Advanced Mathematics (Honours) / Engineering (Honours)

3761

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.
<table>
<thead>
<tr>
<th><strong>Faculty</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty of Science</td>
<td></td>
</tr>
<tr>
<td>Faculty of Engineering</td>
<td></td>
</tr>
</tbody>
</table>

| **Campus**          | Kensington                  |

| **Study Level**     | Undergraduate               |

| **Typical duration**| 6 Years                     |

| **Academic Calendar**| 3+ Calendar                |

| **Minimum Units of Credit** | 288                         |

<table>
<thead>
<tr>
<th><strong>Award(s)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Science (Advanced Mathematics) (Honours) - BSc(AdvMath)(Hons)</td>
<td></td>
</tr>
<tr>
<td>Bachelor of Engineering (Honours) - BE (Hons)</td>
<td></td>
</tr>
</tbody>
</table>

| **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.

   Leaders  Professionals  Scholars

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

   Leaders  Global Citizens

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

   Global Citizens  Professionals

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.

   Scholars  Professionals

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.

   Professionals  Scholars

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.

   Leaders  Global Citizens  Scholars

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.

   Global Citizens

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

**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>
<thead>
<tr>
<th>Course Code</th>
<th>UOCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECAH</td>
<td>168</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td></td>
</tr>
<tr>
<td>GMATDH</td>
<td>168</td>
</tr>
<tr>
<td>Surveying</td>
<td></td>
</tr>
<tr>
<td>GMATEH</td>
<td>168</td>
</tr>
<tr>
<td>Geospatial Engineering</td>
<td></td>
</tr>
<tr>
<td>MANFBH</td>
<td>168</td>
</tr>
<tr>
<td>Mechanical and Manufacturing Engineering</td>
<td></td>
</tr>
<tr>
<td>MECHAH</td>
<td>168</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td></td>
</tr>
<tr>
<td>MINEAH</td>
<td>168</td>
</tr>
<tr>
<td>Mining Engineering</td>
<td></td>
</tr>
<tr>
<td>MTRNAH</td>
<td>168</td>
</tr>
<tr>
<td>Mechatronic Engineering</td>
<td></td>
</tr>
<tr>
<td>PETRAH</td>
<td>168</td>
</tr>
<tr>
<td>Petroleum Engineering</td>
<td></td>
</tr>
<tr>
<td>SENGAH</td>
<td>168</td>
</tr>
<tr>
<td>Software Engineering</td>
<td></td>
</tr>
<tr>
<td>SOLAAH</td>
<td>168</td>
</tr>
<tr>
<td>Photovoltaics and Solar Energy</td>
<td></td>
</tr>
<tr>
<td>SOLABH</td>
<td>168</td>
</tr>
<tr>
<td>Renewable Energy Engineering</td>
<td></td>
</tr>
</tbody>
</table>
**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 3 Maturity Requirements**

3707 - Engineering (Honours)

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

any level 3 course

---

**Level 4 Maturity Requirements**

3707 - Engineering (Honours)

Students must have completed 102 UOC before taking any of the following courses.
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.

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**

You are 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. Do not assume that because you have enrolled in a course that the course will be credited towards your program.
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
Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)
© UNSW Sydney (CRICOS Provider No.: 00098G), 2019. The information contained in this Handbook is indicative only. While every effort is made to keep this information up-to-date, the University reserves the right to discontinue or vary arrangements, programs and courses at any time without notice and at its discretion. While the University will try to avoid or minimise any inconvenience, changes may also be made to programs, courses and staff after enrolment. The University may also set limits on the number of students in a course.

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