Specialisation

Bioinformatics

BABS BH | 48 Units of Credit
Overview

The Honours program in Bioinformatics aims to help students achieve, through research, a deeper and skilled understanding of specific aspects of bioinformatics while developing their critical thinking, writing and presentation skills. Students undertake a supervised research project in an area of research significance as approved by the Head of School. The BABS BSc (Hons) Degree provides an opportunity for students to experience hands-on scientific research. Honours students become part of a research team within one of the research labs in the School, and complete a supervised research project and thesis during the year-long program. A key benefit of the Honours year is that it provides for a different type of learning experience. It proceeds at the pace of the individual student, with suitable supervisory oversight providing relevant training in an informal, relaxed atmosphere. Honours is also an opportunity for the student to undertake measured and reflective decision making about their future scientific career. Examples of recent projects and further information regarding Honours in Bioinformatics can be found at http://www.babs.unsw.edu.au/future_students/future-honours-students/honours-mphil-projects.

Honours in Bioinformatics is to be completed full-time. Students commence their enrolment in Term 1 (T1) or Term 2 (T2) or Term 3 (T3). Students should check with undergraduate school administrator and honours coordinator for current enrolment deadlines and completion dates.

Students must enrol in BABS4516 School of Biotechnology and Biomolecular Sciences Honours (16 UOC) for three terms.

The program involves a research project that forms the majority of the assessment. The project, although supervised, is to be completed with substantial independence and self-direction. In addition, the program involves a series of student consultations, tutorials and seminars. Students should seek to meet with other School researchers and academics to stimulate research ideas and aid the research process. Honours Students must attend a series of compulsory workshops on ethics, research design, data analysis, thesis writing, presentation skills and publishing (see Assessment below).
<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>48</td>
</tr>
<tr>
<td><strong>Specialisation Type</strong></td>
<td>Honours</td>
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### Available in Program(s)

Program(s) in which this honours is available

<table>
<thead>
<tr>
<th>Program</th>
<th>Code</th>
<th>Honours</th>
<th>Faculty</th>
<th>Campus</th>
<th>Units of Credit</th>
<th>Typical Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Advanced Science (Honours)</td>
<td>BAdvSci(Hons)</td>
<td><strong>3962 Advanced Science (Honours)</strong></td>
<td>Faculty of Science</td>
<td>Kensington</td>
<td>192</td>
<td>4 Years</td>
</tr>
<tr>
<td>Bachelor of Science (Honours)</td>
<td>BSc(Hons)</td>
<td><strong>4500 Science (Honours)</strong></td>
<td>Faculty of Science</td>
<td>Kensington</td>
<td>48</td>
<td>1 Years</td>
</tr>
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Specialisation Structure

Students must complete 48 UOC.

Core Course

Students must enrol in the following course three times for a total of 48 UOC:

BABS4516 | 16 UOC
Biotechnology and Biomolecular Sciences Honours

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

Assessment

Honours Orientation Week

Workshops on topics which include ethics, research design, fundamental statistics and data analysis, occupational health and safety, thesis writing and synthesis, project / time management, presentation skills and professional development. Workshops are held in the first week of Honours. Please note, the workshops' exact topics and schedules may vary subject to staff availability.

Students are required to submit exercises for feedback but does not contribute to final honours grade.

Literature review

A major written assignment of ca. 3,000 words on the topic of each student's project and selected in consultation with the project supervisor will be written. The aim is to familiarize students with library and resource usage and to develop a critical approach in assessing published literature in the area relevant to the research project.

Detailed feedback by primary supervisor. This is assessment of written skills that will scaffold the student learning and provides formative assessment leading to the final summative assessment in the introduction of the final thesis.

Results for this task do not contribute to the final grade.

Presentation 1

Present research plan to lab groups; 15 minutes with 5 minutes for questions

Feedback by primary supervisor. This is assessment of oral presentation skills that will scaffold the student learning and provides formative assessment leading to the final summative assessment in the final oral presentation (Presentation 2).

Results for this task do not contribute to the final grade.

Practice Thesis

The learning goal for this assignment is to teach students to extract data from laboratory notebooks and prepare a scientific document. The text of the report should be 2000 words or less. You must stay under the word limit. Three or four
figures and/or tables must be included. The text should include a brief Introduction. The focus should be on the presentation and discussion of your data. Assessors will expect figures, tables and text to be presented professionally and at the standard of an acceptable scientific journal. The grade of satisfactory or unsatisfactory is not used to predict the final outcome of the thesis, simply to indicate the committees view on the thesis as presented.

Internally examined by at least 2 reviewers and critical feedback given to student. This task scaffolds the student learning and provides formative assessment leading to the final summative assessment in the final thesis.

Results for this task do not contribute to the final grade.

**Practice thesis interview**

To facilitate feedback the Assessment Committee will interview the student to discuss the practice thesis. Students will be interviewed by their Assessment Committee to evaluate the extent of the student's knowledge and to confirm that the student is fully in possession of the contents of their thesis.

