FACULTY OF SCIENCE

SCHOOL OF BIOTECHNOLOGY AND BIOMOLECULAR SCIENCES

BABS3301

BIOMOLECULAR SCIENCE LABORATORY PROJECT

Course Outline

T1, 2021

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Faculty of Science - Course Outline

1. Information about the Course

NB: Some of this information is available on the UNSW Handbook[1]

Year of Delivery	2021
Course Code	BABS3301
Course Name	Biomolecular Science Laboratory Project (Advanced)
Academic Unit	School of Biotechnology and Biomolecular Sciences
Level of Course	Third year undergraduate
Units of Credit	6UOC
Session(s) Offered	T1, T2, and T3
Assumed Knowledge, Prerequisites or Co-requisites	This course is restricted to Science students enrolled in Biotechnology, Biochemistry, Genetics, Molecular Biology or Microbiology Plans. Pre-requisites are that students have completed at least 48 UC. Enrolment in this course is by invitation and is based on academic performance, typically a WAM of 75+.
Hours per Week	Regular arrangement: ~7 face to face plus up to 7 either face to face or preparation on your own Arrangement under COVID-19 restrictions: Depending ng on the restrictions, projects shall be done remotely and through virtual meetings. This should be discussed with the supervisor and can be subject to change depending on the wet lab vs dry lab load of the project
Number of Weeks	One session, ~11 weeks
Commencement Date	As agreed by individual project supervisor. Typically, Week 1 or early Week 2 of the Trimester.

Summary of Course Structure (for details see 'Course Schedule')

Component	HPW	Time	Day	Location
Course introduction	*2 (week 1 or 2)*	*TBA*	*TBA*	*TBA*
Laboratory work	*7 h per week*	*To be negotiated*	*To be negotiated*	*A BABS Laboratory*
TOTAL				
Special Details	The course involves an initial discussion on academic writing and an overview of the course (1-2 hrs). One or two further meetings may be held during session as needed. Students can use the above space to record their usual laboratory work times.			

2. Staff Involved in the Course

Staff	Role	Name	Contact Details	Consultation Times
Course Convenor		Dr Fatemeh Vafaee	f.vafaee@unsw.edu.au	By appointment
Additional Teaching Staff	Project supervisor	To be determined after consultation		
	Lab supervisor	To be determined after consultation		

[1] UNSW Online Handbook: http://www.handbook.unsw.edu.au

3. Course Details

Course Description[2] (Handbook Entry)	This course is designed to introduce students to research methodology, and to stimulate critical and lateral thinking in the context of problem solving. The course involves directed reading, laboratory work and use of internet resources. Students work on a research project under the supervision of a member of the academic staff.
Course Aims[3]	This course aims to introduce students to research activities that are relevant for a scientific career in the general field of biomolecular sciences or biotechnology. This includes written and oral communication, practical and technical skills, equipment use, research methodology, and safe workplace practices. It also aims to demonstrate these to students within the scope of a larger research group and allows them to see where their project fits as part of a broad goal.
Student Learning Outcomes[4]	On successful completion of this course students will be able to: • Write a scientific document, in the form of a mini review or a scientific report, which will be of suitable standard for publication in a peer-reviewed journal. • Develop and undertake a scientific research project, including experimental design and interpretation of results. • Present their results to their peers

Graduate Attributes Developed in this Course[5]		
Science Graduate Attributes[5]	**Select the level of FOCUS** *0 = NO FOCUS* *1 = MINIMAL* *2 = MINOR* *3 = MAJOR*	**Activities / Assessment**
Research, inquiry and analytical thinking abilities	3	Preparation of mini review or scientific report. Undertaking a scientific research project that includes experimental design and interpretation of results, with assessment through oral report.
Capability and motivation for intellectual development	3	As above.
Ethical, social and professional understanding	3	Exercising safe workplace practices in the laboratory and undergoing OHS and green lab online training as well as a laboratory induction. Keeping laboratory records as instructed. Assessed in part through supervisor's mark.
Communication	3	Collegial conversation with others in the laboratory environment, written and oral skills assessment through mini review or scientific report and oral report.
Teamwork, collaborative and management skills	2	Collegial interaction with others in the laboratory, time management associated with carrying out project work. Assessed by the supervisor's mark.
Information literacy	3	Initial discussion presents an overview of academic writing. Assessed through mini review or scientific report.

