**DEGREE Master of Science-Professional** **MAJOR Marine Biology (MBY)**

## RECOMMENDED STUDY PLAN 2021-2022

**NAME** _____ **STUDENT NUMBER** _____

**DEGREE Master of Science-Professional** **MAJOR Marine Biology (MBY)**

# Course information – Master of Science (Professional)

The Master of Science (Professional) degree is structured such that students take sets of (1) foundational '*knowledge*' specific to their major, (2) technical and / or analytical '*skills*' subjects, (3) *elective* subjects and (4) a capstone professional practice module in their final semester. The capstone module is either a research project or an industry internship.

Use this document to plan out what subjects you will take and when. Consult with your course advisor about the nature of subjects, research and internship pathways and any queries you may have. The course advisor for each major in the Master of Science programs is listed here. When you are ready to enrol in subjects proceed to your eStudent account.

Click here to see the relevant JCU Course handbook: https://www.jcu.edu.au/course-and-subject-handbook/courses/postgraduate-courses/master-of-science-professional .

## *Marine Biology major structure*

1. Take the 3 following prescribed **Knowledge** subjects:
   1.1. MB5055 Biological Oceanography (SP1)
   1.2. MB5190 Coral Reef Ecology **OR** MB5270 Coastal, Estuarine and Mangrove Ecosystems (SP2)
   1.3. MB5004 Marine Conservation Biology (SP2)
2. Take 4 **Skills** subjects:
   2.1. Take MB5300 Sampling and Experimental Design[1] **OR** SC5502 Design and Analyses in Ecological Studies (SP3) **Obligatory; PLUS:**
   2.2. Take 1 of the following Advanced Skill subjects from List 1
      2.2.1. BS5260 Modelling Ecological Dynamics (SP2)
      2.2.2. BZ5450 Ecological and Conservation Genetics (SP2)
      2.2.3. EV5110 Environmental and Social Impact Assessment (SP2)
      2.2.4. EV5502 Advanced Geographic Information Systems (SP11)
      2.2.5. EV5506 Remote Sensing (SP9 / SP11)
   2.3. Take 2 Additional Skills subjects from List 2
      2.3.1. SC5200 Professional Employability (SP1 and SP2)
      *SC5200 is recommended for all students in their first semester of study & a pre-requisite unit for the capstone internship program (SC5009).*
3. Take 5 **Elective** subjects from List 3
4. Take a 12 credit point **Professional Practice** option
   4.1. Option 1 - Research Project (two parts: SC5912 & SC5913) ***OR***
   4.2. Option 2 – Professional Employability (SC5009 Postgraduate Internship)

Full subject descriptions and timings of all subjects can be found online using the *Subject Search* tool. Use this tool to explore your subject options. Each subject is usually only offered once per year, in the 'study period' stated on Subject Search. It is generally recommended to take 8 subjects per year,

[1] For 2021, MB5300 and SC5502 are merged subjects.

with 3 or 4 in each main semester (Study Period 1 and 2), and additional subjects in the block mode (intensive) periods (SP3, SP7, SP10 /11) as necessary. An explanation to JCU's academic calendar can be found here.

Multiple subjects can be taken consecutively in a block mode period as long as the face to face teaching dates do not overlap. These dates are displayed on the Subject Search tool. For example a student can take SC5502 in SP3 followed by MB5310.

Please note that timings of some subjects occasionally change among years, due to JCU's operational requirements. While such changes are rare, students should check when a subject is being taught using the Subject Search tool above.

For any subject you need to have fulfilled the 'Assumed Knowledge' and / or Pre-requisites before you take them. These are listed in the subject's description. For example, EV5502 assumes you have already taken EV5505 or an equivalent at JCU or at your previous university. Speak with your course advisor for more assistance on this.

Where a subject includes overnight field trips this is noted in the subject's description on *Subject Search*. Additional fees apply to cover trip transport, accommodation and food expenses for these field trips.

## List 1. Advanced Skill Subjects (Select 1)

| **SP1** Feb - June<br>**& SP7** June - July | **SP2** July - Nov | **SP9** Sept to Dec<br>**SP10 / 11** Nov – Dec |
|---|---|---|
| | BZ5450:03 Ecological and Conservation Genetics | EV5502:03 Advanced Geographic Information Systems - TSV |
| | EV5110:03 Environmental and Social Impact Assessment | EV5506:03 Remote Sensing -CNS LTD (SP9: Sept to Nov) |
| | BS5260:03 Modelling Ecological Dynamics | |

