Faculty of Medicine and Health
School of Medical Sciences

NEUR3101

Muscle and Motor Control

COURSE OUTLINE

TERM 2, 2021

CRICOS Provider Code 00098G

Contents

Please read this outline in conjunction with the following pages on the School of Medical Sciences website:

- Advice for Students
- Learning Resources

(or see "STUDENTS" tab at medicalsciences.med.unsw.edu.au)

Course staff

Convenors:	**A/Prof Ingvars Birznieks** SOMS, Department of Physiology	i.birznieks@unsw.edu.au Ph 9385 8311 Office: Wallace Wurth 314
	Senior Lecturer **Frederic von Wegner** SOMS, Department of Physiology	f.vonwegner@unsw.edu.au Ph 9385 2555 Office: Wallace Wurth 314
Technical officer:	**Mr Balu Daniel** School of Medical Sciences	d.balu@unsw.edu.au

Course details

Credit points: 6 UoC (0.125 FTSL)

Course prerequisites

PHSL2101- Physiology 1A or PHSL2121- Principles of Physiology A or PHSL2501- Human Physiology A or NEUR2201- Neuroscience Fundamentals

Course description

This course examines how movement is controlled from brain to skeletal muscle. The major themes are the contribution of the brain and spinal cord to the control of movement, muscle function, motor learning, movement disorders, fatigue and ageing. The course will reinforce the relationship between integrative neuromotor function, movement physiology and cellular and molecular physiology. The course intertwines normal physiological mechanisms with analyses of motor system disorders to help understand both aspects. The lectures provide the core topics explored in the course. Practicals and seminars focus on how fundamental knowledge can be applied to solving clinical, practical and sports performance problems. Advanced practical classes range from experiments with isolated mammalian muscle to human studies using electromyography (EMG) and electrical stimulation. One of the aims is to train students to obtain and process high quality EMG recordings, analyse, critically evaluate and interpret obtained data. In an interactive practical the students watch professionally developed short educational and patient examination videos that aim to actively engage in the related learning tasks. A tutorial-supported creative group assessment strengthens deep learning and the connections between theoretical knowledge and real-life applications in day-to-day activities, sports performance, and/or pathology. Students create a brief video illustrating one theoretical aspect of motor control in the context of a real-life situation. This allows fostering the students' own vision of course relevance to real life situations from their own diverse perspectives. The assessment is peer marked on engagement/entertainment, educational value and scientific quality. The student-created materials are used for blended learning by other students of the same and following years.

Course aims

The motor system is a vibrant research area in neuroscience, spanning, for example, the molecular genetics of muscle tissue, the cellular physiology of motoneurones, the plasticity of nerve cells in the brain, animal models of movement diseases, unravelling systems physiology in human subjects, and engineering control theories to identify the fundamental principles of motor control. In this course, you will be encouraged to learn and understand more about the physiology of the neuromuscular system. The emphasis is on how the motor control centres, sensory and muscular systems work together to produce movements and how this is disrupted by disease and normal ageing.

The aims of this course are to develop an understanding of skeletal muscle function and adaptation and how the brain and spinal cord interact to produce different movements. The course furthermore aims to develop an understanding of the mechanisms of motor learning and factors that influence motor learning, and an appreciation of current techniques and future directions in movement neuroscience research. The course aims to apply anatomical and physiological knowledge to discover the mechanisms and treatments underlying motor system disorders.

Student learning outcomes

Student learning outcomes describe what it is that you should be able to do, explain or understand if you have learned effectively in the course. For each lecture, seminar, practical and assessment item, the expected learning outcomes will be explicitly stated. The assessment in the course will be designed to test how well you have achieved the learning outcomes of the course. The general learning outcomes for the course are as follows:

At the end of the course you are expected to -

- Be able to effectively communicate how skeletal muscle and the nervous system work to generate controlled movements.
- Demonstrate an understanding of the key theoretical concepts in the field of movement neuroscience that allows an extension to specific areas relevant for future professional practice in this field.
- Demonstrate the knowledge of current and (likely) future directions in movement neuroscience research and have the ability to independently research and interpret relevant literature in the field.
- Demonstrate an understanding of experimental study design in the area of motor and muscle control and present relevant scientific data.
- Demonstrate an understanding of the physiological principles and practicalities involved in EMG recordings and nerve stimulation techniques.

