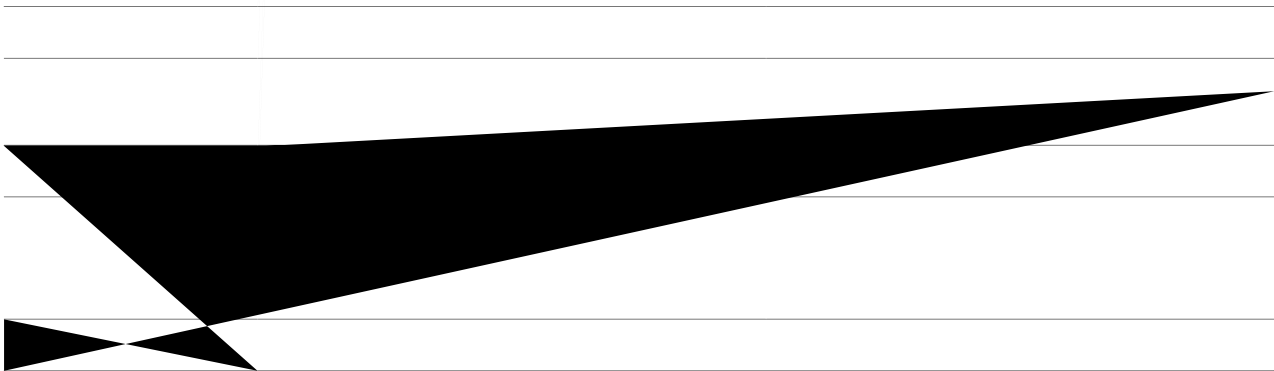


Master of Science (MSCN) - MSc

CRICOS code (International applicants): 078596MInternational applicants): 07859695.681 1154.772 5.181 m154.872 576



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This specialisation is designed to provide an opportunity to gain knowledge and skills in astrophysics and develop scientific research skills. The program thus provides professional development in science for those in educational or science communication careers, and a specialist foundation of knowledge and skills for subsequent higher degree research.

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Modern environment and natural resource management requires the integration of social, environmental and economic research within an interdisciplinary planning and policy framework. It also requires a capacity to handle complexity and uncertainty and the application of different methods of analysis and different approaches to governance and community engagement. This coursework Masters program addresses these needs by providing important core studies and flexibility in choice of elective studies that will enhance their skills and knowledge in the broad discipline of environment and sustainability. Adaptation to climate change and sustainability science are emphasised in global and regional contexts in this specialisation.

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This specialisation is designed to provide an opportunity for graduates from other than mathematics and statistics programs to gain advanced skills and knowledge in key areas of mathematics and/or statistics which relate to their career needs and the needs of their profession or industry. The aim of this program is therefore to provide students with a broad advanced education in mathematical and/or statistical techniques and essential problem solving skills which will meet their career needs and assist them in their professional development.

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The Master of Science (Sport and Exercise) specialisation aims to provide students with the opportunity to develop and extend their knowledge and skills relevant to health, fitness and sports performance across the lifespan to an advanced level. Students undertaking the program will usually have qualifications in various related disciplines (although any undergraduate degree is acceptable). The program may be used to meet work or professional requirements, allow for program exemptions, or form part of course requirements in other USQ postgraduate programs. The program is designed to meet personal achievement goals or provide for career opportunities within the health, sports and fitness industry such as sports coaches, personal trainers, sports development officers or a range of other roles. It also provides a pathway for students to enter into postgraduate programs such as a doctorate.

Program objectives

On completion of the program graduates will be able to:

- demonstrate an advanced understanding in their chosen specialisation
- conduct scholarly investigations into applications and methodologies in their chosen field
- provide scientific literature reports
- apply the specialist knowledge and skills acquired in their specialisation.

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On completion of this program graduates will be able to:

- demonstrate an advanced understanding of the climate systems
- appraise the impact of climate processes and variations on many sectors of human activity
- apply climate information and methodologies/tools in industry specific decision making processes
- evaluate the economic value of climate services in industry specific applications
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- demonstrate advanced and integrated understanding of data science to a complex body of knowledge in a particular discipline of application
- research and apply established theories of data science to a particular discipline of application
- analyse critically and reflect on ethics and professionalism for data science.

