

Master of Science (MSCN) - MSc

QTAC code (Australian and New Zealand applicants): Applied Data Science (Toowoomba campus: MSCN01; External: MSCN07); Environment & Sustainability (Toowoomba campus: MSCN04; External: MSCN10); Sport & Exercise (Toowoomba campus: MSCN06; External: MSCN12); Astrophysics (Toowoomba campus: MSCN03; External: MSCN09); Mathematics & Statistics (Toowoomba campus: MSCN05; External: MSCN11); Unspecified (Toowoomba campus: MSCN02; External: MSCN08)

CRICOS code (International applicants): 078596M

	On-campus * † @ #	External * ^ † @
Start:	Semester 1 (February) Semester 2 (July)	Semester 1 (February) Semester 2 (July)
Campus:	Ipswich, Toowoomba	-
Fees:	Commonwealth supported place Domestic full fee paying place International full fee paying place	Commonwealth supported place Domestic full fee paying place International full fee paying place
Residential school:		Ipswich (Mandatory)
Standard duration:	2 years full-time, 4 years part-time	

Footnotes

- * Please refer to the Program Structure section for further information on mode of offer for each specialisation.
- † The Semester 2 intake for the Mathematics and Statistics and Applied Data Science specialisations will be subject to the approval of the Program Coordinator.
- @ Sport and Exercise specialisation: courses that include a practical skill competency component and residential school will be conducted at USQ Ipswich.
- # The Agricultural Science specialisation is available at Toowoomba campus only, commencing in either Semester 1 or Semester 2.
- ^ The Sport and Exercise specialisation is not available to international overseas students.

Contact us

Future Australian and New Zealand students	Future International students	Current students
Ask a question Freecall (within Australia): 1800 269 500 Phone (from outside Australia): +61 7 4631 5315 Email: study@usq.edu.au	Ask a question Phone: +61 7 4631 5543 Email: international@usq.edu.au	Ask a question Freecall (within Australia): 1800 007 252 Phone (from outside Australia): +61 7 4631 2285 Email: usq.support@usq.edu.au

Professional accreditation

The Applied Data Science specialisation is designed to meet the Australian Computer Society (ACS) accreditation at Professional level (accreditation pending).

Program aims

The aim of the Master of Science program is to produce graduates who are equipped with essential scientific knowledge and an appreciation of the latest literature and technologies.

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The Australian agricultural industry contributes substantially to national GDP, as well, is a significant employer across all states/regions. There is a current demand for graduates with knowledge of contemporary agricultural production approaches, particularly in light of declining national water availability and quality. This

specialisation provides graduates with an understanding of both national and global issues associated with agricultural production and sets these in a context of agroecosystem sustainability and broader societal challenges. Graduates from the program will have the capacity to engage across a range of agriculture related disciplines.

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The global climate service industry is estimated to have a significant and growing economic value. In Australia, the need for 'climate smart' professionals working within their chosen industry is growing with hundreds of job opportunities in industry and the public sector organisation. This specialisation is designed to provide graduates with the knowledge and decision-making skills to work as 'climate smart' professionals in many sectors of economic activity including agriculture, food, water, energy, health, and natural resource management industries.

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With the popularity of social media and the wide spread use of the Internet, enormous amounts of data of various type are generated at all times. This scattered data is waiting for us to collect, analyse and draw meaningful conclusions from it.

This specialisation is designed to provide an opportunity for graduates from all disciplines to gain advanced skills and knowledge in handling data which are commonly known as Big Data, as well as producing and interpreting data analytics. The aim of this program is to provide students with a career path in Data Science or an opportunity for advancement in their career.

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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

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 should be able to:

- Integrate an advanced understanding of a complex body of expert knowledge in a discipline of science.
- Apply established research theories and principles associated with scholarship and/or professional practice within a relevant science discipline.
- Critically analyse, reflect on, and synthesise complex expert information, problems, concepts and theories applicable to a relevant science discipline.
- Interpret and transmit expert knowledge, skills and ideas, both individually and collaboratively, to specialist and non-specialist audiences.
- Display autonomy, responsibility, adaptability and ethical practise in decision-making and engage in lifelong learning through critical reflection in a range of professional and cultural contexts.

