

Handbook 2020

Coursecode

B1317

Murdoch University

Correct as at: 6 December 2019 at 6:17am

Correct as at: 6 December 2019 at 6:17am

The information contained within this publication was correct as at the generated date shown above but is subject to amendment without notice. Enquiries concerning its contents should be addressed to:

University Secretary
Murdoch University
South Street
Murdoch
Western Australia 6150

Telephone: (08) 9360 6000

Facsimile: (08) 9360 6847

<http://www.murdoch.edu.au>

TEQSA Number PRV12163; CRICOS Provider Code: 00125J

Cancellation of Courses, Majors, Minors and Units

The University reserves the right to cancel, without notice, any course, major, minor or unit if the number of students enrolled falls below limits set by the University or in other unforeseen circumstances.

Alternative Formats

Handbook home page:

<http://handbook.murdoch.edu.au>

This publication can also be provided in alternative formats by contacting the Equity and Social Inclusion Office at Murdoch University

Telephone: (08) 9360 6084

Facsimile: (08) 9360 6502

equity@murdoch.edu.au

<http://goto.murdoch.edu.au/EquitySocialInclusion>

ISSN 0815-9068

Published by

University Secretary's Office

Murdoch University



© Murdoch University 2019

This Handbook, and its sections as individual works, is licensed under a Creative Commons Attribution Noncommercial No Derivative Works Australia 2.5 licence. You may download, reproduce, communicate, print and distribute copies of the Handbook (or any part of it) as long as it is for non-commercial purposes, you do not alter the content, and you attribute Murdoch University as the original author. For more information on this licence, see <http://creativecommons.org/licenses/by-nc-nd/2.5/au/>

Cancellation of Courses, Majors, Minors and Units

The University reserves the right to cancel, without notice, any course, major, minor or unit if the number of students enrolled falls below limits set by the University or in other unforeseen circumstances.

Group	Course	Offerings
Mathematics and Statistics	Mathematics and Statistics (BSc)	<ul style="list-style-type: none"> • Murdoch campus (internal) • Murdoch campus (external)

MATHEMATICS AND STATISTICS

MATHEMATICS AND STATISTICS (BSC)

Employment Prospects:

This major trains students for future employment in banking, insurance, research and development, industry and government, in the computing, industrial mathematics, statistics and biostatistics areas. It provides an excellent preparation for careers in law, the health sciences, teaching and engineering when combined with studies in those areas. A shortage of numerate graduates makes mathematics and statistics graduates highly employable.

The focus of the Mathematics and Statistics major is on mathematical and statistical training for future employment in business, industry or government. Students may concentrate on mathematical modelling, with special emphasis given to methods and applications in the life and environmental sciences and engineering, or on applied statistics, with emphasis on methods and applications in the life and health sciences (biostatistics), the environment, commerce and industry, or students may wish to combine units from both areas. The major is designed to produce practical mathematicians and statisticians with a flexible outlook, a mix of technical skills, and an awareness of the modern uses of mathematics and statistics.

Murdoch's Bachelor of Science is a flexible degree which gives you the opportunity to build deep understanding and practical experience as well as to supplement your studies by engaging with industry and the community on relevant problems. You can even undertake studies through another discipline to broaden your understanding of the way in which science operates in relation to social, business, health and policy environments.

Mathematics and Statistics

Course Codes: B1317 B1317A

Availability:

- Murdoch campus (internal) Murdoch campus (external)

Bachelor of Science (BSc) in Mathematics and Statistics

Duration: 3 years full-time or part-time equivalent

Special Requirements:

Students completing the major externally should note that access to a suitable computer and software packages is required for some of the units.

Recommended Double Majors:

Biological Sciences; Biomedical Science; Chemistry; Computer Science; Environmental Science; Physics and Nanotechnology

Excluded Minors:

Applied and Computational Mathematics; Applied Statistics

Main Research Areas:

Biostatistics, experimental design, fluid mechanics, harmonic analysis, industrial modelling, numerical analysis, robust statistics, signal processing.

Admission Requirements (Onshore):

As per normal undergraduate admission requirements.

Major Prerequisites

Mathematics Background

Students who have not achieved a final grade of Satisfactory in Mathematics Specialist ATAR (or Mathematics Specialist 3C/3D) may need to complete up to two prerequisite units depending on their mathematics background.

