FACULTY OF SCIENCE
School of Biotechnology and Biomolecular Sciences

BABS3291

Genes, Genomes and Evolution

SESSION 2, 2018

Handbook Version 1.2

Table of Contents

1 Course information

Year of Delivery	2018
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	S2
Assumed Knowledge, Prerequisites or Co-requisites	Second year genetics (BABS2204/BABS2264)
Hours per Week	6
Number of Weeks	13 weeks
Commencement Date	**Week 1**

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

Component	HPW	Weeks	Time	Day	Location
Lecture 1	1	1-12	1700-1800	Tue	CLB3
Lecture 2	1	1-12	1300-1400	Wed	AGSM/Pioneer
Tutorial	1	2-13	1600-1700	Tue	Mathews 102
Practical (Computer labs)	3	2-10	1500-1800	Mon	D26/142
Practical (Seminars)	3	11-13	1500-1800	Mon	Matthews 307
TOTAL	**6**	Students with clashes should contact the BSB Student Office.			

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

Assessment task	Weight	Date/Deadline
Mid-term exam (Lectures 1-11)	20%	3-Sep 1500-1800
Final exam (Lectures 15-24)	20%	See exam timetable
Examination total	**40%**	
Bioinformatics Practical (inc. Lectures 12-14)	40%	19-Oct 1400
Science communication (1): Genome blog	10%	20-Aug 0900
Science communication (2): Journal club seminars	10%	5-Oct 1400
Coursework total	**60%**	
All coursework to be submitted via Moodle.		

2 Staff Contact Details

Position	Name	Contact details	Availability
Course Convener	Rich Edwards (RE)	richard.edwards@unsw.edu.au	Email for appointment
Lecturers	Bill Ballard (BB) Fatemeh Vafaee (FV) Mark Tanaka (MT) Paul Waters (PW)	w.ballard@unsw.edu.au f.vafaee@unsw.edu.au m.tanaka@unsw.edu.au p.waters@unsw.edu.au	Email for appointment
Guest Lecturers	Jason Bragg (JB) Phil Bell (PB)	Contact via Dr Edwards	n/a
Lab Demonstrator	Åsa Pérez-Bercoff (AP) Timothy Amos (TA)	asa.perez-bercoff@unsw.edu.au t.amos@unsw.edu.au	TBA

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

Week	starting	Lecture 1 (Tue 5-6 CLB3)	Lecture 2 (Wed 1-2 AGSM/Pioneer)
1	23-Jul	**24-Jul** Course introduction (RE)	**25-Jul** Genes, genomes & evolution (RE)
2	30-Jul	**31-Jul** De novo genome sequencing (RE)	**01-Aug** Diploid genome assembly (RE)
3	06-Aug	**07-Aug** The Dingo Genome Project (BB)	**08-Aug** Mitochondria (BB)
4	13-Aug	**14-Aug** Sex chromosomes (PW)	**15-Aug** Mutation and genetic variation (MT)
5	20-Aug	**21-Aug** Selection and fitness landscapes (MT)	**22-Aug** Genetic drift and population size (MT)
6	27-Aug	**28-Aug** The coalescent (MT)	**29-Aug** Molecular phylogenetics (RE)*
7	03-Sep	**04-Sep** Gene duplications & gene families (RE)*	**05-Sep** Horizontal gene transfer (RE)*
8	10-Sep	**11-Sep** Genome annotation (RE)	**12-Sep** Predicting protein function (RE)
9	17-Sep	**18-Sep** "Junk" DNA: introns (RE)	**19-Sep** "Junk" DNA: repetitive sequences (RE)
MIDSEMESTER BREAK			MIDSEMESTER BREAK
10	01-Oct	**02-Oct** Network Genomics (FV)	**03-Oct** Genomics for Conservation (JB)
11	08-Oct	**09-Oct** Host pathogen coevolution (MT)	**10-Oct** Woolbachia (BB)
12	15-Oct	**16-Oct** Synthetic biology: genome engineering (RE)	**17-Oct** Evolving a new phenotype in yeast (RE/PB)
13	22-Oct	**23-Oct** NO lecture	**24-Oct** NO lecture

BB - Bill Ballard | FV - Fatemeh Vafaee | JB - Jason Bragg | MT - Mark Tanaka | PB - Phil Bell | PW - Paul Waters | RE - Rich Edwards

