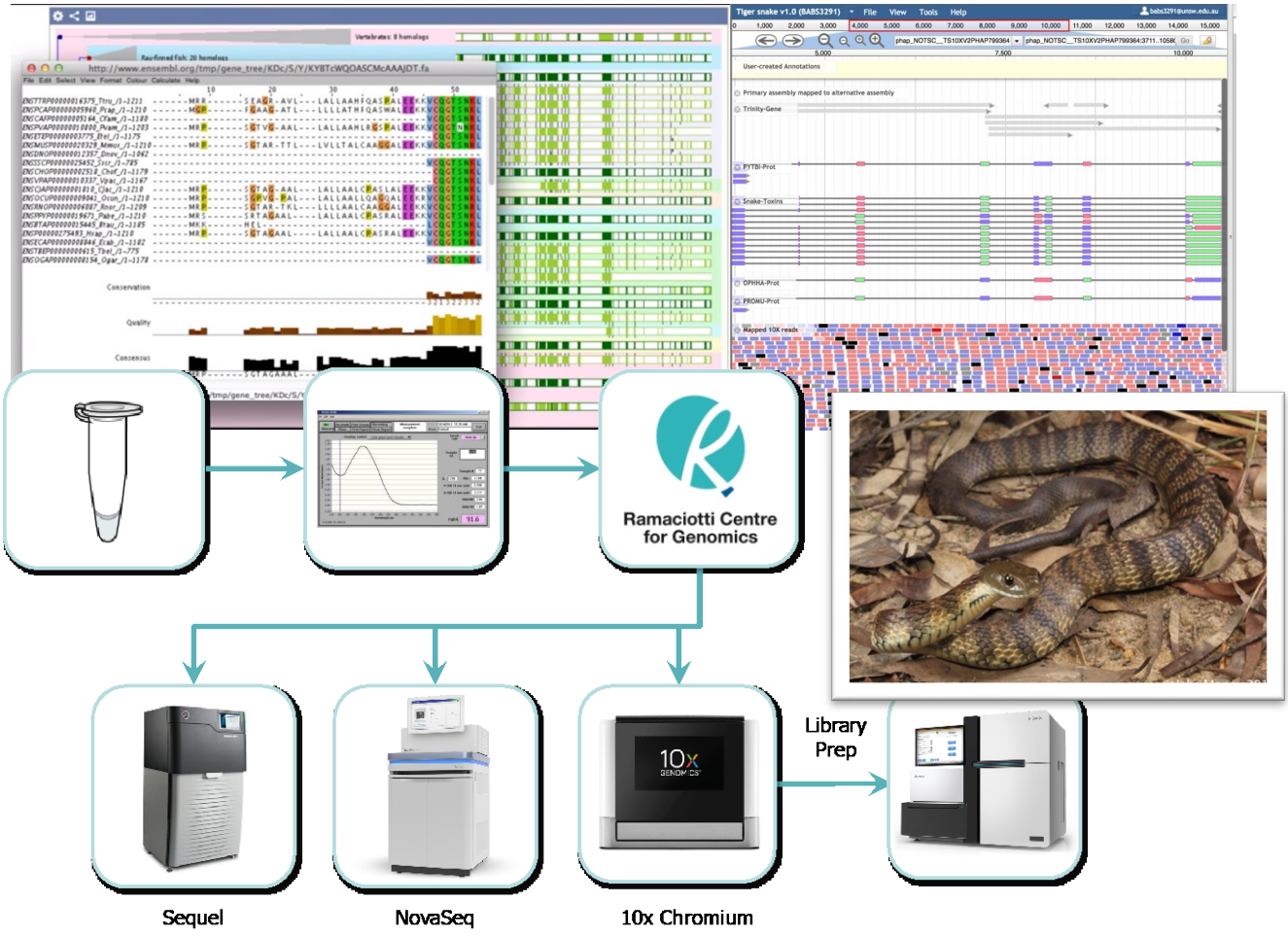
UNSW SYDNEY

BABS3291

Genes, Genomes & Evolution

COURSE HANDBOOK

Version 1.1



TERM 1, 2022

FACULTY OF SCIENCE
School of Biotechnology and Biomolecular Sciences

Contents

1 Course information

Year of Delivery	2022
Course Code	BABS3291
Course Name	Genes, Genomes and Evolution
Academic Unit	School of Biotechnology and Biomolecular Sciences
Level of Course	3rd year
Units of Credit	6UOC
Session(s) Offered	T1
Assumed Knowledge, Prerequisites or Co-requisites	Second year genetics (BABS2204/BABS2264)
Hours per Week	6
Number of Weeks	11 weeks
Commencement Date	**Week 1**

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

Component	HPW	Weeks	Time	Day	Location
Lecture 1	1	1-5,7-10	0900-1000	Tue	MS Teams
Lecture 2	1	1-5,7-10	1100-1200	Thu	MS Teams
Lecture 3	1	1-5,7-10	1100-1200	Fri	MS Teams
Practical (Computer labs)	2	1-5,7-10	1400-1600	Thu	MS Teams / E26 Lab 11
Tutorial/Practical (Online)	2	1-5,7-10	0900-1100	Fri	MS Teams
TOTAL	**7**	Students with clashes should contact the BSB Student Office.			

Summary of Assessment (for details see 'Course Assessment')

Assessment task	Weight	Date/Deadline
Final exam (Lectures 1-6, 16-27)	30%	See exam timetable
Examination total	**30%**	
Science communication (1): Genome blog	20%	Thu 3-Mar 1400 (Week 3)
Bioinformatics Practical (1) (inc. Lectures 12-14)	20%	Fri 18-Mar 1400 (Week 5)