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On completion of this program graduates will be able to:

- demonstrate a general professional understanding of the science of astrophysics
- conduct scholarly enquiries into the research literature in astronomy and astrophysics
- apply scientific principles to solve problems with conceptual, observational or computational elements
- demonstrate competency in observational techniques, data analysis, and the interpretation of results
- demonstrate oral and written communication skills appropriate to a professional scientist
- communicate scientific research to a professional audience.

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On completion of this program graduates will be able to:

- understand and apply the principles and approaches of sustainability
- integrate the scientific foundations for sustainable development through environmental, social and economic disciplines
- demonstrate an in-depth understanding of global environmental changes
- describe the functioning of the global climate system
- understand global environmental systems and assess the risks of climatic changes and climate variability and their inc p2du

- demonstrate an advanced and integrated level of discipline knowledge and skills relevant to health, fitness and sports performance across the lifespan
- critically analyse, reflect on and synthesise complex concepts of exercise related issues and circumstances of individuals and groups, including sports performers and those with disabilities, chronic diseases and from a range of age groups across the lifespan
- demonstrate highly-developed practical knowledge and skills relevant to laboratory, clinical and field situations in the sport and exercise area
- display an expert level of evidence-based practice, good communication skills, professional development and research
- demonstrate competent, safe, professional and ethical responsibility as a practitioner displayed in interactions with clients from a range of populations, and a variety of contexts, across the lifespan

Australian Qualifications Framework

The Australian Qualifications Framework (AQF) is a single national, comprehensive system of qualifications offered by higher education institutions (including universities), vocational education and training institutions and secondary schools. Each AQF qualification has a set of descriptors which define the type and complexity of knowledge, skills and application of knowledge and skills that a graduate who has been awarded that qualification has attained, and the typical volume of learning associated with that qualification type.

This program is at AQF Qualification Level 09. Graduates at this level will have specialised knowledge and skills for research, and/or professional practice and/or further learning.

The full set of levels criteria and qualification type descriptors can be found by visiting www.aqf.edu.au.

Admission requirements

To be eligible for admission, applicants must satisfy the following requirements:

- Completion of an Australian university three year Bachelor degree in any area, or equivalent.
Or
equivalent professional work experience, as determined through the [Credit and Exemption Procedure](#).
- English Language Proficiency requirements for Category 3.

As well as the following major-specific requirements:

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- knowledge on ethics of Computing, consistent with that found in [CIS1000 Information Systems Concepts](#).

Applicants are advised to also note the following:

- Students are responsible for ensuring their introductory knowledge of Computing is at least consistent with that found in [CSC1401 Foundation Programming](#).

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- Knowledge of mathematics at least equivalent to that found in [MAT1102 Algebra and Calculus I](#).
- Appropriate communication skills equivalent to those covered in [CMS1000 Communication and Scholarship](#)

All students are required to satisfy the applicable [English language requirements](#).

If students do not meet the English language requirements they may apply to study a University-approved [English language program](#). On successful completion of the English language program, students may be admitted to an award program.

Program fees

Commonwealth supported place

A Commonwealth supported place is where the Australian Government makes a contribution towards the cost of a students' higher education and students pay a [student contribution amount](#), which varies depending on the courses undertaken. Students are able to calculate the fees for a particular course via the [Course Fee Finder](#).

Commonwealth Supported students may be eligible to defer their fees through a Government loan called [HECS-HELP](#).

Domestic full fee paying place

Domestic full fee paying places are funded entirely through the full fees paid by the student. Full fees vary depending on the courses that are taken. Students are able to calculate the fees for a particular course via the [Course Fee Finder](#).

Domestic full fee paying students may be eligible to defer their fees through a Government loan called [FEE-HELP](#) provided they meet the residency and citizenship requirements.

Australian citizens, Permanent Humanitarian Visa holders, Permanent Resident visa holders and New Zealand citizens who will be resident outside Australia for the duration of their program pay full tuition fees and are not eligible for [FEE-Help](#).

International full fee paying place

International students pay full fees. Full fees vary depending on the courses that are taken and whether they are studied on-campus, via distance education/online. Students are able to calculate the fees for a particular course via the [Course Fee Finder](#).