Australian Qualifications Framework

The Australian Qualifications Framew

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The Master of Science offers 7 specialisations. All specialisations consist of 16 units of courses, of which 8 units must be at Level 8. Some specialisations contain only core courses, where others allow approved courses.

The Master of Science consists of two tracks within each specialisation:

- **Research Training Track:** This track consists of 4 of the 16 units providing courses (including capstone experience) on research skills and training: [SCI8101 Science in Practice](#); [SCI8102 Research Skills](#); [SCI8103 Research Fundamentals and Ethics](#) and [STA8170 Statistics for Quantitative Researchers](#)
- **Research Project Track:** This track consists of 4 of the 16 units providing opportunity for students to undertake independent research in two capstone courses: [MSC8001 Research Project I](#) and [MSC8002 Research Project II](#). Normally these research project courses are undertaken in the latter stages of candidature. Students must have approval of the Program Coordinator and a Supervisor prior to undertaking this track and is dependent on the availability of supervisors and resources. Students in the Applied Data Science specialisation may elect to replace MSC8001 Research Project I and MSC8002 Research Project II with [MSC8003 Industry Based Research Practice I](#) and [MSC8004 Industry Based Research Practice II](#). Students must have approval of the Program Coordinator, a Supervisor and industry host prior to undertaking this track and is dependent on the availability of supervisors, industry host and resources.

Students may, with approval of the Program Coordinator and acceptance by an appropriate supervisor, elect to replace two or four units of research training courses ([SCI8101 Science in Practice](#), [SCI8102 Research Skills](#), [SCI8103 Research Fundamentals and Ethics](#) and/or [STA8170 Statistics for Quantitative Researchers](#)) with one or two 2-unit research project courses ([MSC8001 Research Project I](#) and [MSC8002 Research Project II](#)).

Master of Science (Applied Data Science): Students taking the Research Project Track may take [MSC8001 Research Project I](#) and [MSC8002 Research Project II](#) OR [MSC8003 Industry Based Research Practice I](#) and [MSC8004 Industry Based Research Practice II](#) with the approval of the Program Coordinator.

Master of Science (Mathematics and Statistics): The Research Training Track courses for this specialisation are [SCI8101 Science in Practice](#), [SCI8103 Research Fundamentals and Ethics](#), [CSC8411 Independent Studies in Computing/Mathematics/Statistics B](#), and [CSC8002 Big Data Management](#). Students may, with approval of the Program Coordinator and acceptance by an appropriate supervisor, elect to replace two or four units of research training courses ([SCI8101](#), [SCI8103](#), [CSC8411](#) and/or [CSC8002](#)) with one or two 2-unit research project courses ([MSC8001 Research Project I](#) and [MSC8002 Research Project II](#)). Research project courses will normally be undertaken towards the end of the program. The maximum number of courses other than Mathematics/Statistics courses to be credited must not exceed the number of approved courses (3). 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.

Master of Science (Sport) [rg0 3Tj1 0 0 1 79.371 636.419 Tm\(Research Project 84 48nagement\)Tj0 G0 g1 01 79.371](#)

CLI8001 Climate Risk	AGR8003 Critical Issues in Agriculture	
AGR2303 Agronomy	BIO3318 Plant Microbe Interactions	
AGR3303 Agricultural Materials and Post-Harvest Technologies	Approved Elective ##	
AGR4305 Agricultural Soil Mechanics	BIO8201 Biology Foundations	
SCI3302 Industry Placement	REN3302 Sustainable Resource Use	
and EITHER the following four courses, which comprise the Research Training Track: #		
		STA8170 Statistics for Quantitative

EDU8326 Learning Difficulties: Mathematics **	MAC8901 Issues in Teaching Mathematics **	SCI3302 Industry Placement ^^
and EITHER the following four courses, which comprise the Research Training Track: #		
SCI8103 Research Fundamentals and Ethics	CSC8411 Independent Studies in Computing/Mathematics/Statistics B	
SCI8101 Science in Practice	CSC8002 Big Data Management	
OR the following two courses (subject to prior approval), which comprise the Research Project Track:		
MSC8001 Research Project I *	MSC8002 Research Project II *	

Footnotes

- ** Recommended courses for students wanting to teach mathematics.
 ++ The on-campus offering of this course will not be available in 2021
 + The on-campus offering of this course is offered in even years only.
 @ The on-campus offering of this course is offered in odd years only.
 ^ These courses are topics based courses. Student should select a topic from the course specifications and email the examiner prior to enrolment to receive enrolment approval.
 ^^ Available in S1, S2 and S3
 # Instead of the Research Training Track, students may seek permission to do the Research Project Track and replace these courses with [MSC8001 Research Project I](#) AND [MSC8002 Research Project II](#).
 * Two unit course

Sport and Exercise specialisation

This specialisation consists of 16 units of courses which are all available in either on-campus, external or online mode.