Mathematics Methods ATAR or Mathematics 3C/3D
and
Mathematics Specialist ATAR or Mathematics Specialist 3C/3D

OR

Mathematics Methods ATAR or Mathematics 3C/3D
and
MAS182 Applied Mathematics - 3 points
MURDOCH: S1-internal, S1-external, S2-internal, S2-external

OR

Mathematics Applications ATAR or Mathematics 2C/2D
and
MAS164 Fundamentals of Mathematics - 3 points
MURDOCH: S1-internal, S1-external, S2-internal, S2-external

and

MAS182 Applied Mathematics - 3 points
MURDOCH: S1-internal, S1-external, S2-internal, S2-external

Students who have completed previous mathematics not stated above should consult the Academic Chair for clarification of their enrolment requirements.

Course Structure - 72 credit points

Part I - 24 credit points

Year 1 - 24 credit points

Transition Unit - 3 credit points

BSC100 Building Blocks for Science Students - 3 points
MURDOCH: S1-internal, S1-external, S2-internal, S2-external

Breadth Unit for Degree - 3 credit points

The following unit is no longer available - contact the Academic Chair for advice:

BSC150 What is Science? - 3 points
Murdoch: S1-internal, S1-external, S2-internal, S2-external

Core Units - 9 credit points

MAS162 Foundations of Discrete Mathematics - 3 points
MURDOCH: S1-internal, S1-external, S2-internal, S2-external

MAS161 Calculus and Matrix Algebra - 3 points
MURDOCH: S1-internal, S1-external, S2-internal, S2-external

MAS183 Statistical Data Analysis - 3 points
MURDOCH: S1-internal, S1-external, S2-internal, S2-external

General Electives - 9 credit points

Select from any 100-level units offered by the University, subject to individual unit prerequisites. Students are advised to consider using General Elective points to meet the requirements of a second major or minor. Any recommended double majors and minors will be included in the major's description.

Part II - 48 credit points

University-Wide Breadth Units - 6 credit points

Select from the prescribed list of University-Wide Breadth Units. A unit cannot be used to satisfy both this Breadth Unit requirement and the requirements of a major or minor. If taken at 100 level the unit(s) will be attributed to Part I. Note that no more than 30 credit points at Part I may be credited towards course completion requirements.

Year 2 - 21 credit points

Research Skills Unit - 3 credit points

The Research Skills unit to be taken will depend on the student's Primary Major enrolment. Select from the following.

For Primary Major in Cognitive Neuroscience and Health Psychology

BSC201 Psychology: Measurement, Design and Analysis - 3 points

MURDOCH: S1-internal

For Primary Majors in the Health Sciences, as listed

Primary Major in Chiropractic Science, Exercise Physiology, Movement Science, or Sport and Health Science:

BSC206 Introduction to Research Methodology and Evidence Based Practice - 3 points
MURDOCH: S2-internal

For All Other Primary Majors excluding Information Technology

Select from the Research Skills Unit List recommended for each major. A unit cannot be used to satisfy both this Research Skills Unit requirement and the requirements of a major or minor. If taken at 100 level the unit(s) will be attributed to Part I. Note that no more than 30 credit points at Part I may be credited towards course completion requirements.

Core Units - 9 credit points

MAS220 Mathematical Methods - 3 points
MURDOCH: S1-internal, S1-external

Select one unit from the following, paying regard to planned 300-level unit choices:

MAS222 Probability and Statistical Inference - 3 points
MURDOCH: S1-internal, S1-external

MAS223 Applied Statistics - 3 points
MURDOCH: S2-internal, S2-external

MAS224 Biostatistical Methods - 3 points
MURDOCH: S1-internal, S1-external

Select an additional unit from the following, paying regard to planned 300-level unit choices:

MAS221 Mathematical Modelling - 3 points
MURDOCH: S2-internal, S2-external

MAS222 Probability and Statistical Inference - 3 points
MURDOCH: S1-internal, S1-external

MAS223 Applied Statistics - 3 points
MURDOCH: S2-internal, S2-external

MAS224 Biostatistical Methods - 3 points
MURDOCH: S1-internal, S1-external

MAS225 Discrete Mathematics and Management Science - 3 points
MURDOCH: S2-internal, S2-external

General Electives - 9 credit points

Select from any 200- to 400-level units offered by the University, subject to individual unit prerequisites. Students are advised to consider using General Elective points to meet the requirements of a second major or minor. Any recommended double majors and minors will be included in the major's description.

Year 3 - 21 credit points

Research Skills Unit - 3 credit points

The Research Skills unit to be taken will depend on the student's Primary Major enrolment. Select from the following.

For Primary Major in Cognitive Neuroscience and Health Psychology

BSC302 Advanced Quantitative Research Methods - 3 points
MURDOCH: S2-internal

For Primary Majors in the Health Sciences, as listed

Primary major in Chiropractic Science, Movement Science, Sport and Health Science:

BSC306 Research and Evidence Based Practice - 3 points

MURDOCH: S1-internal

For All Other Primary Majors excluding Information Technology

Select from the Research Skills Unit List recommended for each major. A unit cannot be used to satisfy both this Research Skills Unit requirement and the requirements of a major or minor. If taken at 100 level the unit(s) will be attributed to Part I. Note that no more than 30 credit points at Part I may be credited towards course completion requirements.