Graduate Attributes developed in this course – *for Medical Science and Science students*

- The skills involved in scholarly enquiry
- An in-depth engagement with disciplinary knowledge in its interdisciplinary context
- The capacity for analytical and critical thinking
- The ability to engage in independent learning
- Information Literacy – the skills to locate, evaluate and use relevant information
- The skills of effective communication.

Graduate Attributes developed in this course – *for Exercise Physiology students*

- Understand the relationship between physical activity and health

- Apply clinical skills and knowledge relevant to cardiovascular, metabolic, musculoskeletal and neuromuscular rehabilitation
- Engage in independent and reflective learning for the betterment of professional clinical practice, following an evidence-based approach
- Communicate effectively with patients, colleagues and other health professionals.

Rationale for the inclusion of content and teaching approach

How the course relates to the exercise physiology profession **(for students in program 3871-Exercise Physiology) –** A solid understanding of mechanisms by which humans plan and execute movement is central to a comprehensive training program in exercise science, and critical for effective professional practice in exercise rehabilitation.

How the course relates to other courses in the Exercise Physiology program – The information and ideas presented in this course will build upon material on muscle and nervous system and function from the second level Anatomy and Physiology courses you have taken. This course also provides a conceptual base that is essential for the neuromuscular and musculoskeletal rehabilitation courses later in the program.

Teaching strategies

Note that activities below are planned with Covid-19 restrictions in mind and thus may change during the term. Please follow updates on the course Moodle page.

Muscle and Motor Control is delivered across 10 weeks in Term 2, with teaching activities encompassing lectures, seminars and practical classes. Together these comprise 4 hours of activities per week plus five 3-hour practicals. Two weeks will be allocated for self-directed work on two assessments when no other teaching activities are planned. Lectures will provide you with the concepts and theory essential for an understanding of the course content. The practical classes assist in the development of research and analytical skills, and further learning of the key objectives. The skills you will learn in practical classes are relevant to your development in your professional career or in research. The practical classes and seminars will allow you to engage in a more interactive form of learning than is possible in the lectures. You will have to allocate additional self-directed study time for on-line quizzes (progress, pre-prac, and post-prac), revision for assessments, testing knowledge, self-study assessments tasks and working on the group project. Additionally, effective learning can also be enhanced through self-directed use of other resources such as textbooks, literature references, web-based sources and educational materials created by students in previous years.

The teaching strategy is based on principles that concepts and understanding are more important than memorising details, that learning should be fun and thereby facilitate deeper learning, and that student engagement and creativity is the way for students to see connections between learned knowledge and real-life experiences. The teaching rationale fosters a deep sense of community and belonging through use of engaging and enjoyable group work and peer engagement that applies course content to real-life situations. The teaching rationale engages all forms of memory for multisensory reinforcement and to suit different learning styles and to enable greater understanding and memorizing of complex concepts. This covers all the different learning styles in the classical Neil Flemings V.A.R.K. model: visual, auditory, read/write and kinaesthetic (tactile) learning. Hence the

teaching rationale fuses classic principles of pedagogy with contemporary neuroscience learning models.

Lectures – Lectures will be delivered pre-recorded (voice-over MS PowerPoint presentations via the Echo360 platform). PDF copies of the lecture notes will be available on Moodle and can be used prior to each lecture to gain an overview of how various concepts are logically link together.

There is no single textbook covering all course content; the content of each lecture is unique, delivered by discipline experts, and drawn from different research areas.

Seminars – Similar to lectures, but less formal learning material delivery than a lecture. Seminars will also be used to explain course requirements and give assessment task instructions. Some seminars will focus on one specific narrow question or application. The purpose of seminars structured around a "classic" research paper chosen from a field relevant to the course content is to gain a core understanding of the scientific basis of the discipline and strict research logic. Such skills are required to critically evaluate research publications and to design own research studies.
Seminar attendance for this course used to be compulsory. Under Covid19 conditions, the seminar presentations will be pre-recorded and available for study at your own time; however, you will have to plan your time to complete marked progress quizzes conducted synchronously within the time slot allocated for the seminars.