Bioinformatics Practical (2): Report	30%	Fri 22-Apr 1400 (Week 10)
Coursework total	**70%**	
All coursework to be submitted via LabArchives, Teams and/or Moodle. See Teams for details.		

2 Staff Contact Details

Position	Name	Contact details	Availability
Course Convener	Rich Edwards (RE)	richard.edwards@unsw.edu.au	Email for appointment or contact via Teams
Lecturers	Fatemeh Vafaee (FV) Mark Tanaka (MT) Paul Waters (PW)	f.vafaee@unsw.edu.au m.tanaka@unsw.edu.au p.waters@unsw.edu.au	Email for appointment or contact via Teams
Guest Lecturers	Jason Bragg (JB) Lee Ann Rollins (LR) Shafagh Waters (SW)	Contact via Dr Edwards	n/a
Lab Demonstrator	See Teams for details	Contact via Teams	Prac sessions

3 Course Schedule

Please note that the course schedule may change in response to changing circumstances during the Semester. Changes will be announced through Moodle.

3.1 Lecture Schedule

Lectures will either be delivered live on MS Teams, or "flipped" and delivered asynchronously as online recordings, with associated revision sessions in the lecture slots. Revision sessions will also be recorded for students with clashes.

Please check on MS Teams for updates regarding which lecture slots will be live or have live Q&A sessions. These sessions will be clearly posted in the channel associated with that lecture topic.