This task serves as a major component of the student's training for writing the final thesis and as practice for the final interview. Detailed feedback concerning the expectations for preparation of the final thesis will be provided at this time.

Results for this task do not contribute to the final grade.

**Presentation 2**

Present research findings; 15 minutes with 5 minutes for questions.

Students are graded by the academics in the audience. Students are assessed based on delivery of content, background knowledge of their field, and understanding of the significance of their findings in the context of their field of study.

Contribution to final grade: 10%

**Thesis**

A final research thesis is to be submitted at the end of the year that details the results and significance of findings of the project undertaken.

The following is a breakdown of the weighting of the different thesis sections:

- Introduction (20%) - The literature must be adequately described and understood by the student, and critical review of the literature is an indication of thorough understanding of the topic. *This component comprises essentially a major literature review undertaken by the students earlier in their year in*
which they are provided critical feedback on.

- **Methods (10%)** - The Methods section should be described in sufficient detail to allow experiments to be reproduced. *This component the student will have been provided critical feedback on from their practice thesis earlier in the year.*

- **Results (30%)** - Experiments should be presented in a logical sequence and there should be enough data presented in order for the committee to assess the level of commitment to the research project. *This component the student will have been provided critical feedback on from their practice thesis earlier in the year.*

- **Discussion (30%)** - Students should critically assess their own work and the work done by others, discussing the significance of their results in context with published work in the field. *This component the student will have been provided critical feedback on from their practice thesis earlier in the year.*

- **General presentation (10%)** - The thesis should be well written with a minimum of errors, with accurate, complete, and error free references (both in the text and in the reference list). *This component the student will have been provided critical feedback on from their practice thesis earlier in the year.*

Internally examined by at least two independent reviewers. Each member of the thesis committee will independently read and assess the final thesis without consultation with each other. After meeting with the student in the final thesis interview, the student will be excused and the committee will come to an agreement on the final mark for thesis. If there is a discrepancy and the committee cannot come to an agreement on the final mark, then a fourth examiner can be called for to provide another independent assessment of the thesis.

**Contribution to final grade:** 80%

**Final thesis interview**

Students will be interviewed by their Assessment Committee to evaluate the extent of the student's knowledge and to confirm that the student is fully in possession of the contents of their thesis.

Students are graded by their committee based on their interview. Students are assessed based on their ability to articulate verbally the significance of their findings, an understanding of the methods they employed, an ability to answer questions, and a background understanding of the field of study.

**Contribution to final grade:** 10%

**Honours Grade Calculation**
Hons. Class I (≥ 85%)

Work of excellent critical evaluation through substantial independence and self-direction, reflecting superior quality in all aspects of research, writing and presentation. The work has no significant errors or/and deficiencies.

Hons. Class II, Division I (75% to 84%)

Work of very good critical evaluation through substantial independence and self-direction, reflecting very good quality in all aspects of research, writing and presentation.

Hons. Class II, Division 2 (65% to 74%)

Work of good quality in research, writing and presentation but with some significant errors or/and deficiencies.

Hons. Class III (50% to 64%)

Work is in acceptable form and demonstrates basic research, writing and presentation skills. The work has several significant deficiencies.

Fail (<50%)

Work has a number of major flaws and there is evidence of lack of basic knowledge.

The thesis will be reviewed by at least two internal reviewers other than the supervisor(s). A panel will then determine the allocation of final honours grade.

**Admission Requirements and Process**

**Requirements**

Admission to Honours is competitive, and depends on academic merit as well as the availability of an approved supervisor. Consideration of academic merit is focused on performance in third level Science subjects and overall WAM, and students must meet all requirements of their undergraduate degree (stages 1 to 3) before being considered eligible.

- Students with an average overall WAM of lower than 65/or an average of lower than 65 in third-level Science courses will usually not be accepted.
- Students who have achieved an average overall WAM of 65 or higher and an average of 65 or higher in third-level Science courses may be admitted if an approved supervisor is available

The major of a current BABS undergraduate student will normally determine their Honours category, but there is some flexibility depending on the student’s interests and availability of supervisors. UNSW Medical Science students (3991 program) and
graduates from other Australian or overseas universities are welcome to apply for the BABS Honours program. Their selected research project will determine the Honours area in which they enrol.

Process

Students who meet the entry requirements, or expect to do so, should make contact with potential supervisors. Further information about staff research interests and the process of applying for Honours can be found here and appropriate links on the School of BABS webpage. Following this, students should contact undergraduate student office and complete an honours application form before the due date.

Pathways

Students with successful honours may be qualified to enrol in postgraduate level studies (Master of Philosophy, Master of Science by research or Ph.D.), depending on the level of honours obtained and the area in which research is to be undertaken. Further information can be gained from School of BABS webpage:

www.babs.unsw.edu.au

Graduates of honours degree in Bioinformatics may find employment in research, government and industry. Past graduates of honours in Bioinformatics have found employment in all of the above sectors.
Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)

Pre-2019 Handbook Editions