[2] UNSW Handbook: http://www.handbook.unsw.edu.au
[3] Learning and Teaching Unit: Course Outlines
[4] Learning and Teaching Unit: Learning Outcomes
[5] Contextualised Science Graduate Attributes: http://www.science.unsw.edu.au/our-faculty/science-graduate-attributes

Major Topics (Syllabus Outline)	N/A
Relationship to Other Courses within the Program	N/A

4. Rationale and Strategies Underpinning the Course

Teaching Strategies	This is an apprenticeship approach to learning. There will be an initial discussion Health and Safety prior to commencement of laboratory work but the focus will be on working with research students/scientists on a research project. The laboratory-based (wet or virtual) work aims to immerse students in the research culture and provide invaluable experience in the practical skills and scientific thinking of a scientist. Record keeping is an important part of any research project and being a scientist. As well as recording and storing results, students will be guided in keeping good and accurate laboratory notes, either as a hard copy or an electronic record. As communication is an essential skill for scientists, the literature report (or project report) and talk provide students experience in developing professional oral and written communication.
Rationale for learning and teaching in this course [6,7]	This course is designed to provide a challenging, yet enjoyable, experience for high achieving students completing majors within the school. It aims to give them a comprehensive view of the research environment that includes safe work practices, competent laboratory skills and mastery of techniques, collegial interaction, scientific thinking and effective communication. This is done through immersion in a laboratory group environment with direct one-on-one supervision by a project supervisor.

[6] Reflecting on your teaching

5. Course Schedule

Some of this information is available on the Online Handbook[7] and the UNSW Timetable[8].

Week	Activity Topics & Lecturers	Assignment and Submission dates (see also 'Assessment Tasks & Feedback')
Weeks 1 & 2	Meet with project supervisor Course overview and H&S and Green lab training (Time and location TBA, depending on individual timetables). Commence practical work (supervised by supervisor or appropriately experienced/trained person) Meet with course Convenor	Students will meet regularly (at least fortnightly) with their supervisor (and/or delegated PG research student/postdoc) to discuss the project.
Week 3	Practical work (supervised by supervisor or appropriately experienced/trained person)	
Week 4	"	
Week 5	"	
Week 6 *	"	Semi-formal meeting with supervisor to discuss the project and provide feedback on progress. Delegated PG research student/ postdoc may be invited to attend.
Week 7	"	
Week 8	"	
Week 9	[Virtual] Oral Presentation on Project	Oral presentation. Presentation will be to the course coordinator, and other students and project supervisors in the course.
Week 10	"	
Week 11	"	Hand in lab books, reflective diary and mini literature review or scientific report to supervisor for marking on final day of Week 11. Electronic submission where appropriate.

[7] UNSW Virtual Handbook: http://www.handbook.unsw.edu.au
[8] UNSW Timetable: http://www.timetable.unsw.edu.au/

6. Assessment Tasks and Feedback[10]

Task	Knowledge & abilities assessed	Assessment Criteria *[subject to change]*	% of total mark	Date of submission	Feedback	
				Submission	WHO	WHEN
Mini literature review OR Scientific report	**Mini literature review <u>OR</u> a Project Report** Ability to write a Scientific report or a mini review of the scientific literature that is relevant to the research project. This will be performed by the following these steps: **1. Scientific Report (max 4000 words)** a) Identify the hypothesis b) Introduce the topic (review the literature) c) Provide an accurate and factual account of you project (what you did, what you found, and what your results mean). **OR** **2 Mini review (max 4000 words)** a) Discuss the review topic and outline with your project supervisor. Ideally it should be an area, which has not been previously reviewed in the literature. b) Perform a literature search of refereed journal articles or other peer-reviewed sources. c) Write the mini review Good examples of the expected structure, style and format of mini reviews: http://jbiol.com/content http://www.journals.asm.org/minireviews.dtl http://www.jbc.org/content/by/section/Minireviews Guidance of report writing is available from Student Support (https://student.unsw.edu.au/support-writing-laboratory-reports).	1. Content (/15) - Is the scope clearly defined? - Is the topic comprehensively and correctly covered? 2. Style (/5) - Is the language clear and concise? - Is the formatting in line with mini reviews in the literature? 3. Level of demonstrated understanding (/20) - Has only listing and comparison been used or has synthesis and abstraction been achieved? *Separate document detailing assessment criteria will be sent* Assessment criteria will be further explained during the training session in week 2.	30%	Week11 (email to supervisor and course co-ordinator)	Project Supervisor and/or Course Coordinator	two weeks from submission