*Online lecture

3.2 Tutorial and Lab Schedule

Week	starting	Practical (Mon 3-6 Mat 307 / Biosci 142)	Tutorials (Tue 4-5 Mat 102)	Assignment and Submission dates
1	23-Jul	**23-Jul** NO Practical	**24-Jul** NO tutorial	
2	30-Jul	**30-Jul** Prac 1: Linux and Kmer analysis (RE/FV)	**31-Jul** BABS Genome (RE)	
3	06-Aug	**06-Aug** Prac 2: Rstudio & Assembly Stats (RE/FV)	**07-Aug** Science blog workshop (RE)	
4	13-Aug	**13-Aug** Scientific blogging (FV)	**14-Aug** Ramaciotti Tour (PW/FV)	
5	20-Aug	**20-Aug** Blog marking (FV)	**21-Aug** Molecular clocks (MT)	Science Blog: 20-Aug
6	27-Aug	**27-Aug** Prac 3: BUSCO Protein MSA (FV)	**28-Aug** Review (MT)	
7	03-Sep	**03-Sep Midterm exam (Lectures 1-11)**	**04-Sep** Phylogenetics methods (MT)	
8	10-Sep	**10-Sep** Prac 4: BUSCO Protein Tree (RE/FV)	**11-Sep** Phylogenetics Review (RE)	Prac Report: 14-Sep
9	17-Sep	**17-Sep** Prac 5: WebApollo (RE/FV)	**18-Sep** Journal Club Workshop (RE)	
MIDSEMESTER BREAK			MIDSEMESTER BREAK	
10	01-Oct	**01-Oct** PUBLIC HOLIDAY	**02-Oct** Seminar development (RE)	Seminar: 05-Oct
11	08-Oct	**08-Oct** Seminars I (RE/PW)	**09-Oct** Genomics prac helpdesk (RE)	
12	15-Oct	**15-Oct** Seminars II (RE/PW)	**16-Oct** Review (RE)	Prac Report: 19-Oct
13	22-Oct	**22-Oct** Seminars III (RE/PW)	**23-Oct** NO tutorial	

BB - Bill Ballard | FV - Fatemeh Vafaee | JB - Jason Bragg | MT - Mark Tanaka | PB - Phil Bell | PW - Paul Waters | RE - Rich Edwards

Attendance at Review and Helpdesk tutorials is optional. **Attendance at all other tutorials and practicals 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	
Mid-term Exam (Lectures 1-11)	2 hours	20%	3-Sep (Week 7)	
Final exam (Lectures 15-24)	2 hours	20%	Check exam timetable	
EXAMINATION TOTAL		**40%**		
Assessment task	**Duration**	**Weight**	**Release date**	**Due date**
Assignment 1a, Science communication 1: Blog post of a primary research article (Genome paper)	2 weeks	10%	7-Aug (Week 3)	20-Aug (Week 5) 0900
Assignment 1b, Science communication 2: Journal club seminar on primary research article	3 weeks	10%	18-Sep (Week 9)	5-Oct (Week 10) 1400
Assignment 2a, Bioinformatics practical: Online tasks and data analysis	4 weeks	20%	30-Jul (Week 2)	14-Sep (Week 8) 1400
Assignment 2b, Bioinformatics practical: Report paper on original data analysis	2 weeks	20%	30-Jul (Week 2)	27-Oct (Week 13) 1400
COURSEWORK TOTAL		**60%**		

4.2 Submission of Assessment Tasks

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

Assignment 1a must be submitted by 9am on the due date. Late submissions will NOT be accepted.

Assignments 1b, 2a and 2b must be submitted by 2pm on the due date. Late submission will incur a penalty of 20% of the total value per day or part day.

4.3 Examinations (40%)

BABS3291 has two examinations: a mid-term (20%) in Week 7 and a final exam (20%) in the exam period. The mid-term test will examine lectures 1-11. The final exam will examine lectures 15-24. Online lectures 12-14 will be examined as part of the bioinformatics practical. Each examination will consist of six essay questions in three sections. Students must answer ONE question from EACH SECTION. Details will be released via Moodle, tutorials and lectures.