Semester 1	Semester 2	Either Semester
SES8005 Advanced Exercise Physiology	SES8001 Advanced Biomechanics	
SES8003 Advanced Motor Control and Learning	SES8007 Advanced Exercise Assessment and Delivery	
SES8006 Advanced Exercise Programming and Rehabilitation	SES3206 Strength Training and Conditioning	
SES8008 Advanced Anatomy and Physiology	PSY3250 Sport and Exercise Psychology	
SES8299 Advanced Professional Placement +	SES2203 Physical Activity and Health	
SES1101 Growth, Development and Lifespan	SES1103 Nutrition and Exercise	
and EITHER the following four courses, which comprise the Research Training Track: #		
SCI8103 Research Fundamentals and Ethics	SCI8101 Science in Practice	STA8170 Statistics for Quantitative Researchers
	SCI8102 Research Skills	
OR the following two courses (subject to prior approval), which comprise the Research Project Track:		
MSC8001 Research Project I *	MSC8002 Research Project II *	

Footnotes

- + An approved course is available for those who do not wish to complete a placement in a sport and exercise setting.
 # Instead of the Research Training Track, students may seek permission to do the Research Project Track and replace these courses with [MSC8001 Research Project I](#) AND [MSC8002 Research Project II](#).
 * Two unit course

Practical experience

Students completing the Sport and Exercise specialisation and enrolled in [SES8299 Advanced Professional Placement](#) will be allocated a suitable placement site within Australia. Placements are organised by the Placement Office and Placement Coordinator and students will not contact sites seeking professional placement, unless prior approval to be allowed to do so, has been provided. The student is responsible for meeting all costs associated with the conduct of practical experience.

Professional placement will be in a sport and exercise setting at one or multiple approved placement sites. Masters Sport and Exercise students may assess the fitness and exercise capacity of, and design and deliver exercise and physical activity programs to apparently healthy individuals. These programs are for the purpose of improving health and fitness, performance, or preventing chronic conditions. Masters Sport and Exercise students must not provide exercise advice or design exercise programs for clinical populations. The scope of practice is comparable to a personal trainer, gym instructor and group exercise instructor.

The professional experience may be gained in areas of sport and exercise performance, workplace health, sports coaching, health promotion and in sport and exercise research.

Supervisors must be suitably qualified and experienced relative to the activity they are supervising. Supervisors will complete a student evaluation for the professional practice.

Students must be available for a prescribed period of time to undertake a placement at an approved site as required to complete the requirements of this program.

Students will need to keep a logbook record of professional practice experiences and provide a professional practice report upon conclusion of placement.

All professional placements are subject to the approval of the Placement Coordinator. State law in Queensland (Australia) requires that all adults working/undertaking professional experience/researching with children under the age of 18, in the state of Queensland are required to possess a current Working with Children and Young People suitability card (Blue Card). Additionally, it is a USQ requirement that students have completed a First Aid and Cardiopulmonary Resuscitation (CPR) course prior to professional placement. Students will also be required to wear USQ Sport and Exercise shirts and display a student ID card at all times during professional placement. Students must comply with the code of conduct as outlined in the Master of Sport and Exercise Professional Placement Handbook.

Requirements for professional experience placements

Mandatory documents required prior to commencing ANY clinical placements in the program:

- Blue Card or Working with Children Check
- First Aid Certificate
- Cardiopulmonary Resuscitation Certificate (CPR)
- Vaccine Preventable Diseases (VPD) Evidence Form
- COVID-19 Infection Control Training Certificate
- COVID-19 Student Placement Declaration
- USQ Student Declaration

If a student is unable to obtain a positive Blue Card or Working with Children Check, they will be required to provide an Australian Police Certificate.

IT requirements

Students should visit the USQ [minimum computing standards](#) to check that their computers are capable of running the appropriate software and versions of Internet web browsers and to check the minimum and recommended standards for software.