Oral report of research project	Presentation of 15 minutes (+5 minutes for questions) must include background, material and methods, results and discussion of the research project. Ability to communicate clearly with the audience that includes the course convenor, BABS3301 students, project supervisors and interested laboratory members or students.	Clear structure of presentation (/5) Level of communication through spoken word and interaction with audience (/5) High-level use of supportive media (e.g. PowerPoint) (/5) Clear and deep understanding of project during questions time (/15) Note: a hard copy of any slides should be provided to the course coordinator and supervisor.	30%	Week 9	Course Coordinator, project supervisor, and other students enrolled in the course. The final mark would be a [weighted] average of all.	Within 1 week of submission
Supervisor's mark for performance in the lab	Performance of laboratory work, input to experimental design and interpretation, and intellectual contribution to the project, and quality of reporting/laboratory book documentation.	Safe and competent laboratory practices. (/5) Efficient time management. (/5) Active input/discussion of experimental design and interpretation of results. (/5) Timely, clear and professional upkeep of laboratory workbook. (/5)	30%	Submit lab books in Week 11 (submit lab book to supervisor)	Project supervisor	Within 2 weeks of submission
Reflective Diary	Ability to log work activities in a clear, comprehensible and useful manner and include a reflective commentary, where appropriate on the day's activities		10%	Submit diary in week 11 (email document to course co-ordinator; alternatively provide link to on-line resource)	Project Supervisor and/or Course Coordinator	Within 2 weeks of submission

[10] Approaches to assessment: http://teaching.unsw.edu.au/assessment

7. Additional Resources and Support

Text Books	*N/A*
Course Manual	*N/A*
Required Readings	Consult project supervisor
Additional Readings	Consult project supervisor
Recommended Internet Sites	The UNSW library and OHS websites.
Societies	Consult project supervisor for guidance on which society to join
Computer Laboratories or Study Spaces	The school computer resources in BiBS and G08 are available and additional study space may be provided by the supervisor.

8. Required Equipment, Training and Enabling Skills

Equipment Required	Closed shoes and a laboratory coat are needed at all times in the laboratories. Other equipment will be needed depending on the laboratory and it is the responsibility of the project supervisor to supply.
Enabling Skills Training Required to Complete this Course	Online OHS and Green lab training. Laboratory induction.

9. Course Evaluation and Development

Student feedback is gathered periodically by various means. Such feedback is considered carefully with a view to acting on it constructively wherever possible. This course outline conveys how feedback has helped to shape and develop this course.

Mechanisms of Review	Last Review Date	Comments or Changes Resulting from Reviews
Major Course Review	Session 2 2013	An earlier assessment, submission of the laboratory workbook and supervisor assessment of work practices has been added to Week 5 in line with UNSW assessment guidelines. Submission of the mini review has been brought forward to the end of Week 12 in line with UNSW assessment guidelines. More specific marking criteria, for the benefit of students and supervisors, has been developed following feedback from supervisors in session 1, 2013. Assessment modified to include a project report as an alternative to a literature review. Assessment focused on scientific research approach/practice. 2015
Minor Course Review	Session 1 2017	*Addition of reflective diary component*

