Overview

The Faculty of Science and the Faculty of Engineering offer a dual degree program which qualifies students for two degrees after the equivalent of six years of successful full-time study leading to the award of the degrees Bachelor of Science (Advanced Mathematics)(Honours) and Bachelor of Engineering (Honours).

The Faculty of Science administers the program, and delegates administration of the Bachelor of Engineering (Honours) requirements to the School which offers the Engineering discipline selected. Students should seek advice from the School of Mathematics regarding their Advanced Mathematics(Honours) program, and the relevant Engineering School Office, or the Faculty of Engineering regarding their Engineering program.
| **Faculty** | Faculty of Science  
| Faculty of Engineering |
| --- | --- |
| **Campus** | Kensington |
| **Study Level** | Undergraduate |
| **Typical duration** | 6 Years |
| **Intake Period** | Term 1, Term 3 |
| **Academic Calendar** | 3+ Calendar |
| **Minimum Units of Credit** | 288 |
| **Award(s)** | Bachelor of Science (Advanced Mathematics) (Honours) - **BSc(AdvMath)(Hons)**  
Bachelor of Engineering (Honours) - **BE (Hons)** |
| **UAC Code** | 429330 |
| **CRICOS Code** | 088864B |
Learning Outcomes

3956 - Advanced Mathematics (Honours)

1. Capability and motivation for intellectual development; including capacity for creativity, critical evaluation, entrepreneurship and demonstrating a commitment to their own learning, motivated by personal autonomy, accountability, curiosity and an appreciation of the value of learning.

2. Effective and appropriate communication in both professional (intra and inter disciplinary) and social (local and international) contexts.

3. Information literacy including the ability to make appropriate and effective use of information and information technology relevant to their discipline.

4. Research, enquiry and high level analytical thinking abilities including the ability to construct new concepts or create new understanding through the process of enquiry, critical analysis and problem solving, including constructing a research project, that demonstrates technical skills in research and design.

5. Independently identify and formulate solutions to complex problems with intelligence, initiative and judgement in scholarship that demonstrates advanced knowledge and critical thinking of the underlying principles and concepts in Mathematics and Statistics, and knowledge of research principles and methods.

6. Teamwork, collaborative and management skills including the ability to recognise opportunities and contribute positively to collaborative scientific research, and to demonstrate a capacity for self management, teamwork, leadership and decision making based on open-mindedness, objectivity and reasoned analysis in order to achieve common goals and further the learning of themselves and others.

7. Appreciation and respect of the social, cultural and global context of science with an ability to communicate across cultures and to develop an international professional network.

8. Ethical, social and professional understanding including the ability to critically
reflect upon broad ethical principles and codes of conduct in order to behave consistently with a personal respect and commitment to ethical practice and social responsibility, multicultural, cultural and personal diversity.

**Leaders**  **Global Citizens**

### 3707 - Engineering (Honours)

1. Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline.
   **Scholars**

2. Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline.
   **Scholars**

3. In-depth understanding of specialist bodies of knowledge within the engineering discipline.
   **Scholars**

4. Discernment of knowledge development and research directions within the engineering discipline.
   **Scholars**

5. Knowledge of engineering design practice and contextual factors impacting the engineering discipline.
   **Global Citizens**  **Scholars**  **Professionals**

6. Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline.
   **Professionals**  **Scholars**  **Global Citizens**

7. Application of established engineering methods to complex engineering problem solving.
   **Scholars**  **Global Citizens**  **Professionals**

8. Fluent application of engineering techniques, tools and resources.
   **Professionals**  **Scholars**

   **Global Citizens**  **Professionals**  **Scholars**

10. Application of systematic approaches to the conduct and management of engineering projects.
    **Scholars**  **Leaders**  **Global Citizens**  **Professionals**
11. Ethical conduct and professional accountability.
- Global Citizens
- Professionals

12. Effective oral and written communication in professional and lay domains.
- Leaders
- Global Citizens
- Scholars

13. Creative, innovative and pro-active demeanour.
- Professionals
- Leaders
- Scholars

14. Professional use and management of information.
- Scholars
- Leaders

15. Orderly management of self, and professional conduct.
- Scholars
- Leaders
- Professionals

16. Effective team membership and team leadership.
- Scholars
- Leaders
- Global Citizens
- Professionals

**Graduate Capabilities:**

For more information on Graduate Capabilities, please click on this link.
Stand Alone Programs

Click on the link below to find out more about each individual program.

Program 3956
Advanced Mathematics (Honours)

Program 3707
Engineering (Honours)
Double Degree Structure

Students must complete 288 UOC.

Bachelor of Engineering (Honours) (168 UOC)
1. 168 UOC plus at least 60 days of approved Industrial Training experience
2. At least 48 UOC Disciplinary Knowledge and Enquiry-based Courses
3. 30-42UOC Introductory Knowledge core courses
4. At least 12 UOC of elective courses
5. The balance of stream to consist of Foundation Disciplinary Knowledge Courses

Bachelor of Advanced Mathematics (Honours) (144 UOC)
1. An approved Advanced Mathematics (Honours) major and
2. SCIF1131;
3. 48 units of credit Honours Year; and
4. Science elective courses

Major Specialisation Requirements

3956 - Advanced Mathematics (Honours)
Students must complete at least one of the specialisations below.

