Biotechnology can be defined as the use of various biological processes to make products and perform services. The essential feature of biotechnology therefore is the use of biological processes based on living cells and biochemical macro-molecules such as proteins, DNA and RNA in a rapidly-expanding range of activities of benefit to mankind.
<table>
<thead>
<tr>
<th><strong>Faculty</strong></th>
<th>Faculty of Science</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School</strong></td>
<td>School of Biotechnology and Biomolecular Sciences</td>
</tr>
<tr>
<td><strong>Study Level</strong></td>
<td>Undergraduate</td>
</tr>
<tr>
<td><strong>Minimum Units of Credit</strong></td>
<td>84</td>
</tr>
<tr>
<td><strong>Specialisation Type</strong></td>
<td>Major</td>
</tr>
</tbody>
</table>
Learning Outcomes

1. Understand the fundamental science and emerging scientific research that underpins the biotechnology sector.
   - Scholars

2. Demonstrate an ability to communicate complex ideas and methods used in the biotechnology sector in both professional (intra and inter disciplinary) and social/ethical (local and international) contexts.
   - Global Citizens
   - Professionals

3. Develop numerical, laboratory, bioprocessing and computational skills required for the specialised areas of biotechnology.
   - Leaders
   - Scholars

4. Apply the methods of scientific inquiry, including gathering, analysing and interpreting relevant research data, formulating scientific hypotheses and designing and conducting laboratory experiments.
   - Scholars
   - Professionals

5. Demonstrate the ability to apply the principles of teamwork, collaboration and communication through the development of laboratory/research reports and business cases in the cross-disciplinary context of biotechnology.
   - Professionals
   - Scholars

Graduate Capabilities:

For more information on Graduate Capabilities, please click on this link.
Available in Program(s)

Program(s) in which this major is available

Bachelor of Advanced Science (Honours) - **BAdvSci(Hons)**

**3962 Advanced Science (Honours)**

Faculty: Faculty of Science
Campus: Kensington
Units of Credit: 192
Typical Duration: 4 Years
Specialisation Structure

Students must complete 84 UOC.

Level 1 Core Courses

Students must take 36 UOC of the following courses.

BABS1201  |  6 UOC
Molecules, Cells and Genes

BABS1202  |  6 UOC
Applied Biomolecular Sciences

One of the following:
CHEM1011  |  6 UOC
Chemistry 1A: Atoms, Molecules and Energy

CHEM1031  |  6 UOC
Higher Chemistry 1A: Atoms, Molecules and Energy

One of the following:
CHEM1021  |  6 UOC
Chemistry 1B: Elements, Compounds and Life

CHEM1041  |  6 UOC
Higher Chemistry 1B: Elements, Compounds and Life

One of the following:
MATH1031  |  6 UOC
Mathematics for Life Sciences

MATH1131  |  6 UOC
Mathematics 1A

MATH1141  |  6 UOC
Higher Mathematics 1A

One of the following:
MATH1041  |  6 UOC  
Statistics for Life and Social Sciences

MATH1231  |  6 UOC  
Mathematics 1B

MATH1241  |  6 UOC  
Higher Mathematics 1B

**Level 2 Core Courses**

Students must take 24 UOC of the following courses.

BABS2011  |  6 UOC  
Current Trends in Biotechnology

BIOC2101  |  6 UOC  
Principles of Biochemistry (Advanced)

BIOC2201  |  6 UOC  
Principles of Molecular Biology (Advanced)

MICR2011  |  6 UOC  
Microbiology 1

**Level 3 Core Courses**

Students must take 24 UOC of the following courses.

BABS3061  |  6 UOC  
Medical Biotechnology

BABS3071  |  6 UOC  
Commercial Biotechnology

BABS3200  |  6 UOC  
Synthetic Biology
BABS3631 | 6 UOC
Biotechnology & Bioengineering Advanced

Suggested & Recommended Electives

Level 2 Recommended courses
BABS2202 - Molecular Cell Biology 1 (6UOC)
BABS2264 - Genetics (Advanced Level) (6 UOC)

Level 2 Suggested courses
BINF2010 Introduction to Bioinformatics
CHEM2021 Organic Chemistry: Mechanisms & Biomolecules
CHEM2041 Analytical Chemistry: Essential Methods
BABS2204 Genetics (prerequisite for Stage 3 Genetics courses)
SCIF2199 Science Work Placement

Level 3 Recommended Electives
MICR3061 Viruses and Disease
BABS3281 Bacteria & Disease
MICR3071 Environmental Microbiology
MICR3621 Microbial Genetics (Advanced)
BIOC3261 Human Biochemistry
BABS3041 Immunology 1
BIOC3111 Molecular Biology of Proteins
BIOC3671 Molecular Cell Biology 2 (Advanced)
BABS3291 Genes, Genomes & Evolution
BABS3151 Human Molecular Genetics & Disease
BABS3121 Molecular Biology of Nucleic Acids

Level 3 Suggested courses:
BINF3010 Bioinformatics Methods & Applications
BABS3281 Molecular Frontiers.

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.
Additional Information

Honours

For information about Honours in Biotechnology see the Biotechnology Honours plan or contact the School of Biotechnology & Biomolecular Sciences (BABS).
Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)

Pre-2019 Handbook Editions
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)
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ABN: 57 195 873 179