Core Units - 9 credit points

Select from the following:

MAS351 Environmental and Biological Modelling - 3 points
MURDOCH: S1-internal, S1-external

MAS352 Time Series Analysis - 3 points
MURDOCH: S1-internal, S1-external

MAS353 Statistical Design and Data Analysis - 3 points
MURDOCH: S2-internal, S2-external

MAS354 Modelling and Simulation - 3 points
MURDOCH: S2-internal, S2-external

General Electives - 9 credit points

Select from any 200- to 400-level units offered by the University, subject to individual unit prerequisites. Students are advised to consider using General Elective points to meet the requirements of a second major or minor. Any recommended double majors and minors will be included in the major's description.

Research Skills Unit List

Animal Health Major

BSC200 Research in the Physical and Life Sciences - 3 points
Not available this year

MAS223 Applied Statistics - 3 points
MURDOCH: S2-internal, S2-external

MAS224 Biostatistical Methods - 3 points
MURDOCH: S1-internal, S1-external

BIO282 Molecular Biology - 3 points
MURDOCH: S1-internal

BIO394 Genetic Engineering - 3 points
MURDOCH: S1-internal

ENV303 GIS for Environmental Management and Planning - 3 points
MURDOCH: S2-internal (quota of 70 places), S2-external (quota of 20 places)

COM103 Foundations of Communication - 3 points
MURDOCH: S2-internal, S2-external

BMS317 Human Pharmacology - 3 points
MURDOCH: S1-internal

Animal Science Major

BSC200 Research in the Physical and Life Sciences - 3 points
Not available this year

MAS223 Applied Statistics - 3 points
MURDOCH: S2-internal, S2-external

MAS224 Biostatistical Methods - 3 points
MURDOCH: S1-internal, S1-external

BIO246 Microbiology - 3 points
MURDOCH: S1-internal

BMS316 Parasitology: People, Pets and Wildlife - 3 points
MURDOCH: S2-internal

ENV303 GIS for Environmental Management and Planning - 3 points
 MURDOCH: S2-internal (quota of 70 places), S2-external (quota of 20 places)

BIO282 Molecular Biology - 3 points
 MURDOCH: S1-internal

BIO394 Genetic Engineering - 3 points
 MURDOCH: S1-internal

COM103 Foundations of Communication - 3 points
 MURDOCH: S2-internal, S2-external

Crop and Pasture Science

BSC200 Research in the Physical and Life Sciences - 3 points
 Not available this year

ENV303 GIS for Environmental Management and Planning - 3 points
 MURDOCH: S2-internal (quota of 70 places), S2-external (quota of 20 places)

BMS316 Parasitology: People, Pets and Wildlife - 3 points
 MURDOCH: S2-internal

MAS223 Applied Statistics - 3 points
 MURDOCH: S2-internal, S2-external

MAS224 Biostatistical Methods - 3 points
 MURDOCH: S1-internal, S1-external

BIO246 Microbiology - 3 points
 MURDOCH: S1-internal

BIO257 Australian Biodiversity - 3 points
 MURDOCH: S2-internal

BIO282 Molecular Biology - 3 points
 MURDOCH: S1-internal

BIO394 Genetic Engineering - 3 points
 MURDOCH: S1-internal

Biological Sciences Major

BSC200 Research in the Physical and Life Sciences - 3 points
 Not available this year

ENV303 GIS for Environmental Management and Planning - 3 points
 MURDOCH: S2-internal (quota of 70 places), S2-external (quota of 20 places)

BMS316 Parasitology: People, Pets and Wildlife - 3 points
 MURDOCH: S2-internal

MAS223 Applied Statistics - 3 points
 MURDOCH: S2-internal, S2-external

MAS224 Biostatistical Methods - 3 points
 MURDOCH: S1-internal, S1-external

BIO282 Molecular Biology - 3 points
 MURDOCH: S1-internal

BIO394 Genetic Engineering - 3 points
 MURDOCH: S1-internal

BIO377 Marine Ecology - 3 points
 MURDOCH: S1-internal

BIO388 Forensic Science and Miscarriages of Justice - 3 points
 MURDOCH: W-internal

CHE207 Chemical Analysis - 3 points
 MURDOCH: S1-internal, S1-external

BIO393 Tropical Marine Biology - 3 points

MURDOCH: W-internal (quota of 40 places)