Program structure

The Master of Science (Astrophysics), Master of Science (Environment and Sustainability) and Master of Science (Applied Data Science) specialisations consist of 16 units of courses, as listed in the Recommended Enrolment Pattern section.

The Master of Science (Applied Data Science) consists of 16 courses. A student who has completed [STA2300 Data Analysis](#) in their Bachelor's degree may replace [STA2300 Data Analysis](#) with another STA course at USQ Level 2 or above.

The Master of Science (Mathematics and Statistics) specialisation consists of 16 courses which are all available in external mode. Students may choose at most three approved courses and must complete at least eight units at Level 8 (including approved courses) as in the Program Structure below including [MSC8001 Research Project I](#) and [MSC8002 Research Project II](#). At the beginning of their candidature students should submit a proposed enrolment pattern to the Program Coordinator for approval. Within this proposal students should have topics and names of any proposed supervisors for the appropriate Level 8 courses. A maximum of three approved courses at USQ Level 2 or above can be taken from other discipline areas if prior approval has been sought by the student and approved by the Program Coordinator.

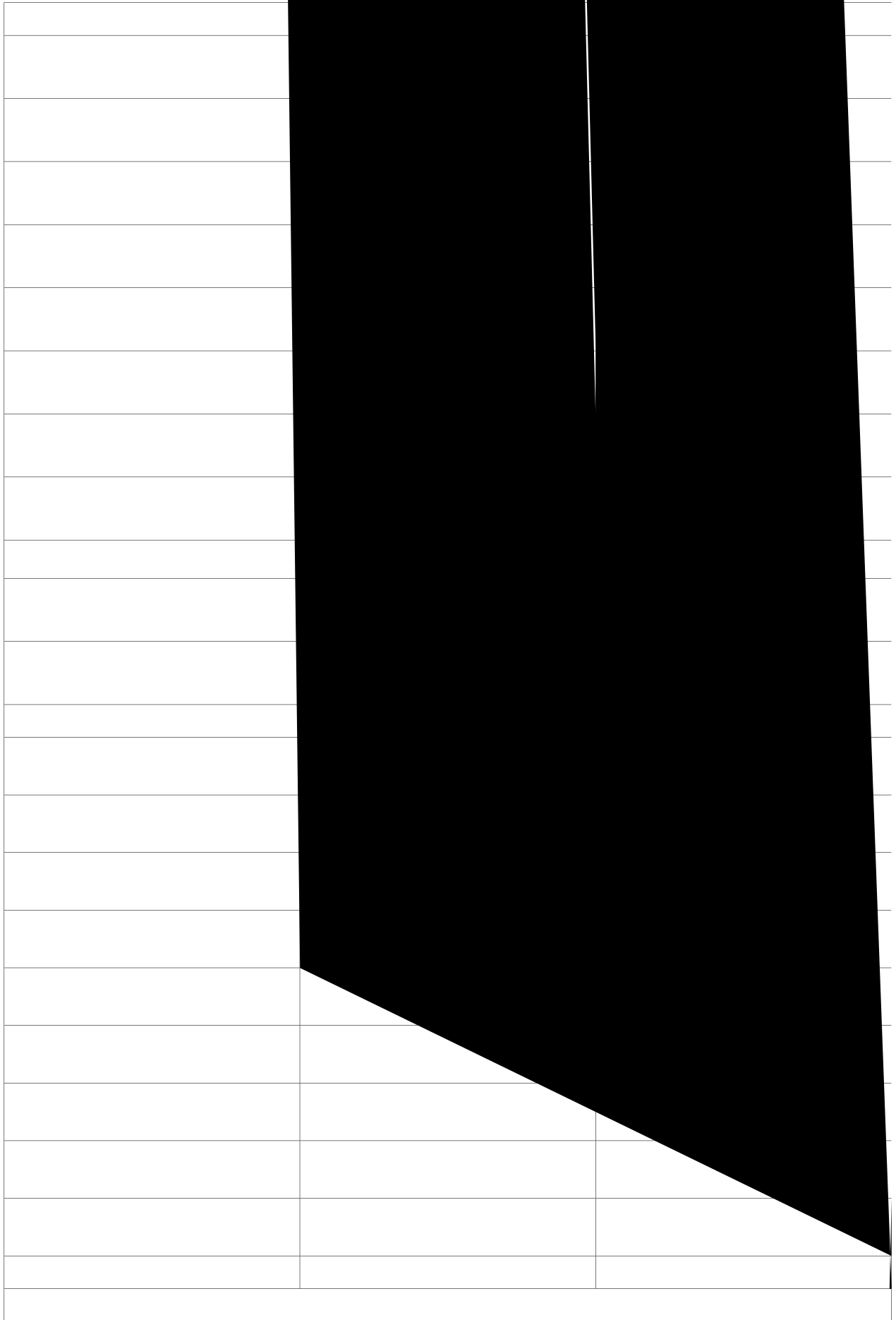
The Master of Science (Sport and Exercise) specialisation consists of 16 units (14 courses). Students who do not wish to seek ESSA accreditation may take an approved course instead of the [SES8299](#) placement course. Students who have a Bachelor's degree in Sport and Exercise (or similar) may seek up to 4 credits/exemptions and one alternate approved course for the undergraduate level courses.