4.4 Science communication assignments (20%)

BAS3291 has two science communication coursework assignments, due in Weeks 5 and 10:

1. **Genome Paper Blog (10%).** The first 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.
2. **Journal Club Seminar (10%).** The second task is a short seminar presentation of an original research paper as part of a two session BABS3291 mini-conference. The chosen paper can be related to any of the subjects covered in the course.

Details will be released via Moodle and Tutorial briefings.

4.5 Bioinformatics genomics practical (40%)

The main practical in BABS3291 is a six-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 four weeks of the prac (20%) and a short research report on a protein of interest due in Week 12 (20%).

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 (conservation genomics, host-pathogen interactions, genome engineering, and systems biology). 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 at the Ramaciotti Centre for Genomics using the latest sequencing technologies.
Course Aims	The aim of this course is to provide students with an understanding of the 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 and oral 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? De novo genome sequencing and assembly. Mitochondria. Sex chromosomes. • **Population Genetics & Molecular Evolution.** Mutation & variation. Selection & fitness. Genetic drift. The coalescent. • **Molecular Phylogenetics.** Gene duplications and gene families. Horizontal gene transfer. • **Genome Annotation.** Predicting gene function. "Junk" DNA and repetitive sequences. • **Applications of Genomics.** Genomics for conservation. Host pathogen coevolution. Genome engineering. Network genomics.
Relationship to Other Courses within the Program	• 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

Lectures for BABS3291 are divided into five broad topic areas:

Topic 1: Genes and Genomes

1. Course introduction (What is a gene?) (RE)
2. Genes, genomes and evolution (RE)
3. De novo genome sequencing (RE)
4. Diploid genome assembly (RE)
5. The Dingo Genome Project (BB)
6. Mitochondria (BB)
7. Sex Chromosomes (PW)

Topic 2: Population Genetics & Molecular Evolution

8. Mutation and genetic variation (MT)
9. Selection and fitness landscapes (MT)
10. Genetic drift and population size (MT)
11. The coalescent (MT)

Topic 3: Molecular Phylogenetics (Online)

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

Topic 4: Genome Annotation

15. Genome annotation (RE)
16. Predicting protein function (RE)
17. “Junk” DNA: introns (RE)
18. “Junk” DNA: repetitive sequences (RE)

Topic 5: Applications of Genomics

19. Network Genomics (FV)
20. Genomics for conservation (JB)
21. Host pathogen coevolution (MT)
22. Woolbachia (BB)
23. Synthetic biology: how to engineer a genome (RE)
24. Evolving a ‘gain-of-function’ phenotype in yeast (RE/PB)

Topics 1 and 2 are assessed in the mid-term exam. Topic 3 is online and assessed as part of the bioinformatics practical. Topics 4 and 5 are assessed in the final exam.

8 Coursework

8.1 Science Communication Blog (10% final mark) – week 3 (Mat 102, Tue 1600-1700) / weeks 4-5 (D26/142, Mon 1500-1800)

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?

SUBMISSION: Blog posts will be submitted through **Moodle**. The blog post will be entered directly into a Moodle object, with the primary paper attached as a PDF. Text only must be submitted via a separate Turnitin assignment for plagiarism checking. Aim for ~500 words. Maximum 700 words 1-3 images/videos (Sources cited) Use the media, e.g. hyperlinks to external webpages or resources.

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 tutorial in Week 3.

8.2 Science Communication Seminars (10% final mark) – weeks 9-10 (Mat 102, Tue 1600-1700) / weeks 11-13 (Mat 307, Mon 1500-1800)

AIM: Effectively communicate original research to a scientific audience and assess media coverage.

TASK: Present a short* journal club seminar on an original research article of your choice, discovered through a science blog or media post. The presentation should cover four sections:

- Introduction
  - What is the question being asked?
  - Why did the blog/news item cover that paper?
- Methods
  - How did they address the question?
- Results
  - What were the main findings?
- Discussion
  - What did the media item say about this paper?
  - Do you agree?

Seminars will be presented over three weeks (11 to 13) in the style of a mini-symposium. Each student will be expected to ask one question each week.

*Presentation lengths will be determined based on course numbers and released during the briefing session in Week 9.

SUBMISSION: Seminar slides will be submitted through **Moodle** and must be in PowerPoint or PDF format.