Conservation and Wildlife Biology Major

BSC200 Research in the Physical and Life Sciences - 3 points
 Not available this year

ENV303 GIS for Environmental Management and Planning - 3 points
 MURDOCH: S2-internal (quota of 70 places), S2-external (quota of 20 places)

BIO246 Microbiology - 3 points
 MURDOCH: S1-internal

BMS316 Parasitology: People, Pets and Wildlife - 3 points
 MURDOCH: S2-internal

MAS223 Applied Statistics - 3 points
 MURDOCH: S2-internal, S2-external

MAS224 Biostatistical Methods - 3 points
 MURDOCH: S1-internal, S1-external

BIO282 Molecular Biology - 3 points
 MURDOCH: S1-internal

BIO394 Genetic Engineering - 3 points
 MURDOCH: S1-internal

BIO377 Marine Ecology - 3 points
 MURDOCH: S1-internal

ENV328 Environmental Policy and Law - 3 points
 MURDOCH: S1-internal, S1-external

SUS305 Economics of Sustainability - 3 points
 MURDOCH: W-internal, W-external

COD302 Creative Ways to Work with Community - 3 points
 MURDOCH: S2-internal, S2-external

BIO247 Biochemistry - 3 points
 MURDOCH: S2-internal

ENV332 Managing Wetlands and Water - 3 points
 MURDOCH: S2-internal, S2-external

BIO393 Tropical Marine Biology - 3 points
 MURDOCH: W-internal (quota of 40 places)

Environmental Management and Sustainability Major

BSC200 Research in the Physical and Life Sciences - 3 points
 Not available this year

MAS223 Applied Statistics - 3 points
 MURDOCH: S2-internal, S2-external

MAS224 Biostatistical Methods - 3 points
 MURDOCH: S1-internal, S1-external

BIO393 Tropical Marine Biology - 3 points
 MURDOCH: W-internal (quota of 40 places)

MAS182 Applied Mathematics - 3 points
 MURDOCH: S1-internal, S1-external, S2-internal, S2-external

MAS353 Statistical Design and Data Analysis - 3 points
 MURDOCH: S2-internal, S2-external

ENV332 Managing Wetlands and Water - 3 points
 MURDOCH: S2-internal, S2-external

ENG341 Water Conservation and Auditing - 3 points
 MURDOCH: S1-internal, S1-external

COM103 Foundations of Communication - 3 points
 MURDOCH: S2-internal, S2-external

BIO257 Australian Biodiversity - 3 points

MURDOCH: S2-internal

SUS305 Economics of Sustainability - 3 points

MURDOCH: W-internal, W-external

COD302 Creative Ways to Work with Community - 3 points

MURDOCH: S2-internal, S2-external

ENV241 Ecology - 3 points

MURDOCH: S2-internal, S2-external

Environmental Science Major

BSC200 Research in the Physical and Life Sciences - 3 points

Not available this year

ENV303 GIS for Environmental Management and Planning - 3 points

MURDOCH: S2-internal (quota of 70 places), S2-external (quota of 20 places)

MAS223 Applied Statistics - 3 points

MURDOCH: S2-internal, S2-external

MAS224 Biostatistical Methods - 3 points

MURDOCH: S1-internal, S1-external

BIO393 Tropical Marine Biology - 3 points

MURDOCH: W-internal (quota of 40 places)

ENV334 Environmental Restoration - 3 points

MURDOCH: S1-internal (quota of 60 places), S1-external (quota of 60 places)

ENG341 Water Conservation and Auditing - 3 points

MURDOCH: S1-internal, S1-external

COM103 Foundations of Communication - 3 points

MURDOCH: S2-internal, S2-external

BIO257 Australian Biodiversity - 3 points

MURDOCH: S2-internal

MAS182 Applied Mathematics - 3 points

MURDOCH: S1-internal, S1-external, S2-internal, S2-external

Marine Science Major

BSC200 Research in the Physical and Life Sciences - 3 points

Not available this year

ENV303 GIS for Environmental Management and Planning - 3 points

MURDOCH: S2-internal (quota of 70 places), S2-external (quota of 20 places)

BIO246 Microbiology - 3 points

MURDOCH: S1-internal

BMS316 Parasitology: People, Pets and Wildlife - 3 points

MURDOCH: S2-internal

MAS223 Applied Statistics - 3 points

MURDOCH: S2-internal, S2-external

MAS224 Biostatistical Methods - 3 points

MURDOCH: S1-internal, S1-external

ENV241 Ecology - 3 points

MURDOCH: S2-internal, S2-external

BIO393 Tropical Marine Biology - 3 points

MURDOCH: W-internal (quota of 40 places)