Week	starting	Lecture 1 (1 hour) - TUE 9AM - Teams	Lecture 2 (1 hour) - THU 11AM - Teams	Lecture 3 (1 hour) - FRI 11AM - Teams
1	14-Feb	**15-Feb** Course introduction (RE)**	**17-Feb** Genes, genomes & evolution (RE)**	**18-Feb** "Junk" DNA: introns (RE)^
2	21-Feb	**22-Feb** "Junk" DNA: repetitive sequences (RE)	**24-Feb** Sex chromosomes (PW)	**25-Feb** Microchromosomes (PW)^
3	28-Feb	**01-Mar** Mutation and genetic variation (MT)	**03-Mar** Selection and fitness landscapes (MT)	**04-Mar** Genetic drift and population size (MT)^
4	07-Mar	**08-Mar** Molecular clocks (MT)	**10-Mar** Predicting protein function 1 (RE)	**11-Mar** Predicting protein function 2 (RE)^
5	14-Mar	**15-Mar** Molecular phylogenetics (RE)	**17-Mar** Gene duplications & gene families (RE)	**18-Mar** Horizontal gene transfer (RE)^
6	21-Mar	**22-Mar** FLEXIBILITY WEEK	**24-Mar** FLEXIBILITY WEEK	**25-Mar** FLEXIBILITY WEEK
7	28-Mar	**29-Mar** De novo genome sequencing (RE)	**31-Mar** Diploid genome assembly (RE)	**01-Apr** Long range genome assembly (RE)^
8	04-Apr	**05-Apr** Assessing genome assemblies (RE)	**07-Apr** Genome annotation (RE)	**08-Apr** mtDNA and NUMTs (RE)^
9	11-Apr	**12-Apr** Epigenomics (SW)*	**14-Apr** Network genomics (FV)*	**15-Apr** GOOD FRIDAY
10	18-Apr	**19-Apr** Invasion genomics (LR)*	**21-Apr** Genomics for conservation (JB)*	**22-Apr** Host pathogen coevolution (MT)*
11	25-Apr	**26-Apr** STUDY WEEK	**28-Apr** STUDY WEEK	**29-Apr** STUDY WEEK

FV - Fatemeh Vafaee | JB - Jason Bragg | LR - Lee Ann Rollins | MT - Mark Tanaka | PW - Paul Waters | RE - Rich Edwards | SW - Shafagh Waters

*Live lecture ^Q&A slot for week

**Course Introduction will be held in Lecture slot 2 (Thu 11am 17-FEB)

3.2 Tutorial and Lab Schedule

Tutorial/prac sessions will be delivered synchronously as a combination of online and face-to-face live sessions with support from lecturers and demonstrators. Presentations will be recorded for reference.

Week	starting	Practical (2 hour) - THU 2PM-4PM - E26/LABS 11-12	Tutorial (2 hour) - FRI 9AM-11AM - Teams	Assignment and Submission dates	Notes
1	14-Feb	**17-Feb** Prac Intro (RE)	**18-Feb** Genome blog selection (RE)		
2	21-Feb	**24-Feb** Homology searching (RE)	**25-Feb** Genome statistics (RE)		
3	28-Feb	**3-Mar** Multiple sequence alignment (RE)	**4-Mar** Blog marking (RE)	Science Blog: Week 3	
4	07-Mar	**10-Mar** Molecular evolution with MEGA (RE/MT)	**11-Mar** Molecular evolution with MEGA (RE/MT)		
5	14-Mar	**17-Mar** Molecular phylogenetics with MEGA (RE/MT)	**18-Mar** Molecular phylogenetics with MEGA (RE/MT)	Prac Part 1: Week 5	
6	21-Mar	**24-Mar** FLEXIBILITY WEEK	**25-Mar** FLEXIBILITY WEEK		FLEXIBILITY WEEK
7	28-Mar	**31-Mar** Ramaciotti Tour (RE)	**1-Apr** Part 1 Review (RE)		
8	04-Apr	**7-Apr** Protein annotation (RE)	**8-Apr** Bioinformatics Report (RE)		
9	11-Apr	**14-Apr** WebApollo gene finding (RE)	**15-Apr** GOOD FRIDAY		GOOD FRIDAY 15-APR
10	18-Apr	**21-Apr** Work on prac report	**22-Apr** Work on prac report	Prac Part 2: Week 10	
11	25-Apr	**28-Apr** STUDY WEEK	**29-Apr** STUDY WEEK		Overflow week if required

MT - Mark Tanaka | RE - Rich Edwards

Completion of lecture quizzes and attendance of practicals & tutorials is compulsory unless otherwise announced or prior arrangements have been made.