ASSESSMENT: Each blog post will be given 1-10 marks under each of four criteria:

1. **Delivery** – Pace; Clarity; Confidence; Engagement
2. **Visual Aids** – Slide design & colours; Use of pictures; Use of text; Use of animations
3. **Content** – Clear introduction/background; Scientific accuracy; Informative coverage of topic; Interest
4. **Organisation** – Time-keeping; Flow; Clarity of key message; Cited sources & images

Each student will peer mark all other students during the mini-symposium. 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 tutorial in Week 9.

8.3 Bioinformatics Genomics Practical (40% final mark) – weeks 2, 4-5, 7-8, 11 (Mat 102, Tue 1600-1700) / weeks 2-3, 6, 8-10 (D26/142, Mon 1500-1800)

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 six-week online practical, supported by tutorials and optional computer sessions. Assessment will be via electronic lab book submissions, Moodle quizzes and practical reports. 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 perform some typical analyses of genome quality and completeness. In the second part of the practical, you will use predicted protein-coding genes from the genomes for molecular phylogenetic analysis. In the final part of the practical, you will identify and annotate a gene of your choice in 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 RStudio and/or UNIX command line scripts is encouraged and will enable faster, larger and/or better analyses to be performed.

TIMELIME:

- Week 1. Introduction to Linux and Kmer analysis.
- Week 2. Introduction to RStudio, BUSCO and assembly statistics.
- Week 3. Predicted BUSCO protein multiple sequence alignment.
- Week 4. Predicted BUSCO protein molecular phylogeny.
- Weeks 5-6. Web Apollo gene finding and annotation.

ASSESSMENT: Weeks 1-4 will have continuous assessment via electronic lab book submissions and Moodle quizzes, due for completion in Week 8. Together, these will form 50% of the practical grade. Weeks 5-6 will be assessed by a second short report in Week 12. 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: Online tasks will be submitted through **Lab Archives** and **Moodle**. **Submission deadline: Friday 24th September @ 1400.**The research report will be submitted through **Moodle** and must be in MS Word or PDF format. **Submission deadline: Friday 27th October @ 1400.**

LATE SUBMISSIONS WILL BE SUBJECT TO A 10% PENALTY PER WORKING DAY

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 - Semester 2 2018

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**.

Students should consult the "Special Consideration" section of the UNSW current students' website for further information https://student.unsw.edu.au/special-consideration.

10.1 How to apply for Special Consideration

Applications must be made via Online Services in myUNSW. **You must obtain and attach Third Party documentation before submitting the application. Failure to do so will result in the application being rejected.** Log into **myUNSW** and go to **My Student Profile tab > My Student Services channel > Online Services > Special Consideration.** After applying online, students must also verify supporting their documentation by submitting to UNSW Student Central:

- Originals or certified copies of your supporting documentation (Student Central can certify your original documents), and
- A completed Professional Authority form (pdf - download here).

The supporting documentation must be submitted to Student Central for verification **within three working days** of the assessment or the period covered by the supporting documentation. Applications which are not verified will be rejected.

Students will be contacted via the online special consideration system as to the outcome of their application. Students will be notified via *their official university email once an outcome has been recorded.*

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. Special Consideration applications for final examinations and in-session tests will only be considered after the final examination period when lists of students sitting supplementary exams/tests for each course are determined at School Assessment Review Group Meetings. 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.**

For Semester 2 2018, BABS Supplementary Exams will be scheduled on:

TBA - see Moodle

Further assessment exams will be offered on this day ONLY and failure to sit for the appropriate exam may result in an overall failure for the course. Further assessment will NOT be offered on any alternative dates.

11 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 Moodle 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	D26/142
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

12 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 a newly revamped course all constructive feedback is valuable and greatly appreciated.

13 Other information

Practicals & Tutorials	Details of the practicals and tutorials for this course will be provided during the introductory lectures/tutorials and on Moodle.
Expectations of Students	Attendance at all tutorials and scientific communication practicals is compulsory unless you have a valid and documented medical or other reason. Be punctual. Do not talk or eat during lectures. Mobile phones must be switched off during lectures and practicals. Completion of all core bioinformatics tasks is required for course credit. Attendance at computer labs is optional.
Occupational Health and Safety	Information on relevant Occupational Health and Safety policies and expectations both at UNSW: http://www.ohs.unsw.edu.au/
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. 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