Biomedical Science Major

BSC200 Research in the Physical and Life Sciences - 3 points

Not available this year

MAS223 Applied Statistics - 3 points

MURDOCH: S2-internal, S2-external

MAS224 Biostatistical Methods - 3 points

MURDOCH: S1-internal, S1-external

BIO282 Molecular Biology - 3 points

MURDOCH: S1-internal

BIO394 Genetic Engineering - 3 points

MURDOCH: S1-internal

BIO367 Forensic Toxicology - 3 points

MURDOCH: S2-internal

BIO246 Microbiology - 3 points

MURDOCH: S1-internal

BMS218 Haematology - 3 points

MURDOCH: S2-internal (quota of 80 places)

BMS323 Clinical Biochemistry I - 3 points

MURDOCH: S2-internal (quota of 25 places)

BMS316 Parasitology: People, Pets and Wildlife - 3 points

MURDOCH: S2-internal

BMS317 Human Pharmacology - 3 points

MURDOCH: S1-internal

Clinical Laboratory Science Major

BSC200 Research in the Physical and Life Sciences - 3 points

Not available this year

MAS223 Applied Statistics - 3 points

MURDOCH: S2-internal, S2-external

MAS224 Biostatistical Methods - 3 points

MURDOCH: S1-internal, S1-external

BIO394 Genetic Engineering - 3 points

MURDOCH: S1-internal

BIO367 Forensic Toxicology - 3 points

MURDOCH: S2-internal

BIO246 Microbiology - 3 points

MURDOCH: S1-internal

BIO388 Forensic Science and Miscarriages of Justice - 3 points

MURDOCH: W-internal

BMS317 Human Pharmacology - 3 points

MURDOCH: S1-internal

Forensic Biology and Toxicology Major

BSC200 Research in the Physical and Life Sciences - 3 points

Not available this year

MAS223 Applied Statistics - 3 points

MURDOCH: S2-internal, S2-external

MAS224 Biostatistical Methods - 3 points

MURDOCH: S1-internal, S1-external

BIO388 Forensic Science and Miscarriages of Justice - 3 points

MURDOCH: W-internal

BIO394 Genetic Engineering - 3 points

MURDOCH: S1-internal

BMS218 Haematology - 3 points

MURDOCH: S2-internal (quota of 80 places)

BMS323 Clinical Biochemistry I - 3 points

MURDOCH: S2-internal (quota of 25 places)

BMS317 Human Pharmacology - 3 points
MURDOCH: S1-internal

Genetics and Molecular Biology Major

MAS223 Applied Statistics - 3 points
MURDOCH: S2-internal, S2-external

MAS224 Biostatistical Methods - 3 points
MURDOCH: S1-internal, S1-external

BIO388 Forensic Science and Miscarriages of Justice - 3 points
MURDOCH: W-internal

BMS211 Medical Immunology and Molecular Genetics - 3 points
MURDOCH: S2-internal

BMS327 Diagnostic Genomics - 3 points
MURDOCH:
S1-internal (quota of 30 places)

BIO367 Forensic Toxicology - 3 points
MURDOCH: S2-internal

BIO359 Forensic DNA Analysis - 3 points
MURDOCH: S1-internal

BMS218 Haematology - 3 points
MURDOCH:
S2-internal (quota of 80 places)

BMS323 Clinical Biochemistry I - 3 points
MURDOCH:
S2-internal (quota of 25 places)

BMS317 Human Pharmacology - 3 points
MURDOCH: S1-internal

Chemistry Major

MAS221 Mathematical Modelling - 3 points
MURDOCH: S2-internal, S2-external

CHE309 Advanced Projects in Chemistry and Mineral Science - 3
points
MURDOCH: S1-internal, S2-internal, SUM-internal

BSC304 Innovation and Ethics in Science - 3 points
MURDOCH: S1-internal, S1-external

Physics and Nanotechnology Major

MAS223 Applied Statistics - 3 points
MURDOCH: S2-internal, S2-external

MAS222 Probability and Statistical Inference - 3 points
MURDOCH: S1-internal, S1-external

ICT289 Computer Graphics Principles and Programming - 3 points
MURDOCH: S1-internal, S1-external

ICT283 Data Structures and Abstractions - 3 points
MURDOCH: S1-internal, S1-external

ENG297 Circuits and Systems II - 3 points
MURDOCH: S1-internal

ENG207 Principles of Electronic Instrumentation - 3 points
MURDOCH: S2-internal, W-internal

ICT319 Intelligent Systems - 3 points
MURDOCH: S2-internal, S2-external

MAS221 Mathematical Modelling - 3 points
MURDOCH: S2-internal, S2-external

MAS351 Environmental and Biological Modelling - 3 points
MURDOCH: S1-internal, S1-external