4 Course Assessment

Details of assessments will be provided on Moodle and presented in tutorials. See **Course Schedule** for overview of dates in the context of the rest of the course.

4.1 Assessment overview

Assessment task	Duration	Weight	Date	
Final exam	2 hours	30%	Check exam timetable	
EXAMINATION TOTAL		**30%**		
Assessment task	**Duration**	**Weight**	**Release date**	**Due date**
Genome Paper Blog (Science communication): Blog post of a primary research article	3 weeks	20%	18-Feb (Week 1)	3-Mar @1400 (Week 3)
Molecular Evolution Practical (Bioinformatics practical Part 1): Online tasks and data analysis	5 weeks	20%	17-Feb (Week 1)	18-Mar @1400 (Week 5)
Bioinformatics Protein Annotation Report (Bioinformatics practical Part 2): Report paper on original data analysis	4 weeks	30%	31-Mar (Week 7)	22-Apr @1400 (Week 10)
COURSEWORK TOTAL		**70%**		

4.2 Submission of Assessment Tasks

All assignments must be typed and submitted online via Moodle. Hand-written submissions will not be marked.

The Genome Paper Blog must be submitted by 2pm on the due date. Due to allocation of peer marking, late submissions will NOT be accepted without special considerations.

Bioinformatics prac assignments must be submitted by 2pm on the due date. Late submission will incur a penalty of 5% of the total value per working day or part thereof.

4.3 Examinations (30%)

BABS3291 has one examination: a final exam in the exam period worth 30% of the course mark. This exam will examine lectures 1-6 and 16-27. Lectures 7-15 will be examined as part of the bioinformatics practical. The examination will consist of nine essay questions in three sections. Students must answer ONE question from EACH SECTION. Details will be released via Moodle/Teams.

4.4 Genome Paper Blog (20%)

The first BABS3291 assignment is a science communication assignment, due in Week 3. The task it to write a short scientific blog post for an educated lay audience. The subject for the blog post is a Genome paper of your choice. Details will be released via Moodle/Teams and Tutorial briefings.

4.5 Bioinformatics Genomics Practical (50%)

The main practical in BABS3291 is a nine-week bioinformatics practical in which we will be analysing original data from BABS genome sequencing projects. You will first learn core bioinformatics skills and good data management practices. You will then apply these to gene finding/annotation in recently sequenced and assembled genomic data two venomous snakes, sequenced as part of the “BABS Genome Project”. Practical work will be assessed via online tasks and quizzes during the first five weeks of the prac (20%) and a short research report on a protein of interest due in Week 10 (30%). You will be tested on, and expected to incorporate, knowledge from lectures 7-15. Participation each week must be completed for course credit.

5 Course details

Course Description[1]	This course covers cutting edge concepts in genetics, genomics and evolution: genome structure (how genes are organised into genomes), genomics (genome sequencing, assembly and annotation), genome variation and the forces that shape it (mutation, recombination and genetic drift), molecular phylogenetics (capturing and using patterns of evolution), and applications of genomics (epigenomics, network genomics, host-pathogen interactions, invasion/conservation genomics). Multiple aspects of genome biology will be studied and integrated to understand how genomes function and evolve. Core concepts and methods in genomics, molecular evolution and population genetics will be supported by an integrated set of tutorials, science communication tasks and bioinformatics analysis. Modern research methods will be applied to the study and annotation of draft genome assemblies for two venomous Australian snakes (the mainland tiger snake and eastern brown snake), which were sequenced by UNSW.
Course Aims	The aim of this course is to provide students with an understanding of methods, underpinning theory, and applications of modern genomics, with a focus on whole genome sequencing, assembly and annotation.
Student Learning Outcomes[2]	Upon completion of this course, students will be able to: 1. Describe the main steps, technologies and challenges involved in sequencing, assembling and annotating a whole genome. 2. Apply molecular evolutionary theory to homology searching, multiple sequence alignment, and molecular phylogenetics, in the context of genome annotation. 3. Analyse biological data relating to whole genome sequencing and gene annotation, using a variety of commandline, GUI and web tools. 4. Effectively communicate published scientific research to an educated lay audience of their peers, through written presentations. 5. Discuss applications of genomics to real world scientific questions.