Other program requirements

To qualify for the award of Master of Science (Environment and Sustainability) students must pass 16 units of courses, at least eight of which are to be Level 8 courses listed in the Recommended Enrolment Pattern

section. Students who have completed the same courses or similar courses at USQ or elsewhere may replace these with additional approved courses with the approval of the Program Coordinator via usq.support@usq.edu.au.

Residential schools

The attendance requirement of residential schools within this degree is indicated by the following letters: R = Recommended; HR = Highly Recommended; M = Mandatory. To find out more about [residential schools](#), visit the [Residential School Schedule](#) to view specific dates for your degree, or visit the [Policy and Procedure Library](#).

Students completing the Sport and Exercise specialisation: for all modes there will be on-campus and practical attendance requirements for some courses. In order to successfully complete the program students must be able to fulfil any designated practical attendance requirements.

Agricultural Science Specialisation

- [BIO3318 Plant Microbe Interactions](#)

Sport and Exercise Specialisation

- [SES3206 Strength Training and Conditioning](#)
- [SES8001 Advanced Biomechanics](#)
- [SES8003 Advanced Motor Control and Learning](#)
- [SES8005 Advanced Exercise Physiology](#)
- [SES8006 Advanced Exercise Programming and Rehabilitation](#)
- [SES8007 Advanced Exercise Assessment and Delivery](#)
- [SES8008 Advanced Anatomy and Physiology](#)

Articulation

Students completing the [Master of Science](#) research project track would be eligible to apply for articulation to the [Master of Science \(Research\)](#) or [Doctor of Philosophy](#) programs if they meet other requirements for entry into those programs.

Students completing the [Master of Science](#) research training track with the appropriate GPA would be eligible to apply for enrolment in the [Master of Science \(Research\)](#) (Advanced) and then could progress (articulate) to a PhD via that route once they have demonstrated satisfactory progress in a significant research component.

Exit points

Students may exit with [Graduate Diploma of Science](#) specialisation on successful complete of a least 8 courses within the [Master of Science](#) if they have satisfied the requirements of a [Graduate Diploma of Science](#) specialisation. Students may exit with the [Graduate Diploma of Science](#) (General) if they have completed at least 8 courses from one or more of the specialisations of [MSCN](#), and at least 4 of them are at level 8.

Students may exit with [Graduate Certificate of Science](#) specialisation on successful completion of at least 4 courses within the [Master of Science](#) if they have satisfied the requirements of a [GCSC Graduate Certificate of Science](#) specialisation. Students may exit with the [Graduate Certificate of Science](#) (General) if they have completed at least 4 courses from one or more of the specialisations of [Master of Science](#), and at least 2 of them are at level 8.