## List 2. Additional Skill Subjects (Select 2)

| **SP3**<br>Jan – Feb | **SP1**<br>Feb - June | **SP6 / SP7**<br>June - July | **SP2**<br>July - Nov | **SP9** Sept to Dec<br>**SP10 / 11** Nov - Dec |
|---|---|---|---|---|
| | SC5200:03 Professional Employability | BZ5990:03 Toolkit for the Field Biologist *(Terrestrial work)* | SC5200:03 Professional Employability | AQ5004:03 Aquaculture: Stock Improvement |
| | SC5202:03 Quantitative Methods in Science | EA5018:03 Field Studies in Tropical Land and Water Science [2] | BS5260:03 Modelling Ecological Dynamics | EV5502:03 Advanced Geographic Information Systems - TSV |
| | EV5020:03 Human Dimensions of Nature, Environment and Conservation | EA5330:03 Field Techniques [2] | BZ5450:03 Ecological and Conservation Genetics | EV5506:03 Remote Sensing - CNS (SP9 start) |
| | | EA5044:03 Geological Mapping [2] | EV5110:03 Environmental and Social Impact Assessment | EA5640:03 Advanced Marine Geoscience Technologies and Applications |
| | | | EV5505:03 Introduction to Geographic Information Systems | |
| | | | CH5203:03 Analytical Chemistry (Advanced) | |
| | | | MA5405:03 Data Mining | |
| | | | BC5203:03 Advanced Bioinformatics | |

[2] These are earth science and geology oriented subjects

## Professional Practice

Select one of the following Options:

*Option 1 - Research Project*

- Take SC5912:06 Research Project (Part 1 of 2) & SC5913:06 (Part 2 of 2)

You can take the research project all in your final semester, or spread it over 2 semesters. Enrolment is conditional on attaining a minimum GPA of 5.5 from the preceeding coursework units, and having a research project + supervisor confirmed.

Taking this research option is a pathway into a PhD program. More information about PhD pathways can be found here.

*Option 2 - Professional Employability*

- Take SC5009:12 Postgraduate Internship

This unit is to be taken in your final semester of study. Students must have completed the pre-requisite subject SC5200:03 *Professional Employability.* This pre-requisite unit should be taken in your first semester of study (in Year 1) and is recommended for both research and internship track students.

If you are seeking to gain employment in your field directly after the Master degree, then you should take the Professional Employability Option.

Detailed information about the Professional Practice options is provided to students during their first year of study and available on the LearnJCU course page (Organisations & Communities tab).

## List 3. Elective Subjects

You can take any Level 5 subject with a prefix subject code of: AQ, BS, BZ, CH, EA, EV, MA, MB, MI, SC or TV. Other subjects can also be approved by your advisor.

Use *Subject* Search to review the units and check the study period they are offered in.

**Recommended elective subjects for MARINE BIOLOGY -** These are our recommended and most popular units grouped by particular career pathways and/or study interests.

| TOPIC | STUDY PERIOD |
|---|---|
| *Coral Reef Science* | |
| MB5400:03 Life History & Evolution of Reef Corals | 1 |
| EV5406:03 Coral Reef Geomorphology | 1 |
| MB5160:03 Evolution and Ecology of Reef Fishes | 1 |
| MB5190:03 Coral Reef Ecology | 2 |
| | |
| *Marine Conservation & Management* | |
| EV5020:03 Human Dimensions of Nature, Environment and Conservation | 1 |
| MB5204:03 Conserving Marine Wildlife: Sea Mammals, Birds and Reptiles | 1 |
| EV5701:03 Managing Coastal and Marine Environments | 1 |
| MB5270:03 Coastal, Estuarine & Mangrove Ecosystems | 2 |
| BZ5450:03 Ecological & Conservation Genetics | 2 |
| EV5209:03 Principles and Practices of Protected Area Management | 3 (TSV) |

| | |
|---|---|
| *Taught in Townsville in odd numbered years & in Galapagos in even years* | 7 (Galapagos) |
| MB5310:03 Marine Reserves as Fisheries Management Tools | 3 |
| MB5014:03 Managing Tropical Fisheries | 11 |
| MB5001:03 Tropical Marine Ecology and Coastal Impacts | 11 (Thailand) |
| | |
| *Applied Marine Biology - Fisheries Science & Management* | |
| MB5310:03 Marine Reserves as Fisheries Management Tools | 3 |
| MB5003:03 Fisheries Science | 1 |
| MB5260:03 Grand Challenges in Fisheries | 1 |
| MB5610:03 Fishing Gear and Technologies | 2 |
| MB5014:03 Managing Tropical Fisheries | 11 |
| | |
| *Aquaculture studies* | |
| AQ5015:03 Sustainable Aquaculture | 3 |
| AQ5006:03 Principles and Practices of Aquaculture | 1 |
| *For more subjects search for 'AQ5' in Subject Search* | |
| | |
| *Marine Biology & Ecology specialisations* | |
| MB5160:03 Evolution and Ecology of Reef Fishes | 1 |
| MB5400:03 Life History & Evolution of Reef Corals | 1 |
| MI5003:03 Advanced Marine Microbiology | 1 |
| MB5070:03 Marine Biogeography | 1 |
| MB5270:03 Coastal, Estuarine & Mangrove Ecosystems | 2 |
| MB5380:03 Invertebrate Biology | 2 |
| AQ5007:03 Aquatic Animal Ecophysiology | 2 |
| SC5810 Marine Ecology and Upwelling | 7 (Galapagos) |
| BZ5450:03 Ecological & Conservation Genetics | 2 |
| | |
| *Coastal Resource Management* | |
| EV5406:03 Coral Reef Geomorphology | 1 |
| EV5020:03 Human Dimensions of Nature, Environment and Conservation | 1 |
| MB5204:03 Conserving Marine Wildlife: Sea Mammals, Birds and Reptiles | 1 |
| EV5701:03 Managing Coastal and Marine Environments | 1 |
| MB5270:03 Coastal, Estuarine & Mangrove Ecosystems | 2 |
| | |
| *Foundations in Biology & Ecology*<br>recommended for students with no undergraduate background in biology & evolutionary ecology | |
| BS5470:03 Evolution | 1 |
| MB5380:03 Invertebrate Biology | 2 |
| BS5460:03 Fundamentals of Ecology | 2 |
| SC5202:03 Quantitative Methods in Science | 1 |
| | |