Graduate Attributes Developed in this Course[3]		
Science Graduate Attributes[3]	**FOCUS**	**Activities / Assessment**
Research, inquiry and analytical thinking abilities	3 (Major)	Tutorials, bioinformatics practicals, bioinformatics report
Capability and motivation for intellectual development	3 (Major)	Lectures, tutorials, bioinformatics practicals, bioinformatics report, journal club seminar
Ethical, social and professional understanding	2 (Minor)	Science communication blog, journal club seminar
Communication	3 (Major)	Bioinformatics research report, science communication blog, journal club seminar
Teamwork, collaborative and management skills	1 (Minimal)	Journal club discussions, bioinformatics practicals, tutorials
Information literacy	3 (Major)	Bioinformatics practicals, science blog, written reports

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

Major Topics (Syllabus Outline)	• **Genes and Genomes.** What is a gene? What is a genome? "Junk" DNA and repetitive sequences. Sex chromosomes. Microchromosomes. • **Population Genetics & Molecular Evolution.** Mutation & variation. Selection & fitness. Genetic drift. Molecular clocks. Predicting protein function. • **Molecular Phylogenetics.** Gene duplications and gene families. Horizontal gene transfer. • **Genome Assembly and Annotation.** De novo genome sequencing and assembly. Genome annotation. • **Applications of Genomics.** Epigenomics. Network genomics. Invasion genomics. Genomics for conservation. Host pathogen coevolution.
Relationship to Other Courses within the Program	Core foundational courses: • Builds on Year 2 course **Genetics (BABS2204/BABS2264)** • Complements the session 1 courses, **Human Molecular Genetics & Disease (BABS3151)** and **Applied Bioinformatics (BINF3010)** Other courses related to Genes, Genomes and Evolution: • Molecular Biology of Nucleic Acids (BABS3121) • Microbial Genetics (MICR3021) • Molecular Frontiers (BABS3281) • Animal Behaviour (BIOS3011) • Conservation Biology and Biodiversity (BIOS3071) • Population and Community Ecology (BIOS3111) • Evolution (BIOS3171).

6 Rationale and Strategies Underpinning the Course

Teaching Strategies	The lectures, given by experts in the field, will introduce students to essential concepts and principles in genetics, genomics and evolution, as well as recent developments. The practicals explore some aspects of the material introduced in lectures and extend the discussion to other relevant topics and skills. Computer-based exercises will provide hands-on exposure to methods, tools and concepts used in genomics. The presentation emphasises developing the ability to communicate and evaluate research results. Effective communication of science is also evaluated through written reports.
Rationale for learning and teaching in this course	This is a third year course that builds on ideas taught in second year genetics (BABS2204/BABS2264). In developing these ideas, we aim to contextualise the material by using examples of current relevance in the discipline and in society. Emphasis is placed on critical thinking, analytical skills, information literacy and communication because these are qualities that will aid learning in the long term. The objectives and activities of this course are designed to develop UNSW and Science Faculty graduate attributes.

7 Lecture Content

For details of each lecture topic and an overview of the lectures, please see the relevant channels in Microsoft Teams. Lectures for BABS3291 are divided into five broad topic areas:

Topic 1: Genes and Genomes [Weeks 1-2]

1. Course introduction (What is a gene?) (RE)
2. Genes, genomes and evolution (RE)
3. “Junk” DNA: introns (RE)
4. “Junk” DNA: repetitive sequences (RE)
5. Sex Chromosomes (PW)
6. Microchromosomes (PW)