MAS354 Modelling and Simulation - 3 points
MURDOCH: S2-internal, S2-external

BSC304 Innovation and Ethics in Science - 3 points
MURDOCH: S1-internal, S1-external

Mathematics and Statistics Major

MAS220 Mathematical Methods - 3 points
MURDOCH: S1-internal, S1-external

MAS222 Probability and Statistical Inference - 3 points
MURDOCH: S1-internal, S1-external

ICT283 Data Structures and Abstractions - 3 points
MURDOCH: S1-internal, S1-external

MAS351 Environmental and Biological Modelling - 3 points
MURDOCH: S1-internal, S1-external

MAS352 Time Series Analysis - 3 points
MURDOCH: S1-internal, S1-external

ICT373 Software Architectures - 3 points
MURDOCH: S1-internal, S1-external

ICT374 Operating Systems and Systems Programming - 3 points
MURDOCH: S2-internal, S2-external

Engineering Technology Major

MAS221 Mathematical Modelling - 3 points
MURDOCH: S2-internal, S2-external

The following unit is no longer available - contact the Academic
Chair for advice:

BEN200 Scientific Method in Engineering - 3 points

MAS223 Applied Statistics - 3 points
MURDOCH: S2-internal, S2-external

BEN300 Innovation and Ethics in Engineering - 3 points
MURDOCH: S1-internal

BSC304 Innovation and Ethics in Science - 3 points
MURDOCH: S1-internal, S1-external

MAS351 Environmental and Biological Modelling - 3 points
MURDOCH: S1-internal, S1-external

MAS354 Modelling and Simulation - 3 points
MURDOCH: S2-internal, S2-external

ENG336 Engineering Finance, Management and Law - 3 points
MURDOCH: S2-internal

Mineral Science Major

ENG255 Chemical Process Kinetics - 3 points
MURDOCH: S1-internal, S1-external

MAS221 Mathematical Modelling - 3 points
MURDOCH: S2-internal, S2-external

The following unit is no longer available - contact the Academic
Chair for advice:

BEN200 Scientific Method in Engineering - 3 points

ENG299 Control Systems and Process Dynamics - 3 points
MURDOCH: S2-internal

BEN300 Innovation and Ethics in Engineering - 3 points
MURDOCH: S1-internal

MAS351 Environmental and Biological Modelling - 3 points
MURDOCH: S1-internal, S1-external

MAS354 Modelling and Simulation - 3 points
MURDOCH: S2-internal, S2-external

ENG336 Engineering Finance, Management and Law - 3 points
MURDOCH: S2-internal

Marine Biology Major

BSC200 Research in the Physical and Life Sciences - 3 points
Not available this year

ENV303 GIS for Environmental Management and Planning - 3

points

MURDOCH:
S2-internal (quota of 70 places), S2-external (quota of 20
places)

BIO246 Microbiology - 3 points
MURDOCH: S1-internal

BMS316 Parasitology: People, Pets and Wildlife - 3 points
MURDOCH: S2-internal

MAS223 Applied Statistics - 3 points
MURDOCH: S2-internal, S2-external

MAS224 Biostatistical Methods - 3 points
MURDOCH: S1-internal, S1-external

BIO282 Molecular Biology - 3 points
MURDOCH: S1-internal

PREREQUISITES

Advanced Projects in Chemistry and Mineral Science (CHE309)

Students need to have completed a minimum of 24 points at 200 and 300 level.

Advanced Quantitative Research Methods (BSC302)

BSC201 Psychology: Measurement, Design and Analysis OR
PSY212: Psychology: Measurement, Design and Analysis.

Applied Mathematics (MAS182)

MAS164 Fundamentals of Mathematics OR at least a pass in the
Year 11 course Introduction to Calculus together with a final scaled
score of 55% or more in TEE Applicable Mathematics OR a final
scaled score of 55% or higher in ATAR Mathematics Methods
(WACE Mathematics 3C/3D).

Applied Statistics (MAS223)

MAS183 Statistical Data Analysis.

Australian Biodiversity (BIO257)

Nil.

Biochemistry (BIO247)

BIO152 Cell Biology/Foundations of Cell and Molecular
Biology/Foundations of Cell Biology

Biostatistical Methods (MAS224)

MAS180 Introduction to Statistics or MAS183 Statistical Data
Analysis.

