82, SP84, SP86
CP1401	Problem Solving and Programming I		✓
BACHELOR OF SCIENCE: ELECTIVE SUBJECTS			Year 2024
Subjects codes	Subject title	Pre-requisites	SP82, SP84, SP86
CU1022	Developing Academic Skills		✓
BU1104	Introduction to Management Concepts and Application		✓
BU1105	Professional and Academic Skills for Business		✓
SS1111	Introduction to Counselling		✓

Notes:

Changes that are recently made will be highlighted in yellow and/or red fonts.

Subjects for 2025 will be made available by middle of 2024

Disclaimer: The above information is correct as below date. Due to unforeseen situation/s there might be change/s done in subject offerings before each trimester.

Updated on 26 December 2023