Topic 2: Population Genetics & Molecular Evolution [Weeks 3-4]*

7. Mutation and genetic variation (MT)
8. Selection and fitness landscapes (MT)
9. Genetic drift and population size (MT)
10. Molecular clocks (MT)
11. Predicting protein function: sequence homology (RE)
12. Predicting protein function: domains and motifs (RE)

Topic 3: Molecular Phylogenetics [Week 5]*

13. Molecular phylogenetics (RE)
14. Gene duplications and gene families (RE)
15. Horizontal gene transfer (RE)

Topic 4: Genome Assembly and Annotation [Weeks 7-8]

16. De novo genome sequencing (RE)
17. Diploid genome assembly (RE)
18. Long range genome assembly (RE)
19. Assessing genome assemblies (RE)
20. Genome annotation (RE)
21. mtDNA and NUMTs (RE)

Topic 5: Applications of Genomics [Weeks 9-10]

22. Epigenomics (SW)
23. Network genomics (FV)
24. Invasion genomics (LR)
25. Genomics for conservation (JB)
26. Host pathogen coevolution (MT)

***NOTE:** Topics 2 and 3 are assessed as part of the bioinformatics practical. Topics 1, 4 and 5 are assessed in the final exam.

8 Coursework

8.1 Science Communication Blog (20% final mark) – weeks 1-3 (Fri 0900-1100)

AIM: Effectively communicate original research to a lay audience.

TASK: Write a brief blog post about a published journal article that reports the sequencing of a new genome. Which organism was sequenced and why? What were the methods and technologies used? What state was the final genome? What interesting things did the genome reveal? Aim for ~500 words and 1-3 images/videos (Sources cited). Use the media, e.g. hyperlinks to external webpages or resources.

SUBMISSION: Blog posts will be submitted through **Moodle**. The blog post will be submitted as a PDF via Moodle along with the primary paper attached as a PDF. The blog must also be submitted via a separate Turnitin assignment for plagiarism checking. Maximum: 2 A4 pages.

ASSESSMENT: Each blog post will be assessed under four criteria:

1. Clarity
    - Is the writing style clear?
    - Is the article well structured?
2. Content
    - Is the post informative/educational?
    - Is it accurate?
3. Presentation
    - Are pictures/videos/media well used?
    - Are sources adequately cited/acknowledged?
4. Interest
    - Did the post tell an interesting story?

Each element will be rated on a scale of 1 (Very Poor) to 5 (Excellent):

1. **Very poor.** No redeeming features.
2. **Poor.** Some effort made but falls short of meeting the brief.
3. **OK.** Enough to pass but not very impressive.
4. **Good.** Clear effort made. Not perfect but some impressive features. Good enough to publish online with some minor edits.
5. **Very Good.** Of sufficient quality to be published online without change.

Each student will peer mark 5 other randomly-allocated students during the Week 3 practical slot. For this reason, **late submissions will not be accepted**. Peer marks will be based on the mean total grade given, excluding the highest and lowest marks. The final grade will be the mean of the peer and staff marks.

A brief for the assignment will be given at the practical in Week 1.

8.2 Bioinformatics Genomics Practical (50% final mark) – weeks 1-5 & 7-10 (Thu 1400-1600 & Fri 0900-1100)

AIM: Learn how to perform, manage and write up analysis of real data using real bioinformatics tools.

TASK: The main coursework for BABS3291 is a nine-week online practical, supported by online tutorials and computer labs. Assessment will be via MS Teams assignments, online quizzes and a final practical report. In these practicals, you will use a variety of bioinformatics tools to analyse data from recent unpublished genome sequencing projects performed at UNSW. In the first part of the practical, you will learn how to use a popular tool for molecular evolution and phylogenetic analysis, and how to annotate a predicted protein-coding gene from the genome. In the final part of the practical, you will identify and annotate a gene of your choice from the genome.

Emphasis throughout the project will be on transferable bioinformatics skills and exposure to a variety of potential methods and environments. Rather than being trained to execute a specific analysis one way, course material will promote self-directed learning and exploration of different tools and methods, according to the background and prior knowledge of each student.