Building Blocks for Science Students (BSC100)

Enrolment in a Bachelor of Science, Bachelor of Animal Science,
Bachelor of Environmental Management, Bachelor of
Environmental Science, Bachelor of Extractive Metallurgy, Bachelor
of Forensics, Bachelor of Information Technology Management,
Bachelor of Marine Science, Bachelor of Sports Science, Bachelor of
Technology in Engineering Technology, Bachelor of Sustainability,
Bachelor Of Sport And Exercise Science, Bachelor of Sport and
Exercise Science + Psychology (B SportExSc, BSc) or Bachelor Of
Sport And Exercise Science/Graduate Diploma In Clinical Exercise
Physiology, B1355 Bachelor of Laws / Bachelor of Science
(Psychology)

Calculus and Matrix Algebra (MAS161)

MAS182 Applied Mathematics OR a final scaled score of 55% or
more in TEE Calculus or equivalent OR a final scaled score of 55%
or higher in ATAR Mathematics Specialist (or WACE Mathematics:
Specialist 3C/3D).

Chemical Analysis (CHE207)

CHE144 Foundations of Chemistry/PEC144 Chemical Principles.

Chemical Process Kinetics (ENG255)

All Part I units in the Chemical and Metallurgical Engineering
Honours major.

Circuits and Systems II (ENG297)

ENG125 Circuits and Systems I AND MAS182 Applied Mathematics
or equivalent.

Clinical Biochemistry I (BMS323)

BIO247 Biochemistry

Computer Graphics Principles and Programming (ICT289)

ICT167 Principles of Computer Science OR ICT104 Principles of
Computer Science. Students are encouraged to also complete
MAS162 Foundations of Discrete Mathematics AND ICT170
Foundations of Computer Systems.

Control Systems and Process Dynamics (ENG299)

PEC152/PEN152 Principles of Physics; MAS161 Calculus and Matrix
Algebra or co-requisite MAS208 Mathematical Modelling; ENG109
Computing for Scientists and Engineers; ENG192 Energy, Mass and
Flow or CHE144 Foundations of Chemistry.

Creative Ways to Work with Community (COD302)

Nil.

Data Structures and Abstractions (ICT283)

ICT167/ICT104 Principles of Computer Science. Students are
encouraged to also complete MAS162 Foundations of Discrete
Mathematics AND ICT170 Foundations of Computer Systems.

Diagnostic Genomics (BMS327)

BIO282 Molecular Biology

Discrete Mathematics and Management Science (MAS225)

MAS162 Foundations of Discrete Mathematics OR MAS161 Calculus
and Matrix Algebra OR MAS221 Mathematical Modelling OR
enrolment in a postgraduate IT course.

Ecology (ENV241)

BIO103 Environmental Biology/Introduction to Environmental
Biology or BIO180 Introduction to Marine Biology.

Economics of Sustainability (SUS305)

Nil.

Engineering Finance, Management and Law (ENG336)

Nil.

Environmental Policy and Law (ENV328)

Nil.

Environmental Restoration (ENV334)

BIO103 Environmental Biology/Introduction to Environmental
Biology. Students are strongly recommended to complete
ENV268/ENV241 Ecology.

Environmental and Biological Modelling (MAS351)

MAS221/MAS208 Mathematical Modelling OR MAS220/MAS261
Mathematical Methods.

Forensic DNA Analysis (BIO359)

BIO202 Molecular Biology I or BIO212 Genetic Engineering or
BIO282 Molecular Biology

Forensic Science and Miscarriages of Justice (BIO388)

PEC103/CHE103 Introduction to Forensic Science OR CRM100
Introduction to Criminology OR permission of the Unit
Co-ordinator.

Forensic Toxicology (BIO367)

Successful completion of, or concurrent enrolment in, either
BIO247/BIO270 Biochemistry/Biochemistry I or BMS261/VET272
Human and Comparative Biochemistry/Comparative Mammalian
Biochemistry or CHE207 Chemical Analysis..

Foundations of Communication (COM103)

Nil.

Foundations of Discrete Mathematics (MAS162)

MAS164 Fundamentals of Mathematics/MAS182/MAS161 OR a
final scaled score of 55% or more in ATAR Mathematics
Applications or WACE Mathematics 2C/2D OR a final scaled score of
50% or more in ATAR Mathematics Methods or WACE Mathematics

3A/3B (or higher) OR equivalent.

Fundamentals of Mathematics (MAS164)

Nil.

GIS for Environmental Management and Planning (ENV303)

Completion of 24 points or enrolment in an appropriate graduate qualification.

Genetic Engineering (BIO394)

BIO282 Molecular Biology

Haematology (BMS218)

BIO152 Cell Biology/Foundations of Cell and Molecular Biology/Foundations of Cell Biology.