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This specialisation consists of 12 units which are all available externally or online, plus four approved courses.

Semester 1	Semester 2
CLI8001 Climate Risk	CLI3302 Adaptation to Climate Change
CLI8204 Global Environmental Systems	CLI8205 Climate and Sustainability

CLI8002 Climate, Human and Environmental Health and Disaster Management*	CLI8003 Climate, Food, Water and Energy Security*



MAT2409 High Performance Numerical Computing **	MAT3104 Mathematical Modelling in Financial Economics **	
MAT3201 Operations Research 2 **	MAT3103 Mathematical Modelling and Dynamical Systems **	
MAT8180 Mathematics/Statistics Complementary Studies A **	MAT8190 Mathematics/Statistics Complementary Studies B **	
Statistics Discipline Approved Courses		
STA2301 Distribution Theory **	STA2302 Statistical Inference **	
STA3300 Experimental Design **	STA3301 Statistical Models **	
STA3490 Online Offer Unit 1 **	STA3490 Online Offer Unit 2 **	
General Discipline Approved Courses: Any four units from one single discipline or from multiple disciplines, with no more than three courses at undergraduate level, subject to the approval of the Program Coordinator.		

Footnotes

Online offer only

* Two unit course

** Enrolment in this course is subject to having the correct prerequisites or equivalent.

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This specialisation consists of the following courses:

Semester 1	Semester 2
SES8005 Advanced Exercise Physiology	SES8001 Advanced Biomechanics
SES8003 Advanced Motor Control and Learning	SES8007 Advanced Exercise Assessment and Delivery
SES8006 Advanced Exercise Programming and 194ehabiliol and 2738 69-ning	SES2204 Strength Training and Conditioning

All professional placements are subject to the approval of the Program Coordinator. State la

[uate Certificate of Science](#) (Applied Data Science) on successful completion of at least eight units of [of Science](#) (Applied Data Science).

Students in the Sport and Exercise specialisation on successful completion of four approved units (Exercise) after eight approved units of study.

Students wishing to exit as above must discuss with the Program Coordinator.

Credit

Exemptions/credit for all specialisations will be considered on an individual basis.

- Up to **four** units of coursework exempted or credit equivalent to courses offered in the part of the program.
 - USQ's [Graduate Certificate of Science](#)
 - A Bachelor's degree in a discipline related to the current area of study.
 - A Graduate Diploma or Bachelor's degree in the current area of study.
- Up to **eight** units of coursework credit or equivalent to courses offered in the part of the program.
 - [Graduate Diploma of Science](#) or Bachelor's degree in the current area of study.