MAJOR:

MATHA1  |  90 UOC
Applied Mathematics

MATHP1  |  90 UOC
Pure Mathematics

MATHU1  |  90 UOC
Advanced Statistics

Honours Specialisation Requirements

3956 - Advanced Mathematics (Honours)
Students must complete at least one of the specialisations below.
HONOURS:

MATHAH  |  48 UOC
Applied Mathematics

MATHPH  |  48 UOC
Pure Mathematics

MATHTH  |  48 UOC
Statistics

Majors

3707 - Engineering (Honours)

Students must complete at least one of the specialisations below.

HONOURS:

AEROAH  |  168 UOC
Aerospace Engineering

BINFAH  |  168 UOC
Bioinformatics Engineering

CEICAH  |  168 UOC
Chemical Engineering

CEICDH  |  168 UOC
Chemical Product Engineering

COMPBH  |  168 UOC
Computer Engineering

CVENAH  |  168 UOC
Civil Engineering

CVENBH  |  168 UOC
<table>
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<th>Program</th>
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<td>Photovoltaics and Solar Energy</td>
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<td>Renewable Energy Engineering</td>
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Level 1 Core Course

3956 - Advanced Mathematics (Honours)

Students must take the following course.

SCIF1131  |  6 UOC
Introductory Skills for Science

Level 2 Maturity Requirements

3956 - Advanced Mathematics (Honours)

Students may commence Level 2 courses upon successful completion of 30 UOC of Level 1 courses.

any level 2 course

Level 3 Maturity Requirements

3956 - Advanced Mathematics (Honours)

Students may commence Level 3 courses upon successful completion of 72 UOC.

any level 3 course

Level 4 Maturity Requirements

3707 - Engineering (Honours)

Students must have completed 42 UOC before taking any of the following courses.

any level 3 course
any level 4 course

**Maximum Level 1 UOC**

3956 - Advanced Mathematics (Honours)

A maximum of 72 UOC of Level 1 courses can be taken, including any General Education or mainstream Level 1 course taken to fulfil either the General Education or the Free Elective requirement.

any level 1 course

**Minimum Level 1 Science Courses**

3956 - Advanced Mathematics (Honours)

Students must complete a minimum of 24 UOC of the following courses.

any level 1 Anatomy course

any level 1 Computer Science course

any level 1 Food Technology course

any level 1 course offered by Faculty of Science

any level 1 Neuroscience course

any level 1 Pathology course

any level 1 Pharmacology course

any level 1 Physiology course

**Minimum Level 3 Science Courses**

3956 - Advanced Mathematics (Honours)

Students must complete a minimum of 30 UOC of the following courses.
any level 3 Anatomy course

any level 3 Computer Science course

any level 3 Food Technology course

any level 3 course offered by Faculty of Science

any level 3 Neuroscience course

any level 3 Pathology course

any level 3 Pharmacology course

any level 3 Physiology course

any level 3 Medical Science course

**Level 1 Core Course Requirement**

3761 - Advanced Mathematics (Honours) / Engineering (Honours)

Students taking program 3761 Bachelor of Advanced Mathematics (Honours)/Bachelor of Engineering (Honours) must take ENGG1000 Introduction to Engineering Design and Innovation instead of SCIF1131. ENGG1000 - Introduction to Engineering Design and Innovation (6 UOC)

**Major Declaration**

3956 - Advanced Mathematics (Honours)

Students must complete exactly one approved Bachelor of Science (Advanced Mathematics) (Honours) major, and this must be declared before enrolling in Level III courses. Students cannot undertake a double major in this program.

**Industrial Experience Requirement**

3707 - Engineering (Honours)
Students must each complete at least 60 days approved industrial training concurrent with enrolment in the program.

Please read the Double Degree Program rules as some specific rules apply to particular Double Degree combinations.

**Enrolment Disclaimer**

Unless advised otherwise by your program authority, you should follow the rules for the handbook for the year you commenced your program. You are also responsible for ensuring you enrol in courses according to your program requirements. myUNSW enrolment checks that you have met enrolment requirements such as pre-requisites for individual courses but not that a course will count towards your program requirements.
Program Fees

At UNSW fees are generally charged at course level and therefore dependent upon individual enrolment and other factors such as student's residency status. For generic information on fees and additional expenses of UNSW programs, click on one of the following:

- Domestic Students
- Commonwealth Supported Students
- International Students
Additional Information

Accreditation:

This Engineering component of this dual degree has the same accreditation status as the Bachelor of Engineering (Hons). For details please see Program 3707
Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)

Pre-2019 Handbook Editions
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Authorised by Deputy Vice-Chancellor (Academic)
CRICOS Provider Code 00098G
ABN: 57 195 873 179