Live Q&A sessions and Q&A forums
For each lecture and seminar topic there will be a specific Q&A forum where you will be able to ask questions. All questions will be answered in timely manner either in writing directly in the Q&A forum on Moodle or live during scheduled interactive question and answer sessions. To ensure that local and guest lecturers can answer all your questions in a well-structured manner before the scheduled progress quizzes, each topic-specific Q&A forum will have a closing date after which you will not be able to post new questions. If live Q&A session will be scheduled for a specific topic (subject to guest lecturer's availability), you will still be able to ask questions live and engage in discussion. This will provide opportunity to clarify or reinforce the ideas that have been presented.

Practicals – The purpose of the practical components of the course are twofold. The first purpose is to help you to develop technical and practical skills that will be relevant in your professional career and, most importantly, are requested by accreditation authority. It is essential that you obtain some hands-on experience with the major research and/or clinical techniques in human motor control, before you begin your practicum or the clinical rehabilitation courses. The second purpose is to use experiments to demonstrate and reinforce key theoretical concepts that have been covered in lectures. The questions contained in the practical outlines will guide your learning in this respect. When practicals are held in the teaching laboratory the attendance of practicals is compulsory, but online versions of the practicals will be made available if required due to Covid19 circumstances.

Flipped classroom – is the main learning and teaching approach used in this course. It means that you are given access to lecture and video material explaining modern approaches to research and therapy to carry out a self-directed learning task. Then you have the opportunity for discussion of the learned concepts with your lecturers and other students in the group.

Blended learning – The blended learning approach is designed to leverage perspectives from the motor control lectures to produce a consolidated set of explanatory statements and provide answers to theoretical and everyday life problems thus encouraging broad communication across the motor

control discipline. By working in creative teams you will produce your own audio-visual products to be used as blended learning aids. Created media products will be peer marked and ranked. The best products will be demonstrated to the whole cohort. Creativity and engagement is a key component of the blended learning experience. Those activities are aimed to review most relevant motor control concepts, make a set of summaries and ideas that will reflect the understanding from your own perspective.

Independent study – The lectures, seminars and practicals on their own are too limited for you to develop a deep understanding of the concepts covered in this course. For you to achieve the learning outcomes that will be assessed, you will need to revise the material presented in the course regularly. You will probably also need to do additional reading beyond the lecture materials to learn effectively. Some relevant additional resources are listed in this guide and lecture materials, but you are encouraged to go beyond that and search various information sources on our own.

Assessments – These tasks have been chosen as tools to enhance and guide your learning as well as a way of measuring performance.

Course evaluation and development

myExperience is your opportunity to reflect on the quality of learning and teaching you receive at UNSW. The only way we can improve what we do – or keep doing the good things – is by hearing about what you liked and didn't like about your learning and teaching experience.
See instructions at https://youtu.be/9_L0WxCBKBU

RESOURCES

Useful links:
- Key Dates https://student.unsw.edu.au/dates
- Transitioning to Online Learning https://www.covid19studyonline.unsw.edu.au/
- Guide to Online Study https://student.unsw.edu.au/online-study
- UNSW Student Life Hub https://student.unsw.edu.au/hub#main-content
- Student Support and Development https://student.unsw.edu.au/support
- IT, eLearning and Apps https://student.unsw.edu.au/elearning
- Student Support and Success Advisors https://student.unsw.edu.au/advisors
- Equitable Learning Services https://student.unsw.edu.au/els (formerly known as Disability Support Services)

There isn't one prescribed textbook for this course as the lecture content will not follow or match any particular textbook. Recommended sources of literature will be given for each lecture individually selected preferentially from the listed below.

Textbooks

- Purves D, Augustine GJ, Fitzpatrick D, Hall WC, LaMantia A, Mooney RD, Platt ML, White LE. (2017). Neuroscience, (6th Ed). Oxford University Press. ISBN 978-1605353807 (hardcover); 978-1605358413 (paperback)
  https://www.bookshop.unsw.edu.au/details.cgi?ITEMNO=9781605353807 (print)
  https://unswbookshop.vitalsource.com/products/-v9781605357225 (digital version)
  https://www.ncbi.nlm.nih.gov/books/NBK10799/ (free e-book on PubMed 2nd (older) edition)
- Kenney WL, Wilmore JH, Costill DL. (2019). *Physiology of sport and exercise,* (7th Ed). Human Kinetics Publishers, Champaigne IL, USA. ISBN-13: 978-1492572299.
- Kandel ER, Schwartz JH, Jessell TM, Siegelbaum SA, Hudspeth AJ. (2021). *Principles of Neural Science,* (6th Ed). McGraw Hill Education. ISBN-13: 978-1259642234.