Notes:

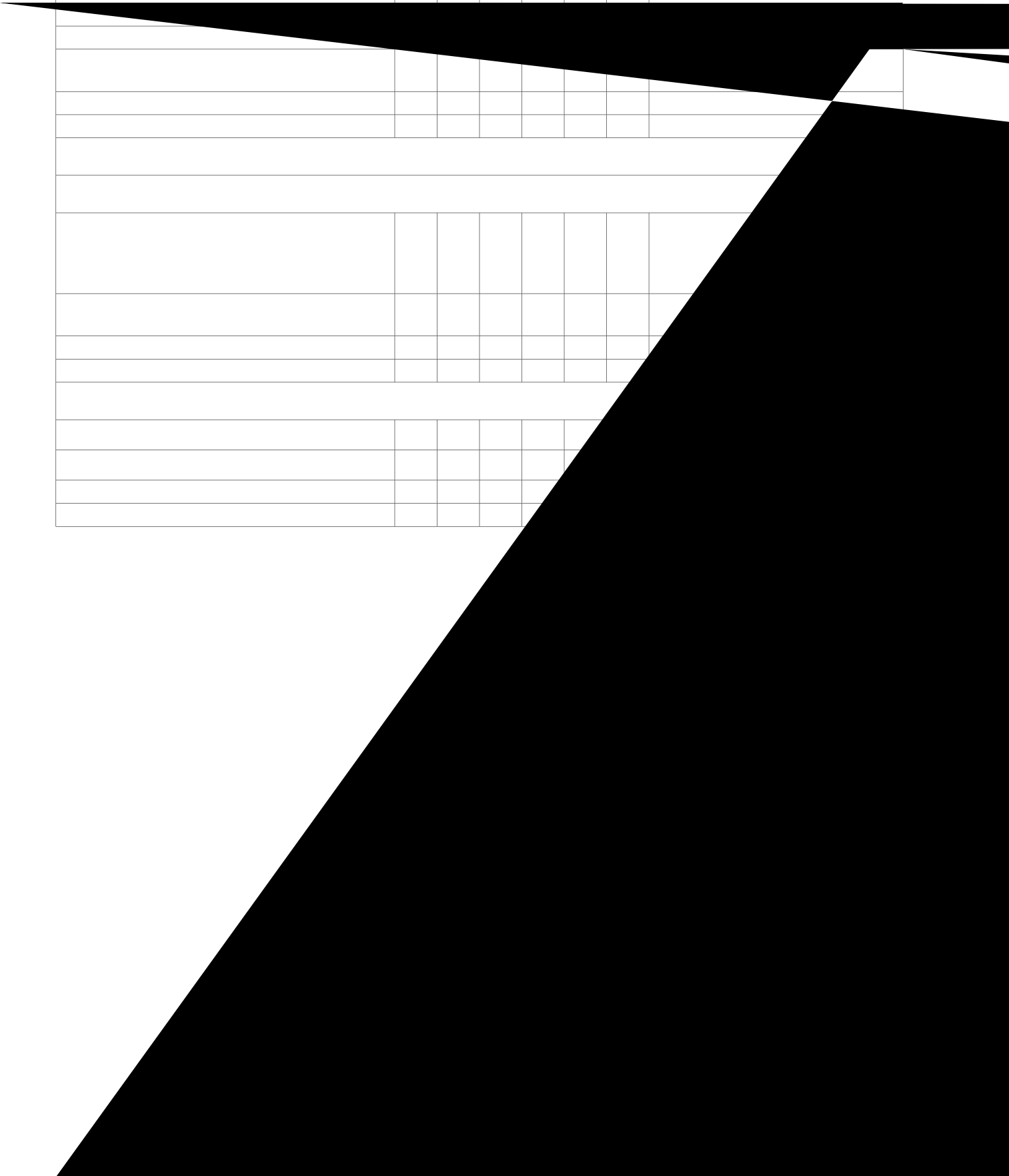
- (1) All requests for credits or exemptions must be approved by the Program Coordinator.
- (2) The Program Coordinator will deem to what extent credit or exemptions are granted.

Enrolment

Recommended Enrolment Pattern (4 Semesters, S1 commencement)

Students are able to enrol in any offered mode of study in the program mode of study they enrolled in.

	Q1				Q2				Q3				Q4			
	Revenue		Expenses		Revenue		Expenses		Revenue		Expenses		Revenue		Expenses	
	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget		
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Recommended Enrolment Pattern - Astrophysics specialisation Part-time (8 Semesters, S1 or S2 commencement)

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Recommended Enrolment Pattern - Sport and Exercise Specialisation Full-time (4 Semesters) Semester 1 or Semester 2 commencement

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