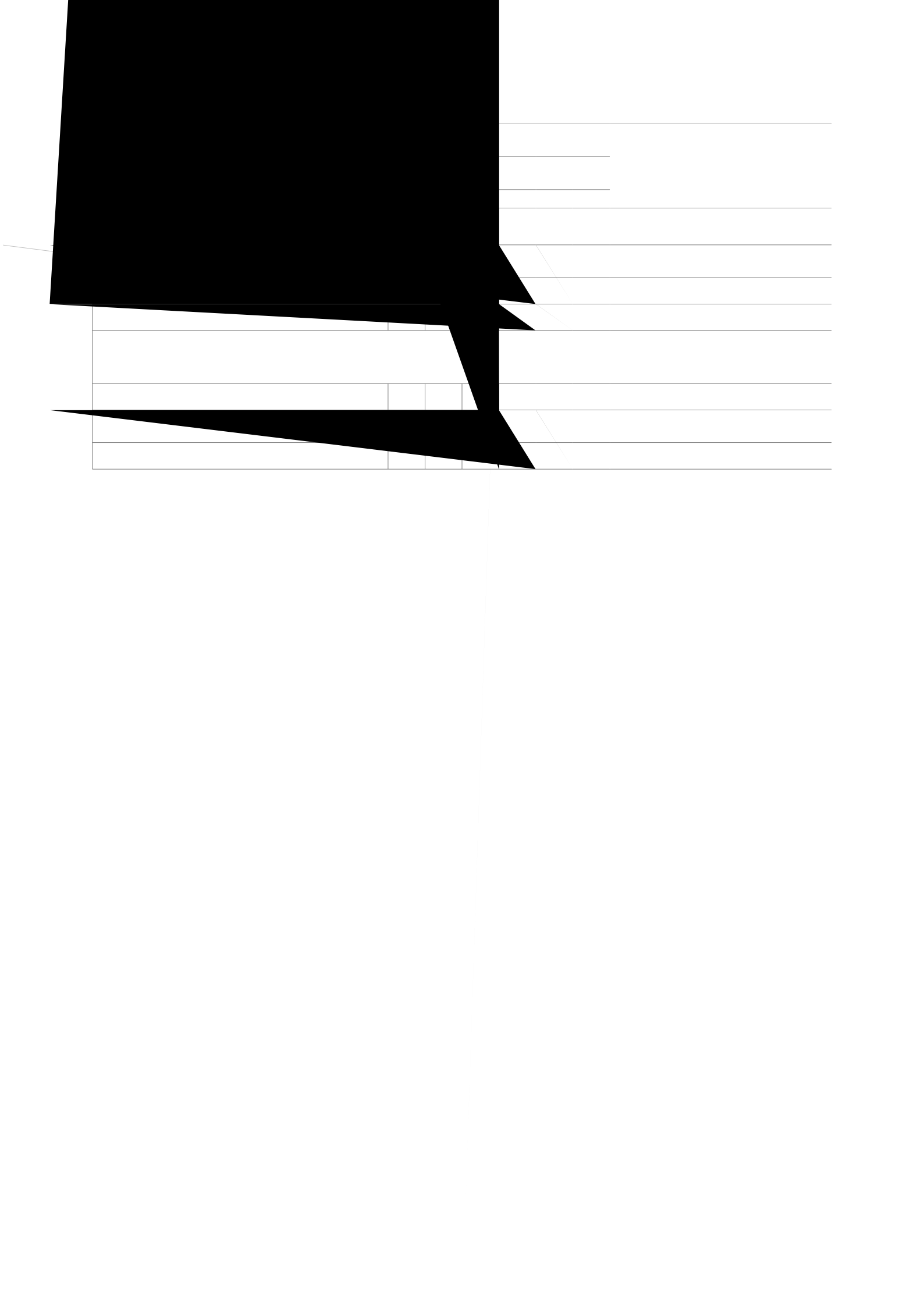
Students in the Sport and Exercise specialisation may exit with the [Graduate Certificate of Sport and Exercise](#) on successful completion of four approved units of study or the [Graduate Diploma of Science](#) (Sport and Exercise) after eight approved units of study.