Programming will not be a required part of the practicals but writing simple UNIX command line scripts is encouraged and will enable faster, larger and/or better analyses to be performed.

TIMELIME:

PART 1

- ❑ Week 1. Server setup and core bioinformatics
- ❑ Week 2. Homology searching
- ❑ Week 2. Multiple sequence alignment
- ❑ Week 4. Molecular evolution with MEGA
- ❑ Week 5. Molecular phylogenetics with MEGA.
- ❑ Week 6. Flexibility week.

PART 2

- ❑ Week 7. Tour of the Ramaciotti Centre for Genomics.
- ❑ Week 8. BABS Genome protein annotation.
- ❑ Week 9. Web Apollo gene finding and annotation.
- ❑ Week 10. Work on prac report & report submission.

ASSESSMENT: Pracs 1-5 will have continuous assessment via Teams assignments and online quizzes, due for completion in Week 5. Together, these will form 20% of the course grade. Pracs 6-9 will be assessed by a short report in Week 10, worth 30% of the course grade. Marks will be awarded for presentation, adherence to formatting instructions, clarity and precision of methods, quality of figures, and scientific insight. Instructions and further details will be posted on Moodle.

SUBMISSION: Submission must be in MS Word or PDF format through **Moodle** and will checked for plagiarism with Turnitin. **Submission deadlines: Week 5, Friday 18th March @ 1400 (Part 1)** and **Week 10, Friday 22nd April @ 1400 (Part 2).**

LATE SUBMISSIONS WILL BE SUBJECT TO A 5% PENALTY PER WORKING DAY UPTO A MAXIMUM OF FIVE DAYS. NO LATER SUBMISSIONS WILL BE ACCEPTED WITHOUT SPECIAL CONSIDERATIONS.

9 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:

https://student.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.

Careful time management is an important part of study, and one cause of plagiarism is poor time management. Allow sufficient time for research, drafting, and proper referencing of sources material.

* 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

10 Special Consideration and further assessment

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 may apply for special consideration. Applications can be made for compulsory class absences such as (laboratories and tutorials), in-session assessments tasks, and final examinations. **Students must make a 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**.

You must submit the application prior to the start of the relevant exam, or before a piece of assessment is due, except where illness or misadventure prevent you from doing so. If you become unwell on the day of the exam or fall sick during an exam, you must provide evidence dated within 24 hours of the exam, with your application. You must obtain and attach Third Party documentation before submitting the application. Failure to do so may result in the application being rejected.

UNSW has a fit to sit/submit rule which means that if you sit an exam or submit a piece of assessment, you are declaring yourself fit to do so.

Further information on special consideration can be found at https://student.unsw.edu.au/specialconsideration.

10.1 How to apply for Special Consideration

The application must be made through Online Services in myUNSW (**My Student Profile tab > My Student Services > Online Services > Special Consideration**).

Students will be contacted via *their official university email* as to the outcome of their application. It is the responsibility of all students to regularly consult their official student email accounts and myUNSW in order to ascertain whether or not they have been granted further assessment.

10.2 Supplementary examinations

The University does not give deferred examinations. However, further assessment exams may be given to those students who were absent from the final exams through illness or misadventure. Students will be notified via the online special consideration system as to the outcome of their application. **It is the responsibility of all students to regularly consult their official student email accounts and myUNSW in order to ascertain whether or not they have been granted further assessment.**

Please refer to Moodle or the student centre for information regarding the timing of supplementary exams.

11 Equity, Diversity and Inclusion

11.1 Equitable Learning

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 and with the Equitable Learning Service (+61 2 8374 9201 or https://student.unsw.edu.au/els).

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. Information on designing courses and course outlines that take into account the needs of students with disabilities can be found at: https://teaching.unsw.edu.au/guidelines.