**enrolment is contingent upon project supervisor's approval*

## YOUR STUDY PLANNER

Fill in the cells below with your planned subjects. You can re-arrange when you take your skill and elective subjects contingent on when your preferred unit is taught. Aim to complete all your core & skill subjects in your first year of study. You will normally start your program in either SP1 or SP2, but can on request start in SP3 or SP7.

<table>
<tr><td colspan="5">Year 1 Take 8 subjects (24 credit points) with 4 subjects per 6 month Teaching Period</td></tr>
<tr><td colspan="3">TEACHING PERIOD 1 (TP1 Jan – June)</td><td colspan="2">TEACHING PERIOD 2 (TP2 July – December)</td></tr>
<tr><td>SP3<br>Jan – Feb</td><td>SP1<br>Feb - June</td><td>SP6 / SP7<br>June - July</td><td>SP2<br>July - Nov</td><td>SP9 Sept to Dec<br>SP10 / 11 Nov - Dec</td></tr>
<tr><td></td><td>Major core<br>MB5055:03 Biological Oceanography</td><td rowspan="4"></td><td>Major core<br>MB5190:03 Coral Reef Ecology *<br>OR<br>MB5270:03 Coastal, Estuarine and Mangrove Ecosystems</td><td>Skill Subject<br>e.g. EV5502:03 / EV5506:03<br>OR Elective</td></tr>
<tr><td rowspan="3"></td><td>Skill subject<br>e.g. SC5200:03 Professional Employability [b] &/OR SC5202:03 Quantitative Methods in Science &/OR EV5020:03 Human Dimensions of Nature, Environment and Conservation.</td><td>Major core<br>MB5004:03 Marine Conservation Biology</td><td rowspan="3"></td></tr>
<tr><td>Elective<br>e.g. MB5400 or MB5160 or MB5204</td><td>Advanced Skill Subject<br>e.g. BS5260:03 Modelling Ecological Dynamics OR EV5110:03 Environmental and Social Impact Assessment</td></tr>
<tr><td>Elective</td><td>Skill Subject<br>e.g. SC5200:03 Professional Employability OR EV5505:03 Introduction to Geographic Information Systems</td></tr>
</table>

***Notes**:* Pink are core knowledge subjects, Grey are skills subjects, White are electives, Blue are professional practice.

*b.* SC5200 unit is recommended for all students and should be taken in the first study period of your degree. It is offered in both SP1 and SP2.

<table>
<tr><td colspan="5">Year 2 Take 24 credit points, with 12 credit points in each teaching period</td></tr>
<tr><td colspan="3">TEACHING PERIOD 1 (TP1 Jan – June)</td><td colspan="2">TEACHING PERIOD 2 (TP2 July – December)</td></tr>
<tr><td>SP3<br>Jan – Feb</td><td>SP1<br>Feb - June</td><td>SP6 / SP7<br>June - July</td><td>SP2<br>July - Nov</td><td>SP9 Sept to Dec<br>SP10 / 11 Nov - Dec</td></tr>
<tr><td>Core Skill *<br>MB5300:03 Sampling & Experimental Design OR<br>SC5502:03 Design and Analyses in Ecological Studies</td><td>Elective</td><td></td><td rowspan="4">Professional Practice (12cp)<br>Pre-requisite conditions apply to both options<br>RESEARCH PROJECT (SC5912+SC5913)<br>OR<br>• POSTGRADUATE INTERNSHIP (SC5009)<br>Pre-requisite unit SC5200<br><br>This module should be the final subject of your degree.</td><td rowspan="4"></td></tr>
<tr><td></td><td>Elective</td><td></td></tr>
<tr><td></td><td>Elective</td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
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* Pre-requisite knowledge is a university level introductory statistics unit or SC5202. MB5300 and SC5502 are merged offerings in 2021. This core subject can be taken in Year 1 or at the start of Year 2.