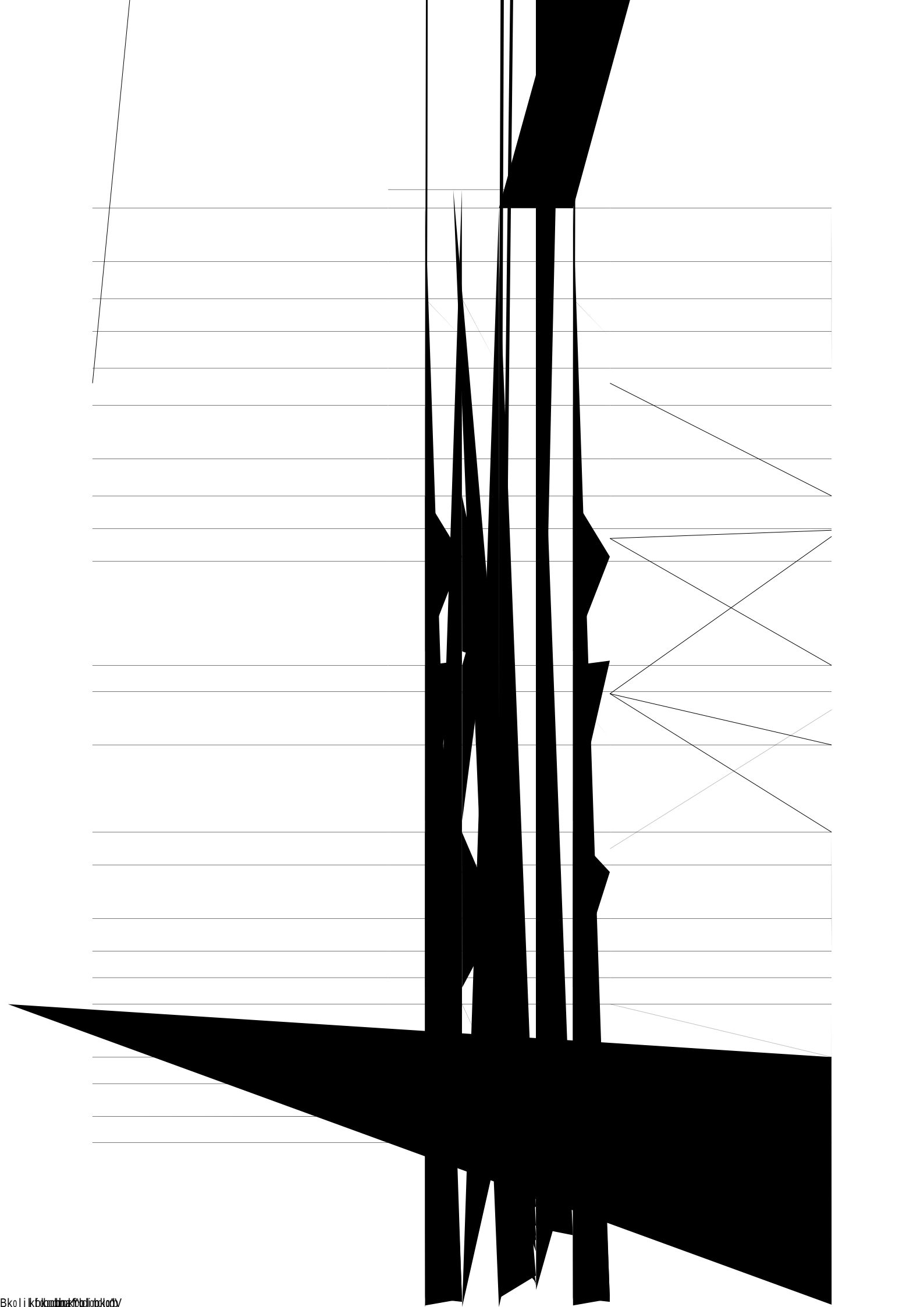
Credit

Exemptions/credit for all specialisations will be assessed according to [USQ procedure](#).

- Up to **four** units of coursework exemptions or credit will be granted if the student has completed courses equivalent to courses offered in the particular MSCN specialisation in either:
 - USQ's [Graduate Certificate of Science](#); or
 -

with one or two 2-unit research project courses ([MSC8001 Research Project I](#) and [MSC8002 Research Project II](#)).





- * Two unit course
- ^ For a comprehensive list of Approved Courses, refer to Program Structure Section.

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or the following course for the Research Project Track (if approved instead of Research Training Track)								
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Footnotes

- ^ This approved course is for students to take complementary studies in physics, mathematics, statistics or computing. Choice of the approved courses should be made in consultation with, and be approved by the Program Coordinator via usq.support@usq.edu.au.
- * Two unit course
- < If STA2300 has been completed previously, contact the Program Coordinator to choose an alternative course to STA8170.
- # Instead of the Research Training Track, students may seek permission to do the Research Project Track and replace these courses with [MSC8001](#) (2 units) and [MSC8002](#) (2 units).

Recommended Enrolment Pattern - Astrophysics specialisation P

**Recommended Enrolment Pattern - Environment and Sustainability specialisation
Part-time (8 Semesters, S1 or S2 entry)**

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.

Students may, with approval of the Program Coordinator and acceptance by an appropriate supervisor, elect to replace tw