11.2 Diversity and Inclusion

The School of BABS is dedicated to creating a positive, inclusive educational environment that embraces diversity in all forms and rejects any form of hostile workplace, discrimination, or bullying. We have a clear statement of behavioural expectations (as well as definitions of discrimination, (sexual) harassment and bullying, which can be found here: https://student.unsw.edu.au/harassment.

On this website, you can also find resources and contacts for reporting issues. In addition, the Science Equity, Diversity and Inclusion Working Group of the Faculty of Science have recently launched a set of Classroom Inclusivity Guidelines that all staff and students are striving to work under. They can be found here: https://www.science.unsw.edu.au/our-faculty/classroom-inclusivity-guidelines

Beyond the University and Faculty protocols, it is my goal as course convenor to create a learning environment for my students that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability). To help accomplish this:

- ❑ If you choose, please let me and the class know your chosen name and pronouns.
- ❑ Your classmates and demonstrators (like many people) are still in the process of learning about diverse perspectives and identities. If something was said in class (by anyone) that made you feel uncomfortable, please talk to me about it.
- ❑ As a participant in course discussions, you should also strive to honor the diversity of your classmates (e.g. make sure all voices are being heard, etc.).
- ❑ If you feel like your performance in the class is being impacted by your experiences outside of class, please do not hesitate to contact me.

Finally, the School recognises the added challenges faced by students during the coronavirus outbreak, in particular those related to teaching and learning remotely while public health is managed. Specific details on how this course will be managed are given throughout this manual and will be highlighted further in the first lecture, but please be assured I will strive to minimise stress to students while still endeavoring to deliver a high-quality teaching experience.

12 Expected Resources for students

Text Books	There is no textbook set for this course because the topics covered are diverse and no single book covers all the material adequately. Lecturers will suggest additional reading material throughout the course. Recommended texts include: • Lesk (2017). Introduction to Genomics. Oxford University Press, Oxford. • Lesk (2008). Introduction to Bioinformatics. Oxford University Press, Oxford. • Higgs & Attwood (2005). Bioinformatics and Molecular Evolution. Blackwell Science, Oxford. • Page & Holmes (1998). Molecular Evolution: A Phylogenetic Approach. Blackwell Science, Oxford.
Course Manual	This document. For additional information see also the Teams site for this course.
Additional Readings	Will be suggested throughout the lecture and practical series
Recommended Internet Sites	Moodle site for this course. Library website and resources: http://info.library.unsw.edu.au/ PubMed: http://www.ncbi.nlm.nih.gov/pubmed Ensembl: http://www.ensembl.org/index.html
Societies	Genetics Society of AustralAsia http://genetics.org.au/
Computer Laboratories	Various computer rooms around campus provide PCs for student use. Software for the pracs should be available on these machines via MyAccess.
Enabling Skills Training Required to Complete this Course	ELISE - Take this online tutorial if you have not already done it. http://subjectguides.library.unsw.edu.au/elise
Additional Student Support	If you have any questions that are not covered by Moodle or this Handbook, please contact the Student Office via their online enquiry webform: https://unswinsight.microsoftcrmportals.com/web-forms/

13 Course evaluation and development

The course will be evaluated via discussion and feedback during practicals. Responses to MyExperience surveys are taken seriously, and suggestions considered for incorporation into subsequent years. As the first year delivered as an online course, all constructive feedback is valuable and greatly appreciated.

14 Other information

Practicals & Tutorials	Details of the practicals and tutorials for this course will be provided during the introductory lectures/tutorials and on Teams/Moodle.
Expectations of Students	Participation in all practicals is compulsory unless you have a valid and documented medical or other reason. Please be punctual and mute your microphone during synchronous online sessions when not addressing the class. Completion of all core bioinformatics tasks and associated online tasks is required for course credit.
Occupational Health and Safety	Information on relevant Occupational Health and Safety policies and expectations both at UNSW: http://www.ohs.unsw.edu.au/