Human Pharmacology (BMS317)

Essential: BIO247 Biochemistry or BMS206 Biomedical Physiology OR VET272 Comparative Mammalian Biochemistry.
Recommended: BRD202 Drugs in Society

Innovation and Ethics in Engineering (BEN300)

BEN200 Engineering Research Skills; MAS261/MAS220 Mathematical Methods OR MAS208/MAS221 Mathematical Modelling.

Innovation and Ethics in Science (BSC304)

Completion of one 200-level research skills unit recommended for your major.

Intelligent Systems (ICT319)

ICT167 Principles of Computer Science OR ICT104 Principles of Computer Science.

Introduction to Research Methodology and Evidence Based Practice (BSC206)

100-level Transition Unit.

Managing Wetlands and Water (ENV332)

ENV241/ENV268 Ecology

Marine Ecology (BIO377)

BIO261/BIO244 Animal Diversity/Animal Speciation, Radiation, Evolution, or BIO287 Plant Diversity (Marine Science) / BIO254 Marine Botany or BIO265/BIO245 Plant Diversity/Plant Evolution, Radiation and Adaptation, or ENV268/ENV241 Ecology.

Mathematical Methods (MAS220)

MAS161 Calculus and Matrix Algebra OR MAS208/MAS221 Mathematical Modelling OR equivalent.

Mathematical Modelling (MAS221)

MAS182 Applied Mathematics or MAS161 Calculus and Matrix Algebra or equivalent.

Medical Immunology and Molecular Genetics (BMS211)

BIO152 Cell Biology/ Foundations of Cell and Molecular Biology.

Microbiology (BIO246)

BIO152 Cell Biology/Foundations of Cell and Molecular Biology/Foundations of Cell Biology

Modelling and Simulation (MAS354)

MAS161 Calculus and Matrix Algebra OR MAS221/MAS208 Mathematical Modelling OR both MAS182 Applied Mathematics AND MAS167 Computational Mathematics/MAS162 Foundations of Discrete Mathematics

Molecular Biology (BIO282)

BIO152 Cell Biology/Foundations of Cell and Molecular Biology/Foundations of Cell Biology

Operating Systems and Systems Programming (ICT374)

ICT283/ICT209 Data Structures and Abstractions.

Parasitology: People, Pets and Wildlife (BMS316)

BIO152 Cell Biology/Foundations of Cell and Molecular Biology/Foundations of Cell Biology

Principles of Electronic Instrumentation (ENG207)

ENG125 Circuits and Systems I and MAS182 Applied Mathematics.

Probability and Statistical Inference (MAS222)

MAS180 Introduction to Statistics OR MAS183 Statistical Data Analysis OR MAS223 Applied Statistics OR MAS224/MAS230 Biostatistical Methods OR MAS284 Applied Statistics and Process Management. In addition, students must have a calculus background equivalent to at least MAS182 Applied Mathematics.

Psychology: Measurement, Design and Analysis (BSC201)

PSY173 Introduction to Psychological Research Methods

Research and Evidence Based Practice (BSC306)

Completion of BSC206 Introduction to Research Methodology and Evidence Based Practice or special permission of Unit Coordinator.

Research in the Physical and Life Sciences (BSC200)

BSC100 Building Blocks for Science Students; OR enrolment in B1329 Bachelor of Education/Bachelor of Science and BED100 Ideas in Education.

Software Architectures (ICT373)

ICT104 Principles of Computer Science OR ICT167 Principles of Computer Science; ICT231 Systems Analysis and Design OR ICT284 Systems Analysis and Design.

Statistical Data Analysis (MAS183)

Nil.

Statistical Design and Data Analysis (MAS353)

MAS222/MAS278 Probability and Statistical Inference OR MAS223 Applied Statistics OR MAS224/MAS230 Biostatistical Methods OR MAS284 Applied Statistics and Process Management.

Time Series Analysis (MAS352)

MAS222/MAS278 Probability and Statistical Inference OR MAS223 Applied Statistics OR MAS224/MAS230 Biostatistical Methods OR MAS284 Applied Statistics and Process Management or enrolment in a postgraduate IT course. In addition students must have a calculus background equivalent to at least either MAS161 Calculus and Matrix Algebra OR MAS221/MAS208 Mathematical Modelling.

Tropical Marine Biology (BIO393)

BIO261/BIO244 Animal Diversity/Animal Speciation, Radiation, Evolution OR BIO265/BIO245 Plant Diversity/Plant Evolution, Radiation and Adaptation OR BIO287/BIO254 Plant Diversity (Marine Science) /Marine Botany OR ENV268/ENV241 Ecology OR permission of the Unit Coordinator.

Water Conservation and Auditing (ENG341)

Nil.

Personal Study Plan

Unit Sets:

Year	Semester 1	Semester 2
1		
2		
3		
4		