Suggested reference books

- Bear MF, Connors BW, Paradiso MA. (2015). *Neuroscience: Exploring the Brain,* (4th Ed). Lippincott Williams & Wilkins, USA. ISBN-13: 978-0781778176.
- Shumway-Cook A, Woollacott MH. (2011). *Motor Control: Translating research into clinical practice,* (4th Ed). Lippincott Williams & Wilkins, USA. ISBN-13: 978-1608310180.
- Lieber RL. (2009). *Skeletal Muscle Structure, Function, and Plasticity*, (3rd Ed). Lippincott Williams & Wilkins, USA. ISBN-13: 978-0781775939.
- Enoka, RM. (2008). *Neuromechanics of Human Movement,* (4th Ed). Human Kinetics Publishers, Champaigne IL, USA. ISBN: 0736066799.
- Zigmond MJ, Rowland LP, Coyle JT. (2014). *Neurobiology of Brain Disorders.* Academic Press. ISBN: 9780123982704.

Peer-reviewed journals

Search PubMed for peer-reviewed articles https://www.ncbi.nlm.nih.gov/pubmed

Some journals of interest: Nature Neuroscience, Nature Reviews Neuroscience, Current Biology, The Journal of Neuroscience, The Journal of Physiology, The Journal of Applied Physiology, Experimental Brain Research Clinical Neurophysiology, The Journal of Motor Behaviour, Progress in Neurobiology, Muscle and Nerve.

ASSESSMENT

Assessment of your learning in the course will be achieved through quizzes and a final exam. This format tests your ability to recall and demonstrate understanding of the subject. The course comprises open book assessments testing your ability to find the relevant information as well testing your knowledge in time-constrained settings where outside resources are not available.

These requirements are similar to those encountered when dealing with a client or patient in a face-to-face setting, or when communicating with other health professionals or researchers. The examinations will be designed to determine how well you have achieved the general learning outcomes outlined above, and the specific learning outcomes outlined in each lecture/practical/seminar.

The essay on solving a research challenge will assess your ability to critically evaluate scientific rigour and interpret the scientific literature in the field of muscle and motor control. You may be required to perform similar tasks in many professional settings within exercise physiology practice or medical research. For example, you will evaluate evidence and refer to the scientific literature to inform clinical exercise prescription. In the essay you will have opportunity to demonstrate your creativity through attempting to solve one of outstanding scientific challenges by designing your own experiment. In the process of defining aims, hypothesis, and methods you are expected to demonstrate your ability to apply critical thinking learned from the classic paper analyses. You will also learn skills of research data presentation

	Assessments	**Value, final marks**	**Due Date**
I.	*QUIZZES*	**Pre-prac quizzes: 4%** *(pracs 1-3,5)* **Post-prac quizzes: 6%** *(pracs 1-5)* **Progress quizzes: 10%** *(weeks 2-5,7,8,9)*	**Wednesday** on the week of prac you are enrolled in **By the end of the week** of prac you are enrolled in **Tuesdays** 5-6 pm
II.	*ESSAY ON RESEARCH LOGIC: SOLVING A RESEARCH CHALLENGE*	**Essay: 20%**	**12th Jul** Monday Week 7
III.	*BLENDED LEARNING ASSIGNMENT – MOTOR CONTROL EXPLAINED*	**Project: 15%** **Peer marking: 5%**	**1st Aug** Sunday Week 9 **4th Aug** Wednesday Week 10
IV.	*FINAL EXAMINATION (2 HOURS)*	**MCQ: 20%** **Short answer: 20%**	Examination period **13-26th Aug**

Note: unless stated otherwise submissions close at 11:59 pm

ASSESSMENT TASK I – Pre-prac, post-prac and progress quizzes

There are 4 pre-prac, 5 post-prac and 7 progress quizzes all together worth 20% of your final mark. Each quiz may have a different number of questions and different weighting, which isn't determined by the number of questions.