CATEI[11]	*Unknown*	*n/a*
Other	*n/a*	*n/a*

[11] **CATEI process:** http://www.science.unsw.edu.au/our-faculty/course-and-teaching-evaluation-and-improvement-catei

10. Administration Matters

Expectations of Students	Students are expected to attend an early discussion on academic writing and introduction to the course. Throughout session they are to liaise with their project supervisor / immediate laboratory supervisor to ensure the project is tracking sufficiently. Laboratory work should consist of approximately 60 hours work throughout session.
Assignment Submissions	All written work should be submitted through the assignment drop-box outside the BABS Student Office with the school coversheet, and an electronic copy emailed to the Course convenor and project supervisor.

Occupational Health and [12]	Information on relevant Occupational Health and Safety policies and expectations at UNSW can be found at http://www.ohs.unsw.edu.au/ . The School Health and Safety manager is Theresa Kahwati. He can be contacted via email t.kahwati@unsw.edu.au or telephone 9385 1578. Prior to commencement of laboratory work the student needs to undertake online training of the Green Lab and OHS courses via Moodle. This will be arranged by the project supervisor (or if not possible by the course coordinator). The student also need to undergo laboratory induction of the individual laboratory and shared areas that she/he will work in. The following two forms need to be completed (downloadable from the UNSW website) and kept on file by your project supervisor: - UNSW OHS006 form - UNSW OHS049 form If the work will be undertaken under PC2 conditions, then additional training will be required. You should also have access to or be prepared to write new SWP (Safe working Procedures) and RAs (Risk Assessments for any lab tasks undertaken. These need to be approved by your supervisor. The relevant forms are: - HS017 Risk Management Form - HS026 Safe Working Procedure Form Health and Safety forms can be found at: https://safety.unsw.edu.au/procedures-forms
Assessment Procedures **UNSW Assessment Policy**[13]	Students who believe that their performance, either during the session or in the end of session exams, may have been affected by illness or other circumstances should apply for special consideration. The student must then make formal application for Special Consideration for the course/s affected as soon as practicable after the problem occurs and within three working days of the assessment to which it refers. The application must be made on the 'Request for Consideration' form available from UNSW Student Central, or can be downloaded as a copy of the form from *myUNSW* online. The completed application form must be submitted to UNSW Student Central (formerly NewSouth Q). Students should consult the A-Z guide on *myUNSW*, particularly the section on 'Special Consideration' for further information about general rules covering examinations, assessment, special consideration and other related matters. This information is available on the web at https://my.unsw.edu.au/student/atoz/ABC.html
Equity and Diversity	Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course Convenor prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equity and Diversity Unit (9385 4734 or http://www.studentequity.unsw.edu.au/). Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

[12] UNSW OHS Home page
[13] UNSW Assessment Policy
[14] Student Complaint Procedure

Student Complaint Procedure[14]	**School Contact**	**Faculty Contact**	**University Contact**
	Dr. Anne Galea Director of teaching, BABS) a.galea@unsw.edu.au		Student Conduct and Appeals Officer (SCAO) within the Office of the Pro-Vice-Chancellor (Students) and Registrar. Telephone 02 9385 8515, email studentcomplaints@unsw.edu.au University Counselling and Psychological Services[9] Tel: 9385 5418

[15] University Counselling and Psychological Services

11. UNSW Academic Honesty and Plagiarism

What is Plagiarism?

Plagiarism is the presentation of the thoughts or work of another as one's own.
*Examples include:

- direct duplication of the thoughts or work of another, including by copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement;
- paraphrasing another person's work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.†

For the purposes of this policy, submitting an assessment item that has already been submitted for academic credit elsewhere may be considered plagiarism.

Knowingly permitting your work to be copied by another student may also be considered to be plagiarism.

Note that an assessment item produced in oral, not written, form, or involving live presentation, may similarly contain plagiarised material.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does *not* amount to plagiarism.

The Learning Centre website is main repository for resources for staff and students on plagiarism and academic honesty. These resources can be located via:

www.lc.unsw.edu.au/plagiarism

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

* Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle
† Adapted with kind permission from the University of Melbourne