**DEGREE Master of Science-Professional** **MAJOR Tropical Biology & Conservation (TBC)**

## RECOMMENDED STUDY PLAN 2021-2022

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

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# 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.

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## *Tropical Biology & Conservation major structure*

1. Take the following 4 prescribed **Knowledge** subjects:
   - 1.1. BZ5215 Conservation Biology (SP1)
   - 1.2. BZ5061 Behavioural Ecology (SP2) ***or*** BZ5235 Biological Invasions (SP1)
   - 1.3. BZ5220 Population and Community Ecology (SP2) ***or*** BZ5230 Ecological Research Methods (SP2)
   - 1.4. BZ5740 Wildlife Ecology and Management (SP1) ***or*** BZ5745 Tropical Entomology (SP3)
2. Take 4 **Skills** subjects:
   - 2.1. Take SC5502 Design and Analyses in Ecological Studies (SP3) OR SC5202 Quantitative Methods in Science (SP1)
   - 2.2. Take 1 of the following Advanced Skill subjects in 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)
       *is recommended for all students in their first semester of study & compulsory if you are taking the internship option (SC5009) in item 4 below*
3. Take 4 **Elective** subjects from List 3
4. Take a 12 credit point **Professional Practice** option
   - 4.1. Option 1 – Research Project (take 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,

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 both EV5502 and EV5506 in SP11.

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)

| **SP3** Jan – Feb | **SP1** Feb - June | **SP6 / SP7** June - July | **SP2** July - Nov | **SP9** Sept to Dec **SP10 / 11** Nov - Dec |
|---|---|---|---|---|
| SC5502:03 Design and Analyses in Ecological Studies [1] | | | 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 (SP9: Sept to Nov) |
| | | | BS5260:03 Modelling Ecological Dynamics | |

[1] MB5300 and SC5502 are merged subjects in 2021. Students should have prior understanding of statistics, equivalent to SC5202.

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

| **SP3** Jan – Feb | **SP1** Feb - June | **SP6 / SP7** June - July | **SP2** July - Nov | **SP9** Sept to Dec **SP10 / 11** Nov - Dec |
|---|---|---|---|---|
| SC5502:03 Design and Analyses in Ecological Studies [2] | SC5200:03 Professional Employability | BZ5990:03 Toolkit for the Field Biologist *(Terrestrial studies)* | 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 [3] | BZ5450:03 Ecological and Conservation Genetics | EV5502:03 Advanced Geographic Information Systems - TSV |
| | EV5020:03 Human Dimensions of Nature, Environment and Conservation | EA5330:03 Field Techniques [3] | BS5260:03 Modelling Ecological Dynamics | EV5506:03 Remote Sensing - CNS (SP9 start) |
| | | EA5044:03 Geological Mapping[3] | EV5110:03 Environmental and Social Impact Assessment | EA5640:03 Advanced Marine Geoscience Technologies and Applications |
| | | | EV5505:03 Introduction to Geographic Information Systems | |
| | | | MA5405:03 Data Mining | |
| | | | BC5203:03 Advanced Bioinformatics | |
| | | | CH5203:03 Analytical Chemistry (Advanced) | |

[2] MB5300 and SC5502 are merged subjects in 2021. Students should have prior understanding of statistics, equivalent to SC5202.

[3] Not intended for students in Marine Biology, Fisheries, Aquaculture or Tropical Biology & Conservation

## 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 stream 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 TROPICAL BIOLOGY & CONSERVATION -** These are our recommended and most popular units grouped by particular career pathways and/or study interests.

| TOPIC | STUDY PERIOD | CAMPUS |
|---|---|---|
| *Terrestrial Biology & Ecology* | | |
| BZ5745:03 Tropical Entomology | 3 | Cairns |
| BZ5740:03 Wildlife Ecology & Management | 1 | Townsville |
| BZ5925:03 Australian Terrestrial Diversity | 1 | Cairns & Townsville |
| BZ5480:03 Restoration Ecology | 1 | Cairns |
| BZ5235:03 Biological Invasions | 1 | Cairns |
| BZ5755:03 Biodiversity & Climate Change: Impact, Mitigation & Adaptation | 7 | Townsville |
| BZ5620:03 Tropical Flora of Australia | 7 | Cairns |
| BZ5650:03 Australian Land Plants: Recognition, Evolution and Diversity | 1,2,7 & 11 | Online - External |