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Either the following two courses for the Research Training Track							
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or the following course for the Research Project Track (if approved instead of Research Training Track)							
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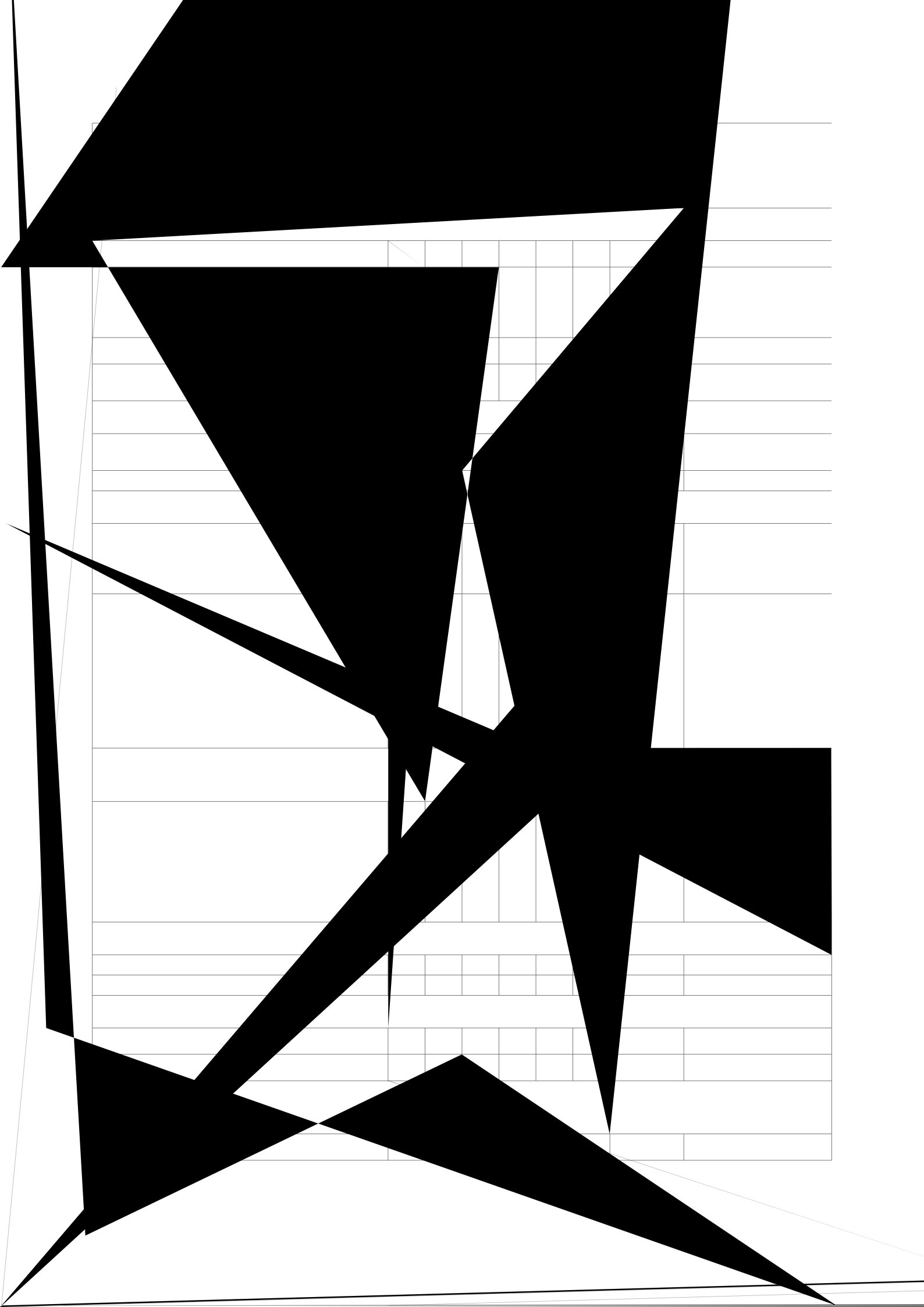
Footnotes

- < If STA2300 has been completed previously, contact the Program Coordinator to choose an alternative course to STA8170. Instead of the Research TT

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Footnotes

- < If STA2300 has been completed previously, contact the Program Coordinator to choose an alternative course to STA8170.
- + Recommended courses for students wanting to teach mathematics.
- * The on-campus offering of this course is offered in odd years only.
- ^ This is a topics based course. Students should select a topic from the course specification and email the examiner prior to enrolment to receive enrolment approval.
- @ The on-campus offering of this course is offered in even years only.



Consult the Handbook on the Web at <http://www.usq.edu.au/handbook/current> for any updates that may occur during the year.
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- < If STA2300 has been completed previously, contact the Program Coordinator to choose an alternative course to STA8170.
- # Instead of the Research Training Track, students may seek permission to do the Research Project Track and replace these courses with [MSC8001](#) (2 units) and [MSC8002](#) (2 units).
- * Two unit course