| | | |
|---|---|---|
| BZ5061:03 Behavioural Ecology | 2 | Cairns & Townsville |
| | | |
| *Applications for Ecology* | | |
| BZ5480:03 Restoration Ecology | 1 | Cairns |
| BZ5740:03 Wildlife Ecology & Management | 1 | Townsville |
| CH5041:03 Environmental Chemistry | 1 | Cairns & Townsville |
| BZ5990:03 Toolkit for the Field Biologist | 7 | Cairns & Townsville |
| BZ5450:03 Ecological & Conservation Genetics | 2 | Townsville |
| BZ5230:03 Ecological Research Methods | 2<br>10 (to be confirmed) | Cairns<br>(Townsville offering to be advised) |
| BZ5225:03 Technological Applications in Ecology | 2 | Cairns & Townsville |
| | | |
| *Applications for Conservation & Management* | | |
| EV5107:03 International Environmental Policy & Governance | 3 | Townsville |
| EV5209:03 Principles & Practices of Protected Area Management | 3 | Townsville |
| BZ3215:03 Conservation Biology | 1 | Cairns & Townsville |
| EV5020:03 Human Dimensions of Nature, Environment and Conservation | 1 | Townsville |
| EA5016:03 Hydrology | 1 | Cairns & Townsville |
| EA5018:03 Field Studies in Tropical Land & Water Science | 6 | Cairns |
| BZ5450:03 Ecological & Conservation Genetics | 2 | Townsville |
| EV5003:03 Environmental Economics | 2 | Townsville |
| EA5017:03 Soil Properties & Processes | 2 | Cairns & Townsville |
| | | |
| *Foundations – for students without 2nd year level biology and ecology* | | |
| BS5470:03 Evolution | 1 | Cairns & Townsville |
| BZ5220:03 Population and Community Ecology | 2 | Townsville |
| MB5380:03 Invertebrate Biology | 2 | Townsville |
| | | |
| *Marine Science* | | |
| EV5406:03 Coral Reef Geomorphology | 1 | Townsville |
| MB5204:03 Conserving Marine Wildlife: Sea Mammals, Birds and Reptiles | 1 | Townsville |
| MB5160:03 Evolution and Ecology of Reef Fishes | 1 | Townsville |
| MB5400:03 Life History & Evolution of Reef Corals | 1 | Townsville |
| SC5810:03 Marine Ecology and Upwelling | 7 | Galapagos |
| MB5270:03 Coastal, Estuarine & Mangrove Ecosystems | 2 | Townsville |
| AQ5007:03 Aquatic Animal Ecophysiology | 2 | Townsville |
| MB5190:03 Coral Reef Ecology | 2 | Townsville |
| MB5300: Sampling & Experimental Design | 3 | Townsville |
| MB5001:03 Tropical Marine Ecology and Coastal Impacts | 11 | Thailand |

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# TOWNSVILLE STUDENT 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.

| **Year 1** Take 8 subjects (24 credit points) with 4 subjects per 6 month Teaching Period | | | | |
|---|---|---|---|---|
| **TEACHING PERIOD 1 (TP1 Jan – June)** | | | **TEACHING PERIOD 2 (TP2 July – December)** | |
| **SP3** Jan – Feb | **SP1** Feb - June | **SP6 / SP7** June - July | **SP2** July - Nov | **SP9** Sept to Dec<br>**SP10 / 11** Nov - Dec |
| | **Major Core:**<br>BZ5215:03 Conservation Biology | | **Major Core:**<br>BZ5061:03 Behavioural Ecology | **Skill subject** |
| | **Major Core:**<br>BZ5740:03 Wildlife Ecology and Management | | **Major Core:**<br>BZ5220:03 Population and Community Ecology | |
| | **Major Core Skill subject:**<br>SC5202:03 Quantitative Methods in Science | | **Advanced skill subject:**<br>e.g. BS5260 or BZ5450 | |
| | **Skill subject**<br>SC5200:03 Professional Employability [b] *recommended.*<br>**OR Elective** | | **Skill subject**<br>SC5200:03 Professional Employability[b] *recommended.*<br>**OR Elective** | |

***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>Elective OR<br>Core Skill SC5502 [a]</td><td>Elective</td><td></td><td rowspan="4">Professional Practice (12cp)<br>Pre-requisite conditions apply<br><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></td></tr>
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*a* SC5502 can be taken in Year 1 or at the start of Year 2. Prior knowledge of statistics is assumed, equivalent to that of SC5202.

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## CAIRNS STUDENT STUDY PLANNER

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| **Year 1** Take 8 subjects (24 credit points) with 4 subjects per 6 month Teaching Period | | | | |
|---|---|---|---|---|
| **TEACHING PERIOD 1 (TP1 Jan – June)** | | | **TEACHING PERIOD 2 (TP2 July – December)** | |
| **SP3** Jan – Feb | **SP1** Feb - June | **SP6 / SP7** June - July | **SP2** July - Nov | **SP9** Sept to Dec<br>**SP10 / 11** Nov - Dec |
| | **Major Core:**<br>BZ5215:03 Conservation Biology | | **Major Core:**<br>BZ5230:03 Ecological Research Methods | **Skill subject** |
| | **Major Core:**<br>BZ5235:03 Biological Invasions | | **Advanced Skill subject** | |
| | **Major Core Skill subject:**<br>SC5202:03 Quantitative Methods in Science | | **Skill subject**<br>SC5200:03 Professional Employability[b] *recommended.*<br>**OR Elective** | |
| | **Skill subject**<br>SC5200:03 Professional Employability [b] *recommended.*<br>**OR Elective** | | | |

***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.

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<tr><td>Major Core:<br>BZ5745:03 Tropical Entomology</td><td>Elective</td><td></td><td rowspan="4">Professional Practice (12cp)<br>Pre-requisite conditions apply<br><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></td></tr>
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