The purpose of pre-prac quizzes is to ensure you come to the laboratory prepared, use laboratory resources responsibly, and finish work on (or before) time.

The pre-prac quiz is available until midnight on the day before the prac on the week scheduled for the group you are enrolled in. If for some reason you attend the practical in a different week from that you were enrolled in, the pre-prac deadline for you will not change.
If no face-to-face practicals will be held due to restrictions, the deadline for pre-prac quizzes will be the same regardless in which prac group you are enrolled in.

Post-prac quizzes are testing your understanding of the results you obtained and your ability to put them into the context of the theoretical framework. Some questions in the quiz might be ungraded where you only have to report the outcomes of your performed experiments. You can complete them straight after each practical or until the end of the week.

Progress quizzes test your knowledge you gained during the study week. Progress quizzes test your knowledge on lecture and seminar content. They are open during scheduled seminar time slot on Tuesdays 5 pm. Not every week will have progress a progress quiz. Please follow announcements.

ASSESSMENT TASK II – Essay on research logic: Solving a research challenge

Pre-recorded detailed instructions will be made available to you. To complete this assessment successfully, you have to carefully study the instruction slides.

Marks will be given for quality of the content, and ability to follow the prescribed formatting rules typically used in research reports.

The word limit is 1500 words maximum in total. There is no lower boundary – it is only the content that matters – you might be able to demonstrate understanding by explaining the main concepts concisely and still get maximum marks. However, you should adhere to the maximum word limit or your marks could be reduced. A 10% excess tolerance is acceptable to accommodate some formatting elements. Tables, figures, and references do not contribute towards the total word count. Tables and figures should not be misused to insert text which typically should be part of the main text. Note that the word maximum limit is introduced in your interests to avoid exceeding your workload and set adequate expectations for this assessment. Typically, average marks for this assessment are higher than for the whole course. Word count for individual section is given as a recommendation and will not be checked. This assessment is worth 20% of your final mark.

Professional activities of many of you will require preparing reports evaluating effects of various factors and interventions undertaken at your workplace, including those designed by yourselves.

The quality of such professional reports and your adherence to evidence-based evaluation will determine your ability to succeed driving development in your workplace and become future leaders. For this to happen you should be able to identify lack of evidence or controversy surrounding accepted routine procedures widely used in many contexts of everyday life and in professional settings. Importantly you should be able to design a study yourselves to evaluate interventions you will introduce in your professional life and know how to present your findings in a scientifically acceptable format. The overarching aim of this assessment is to teach you to do exactly that.

Option 1: Solving an open problem. Attempt to resolve an open problem or a controversy in the fields of muscle and motor control in a thought experiment and present mock results.

Option 2: Demonstrating knowledge experimentally. Explain any fundamental motor control principle or muscle physiology mechanism ***beyond*** the content of the Muscle and motor control course. Design a thought experiment and present mock results which would experimentally demonstrate evidence confirming currently held views on this matter.

For Option 1 of this assessment, all students will be encouraged to use a dedicated Moodle forum to discuss research problems, practical questions, or research controversies you want to know answers to.

For Option 2, a list of example research papers will be made available on Moodle.

Originality of research question and methods is part of the evaluation criteria and will influence your marks.

It should include following sections and headings:

1. **Background and physiological context (25%; ~400 words)**
   In this section you should demonstrate your knowledge of the topic and ability to use existing scientific literature. Introduce context and specify the research problem. A minimum of 6 references to original peer-reviewed journal papers are required in this section. Other types of references (books, journal review papers, internet pages, documentaries, movies) are all equally important, but do not contribute to the reference count. If you are addressing a research controversy you should refer to or cite literature expressing two opposing views and evidence used to support each of them. You may even form pairs or groups where each of you will advocate for a different view.

   If you chose Option 1 you should explain
   - why the question you would like to address is important to you and in wider context (describe either practical or theoretical importance, or both),
   - what prior knowledge is available in the literature,
   - why existing evidence is inconclusive or what hasn't been investigated yet.

   If you chose Option 2 you should explain
   - why the concept you would like to explain and demonstrate experimentally is important from a practical and theoretical perspective,
   - what is currently known from the literature and what evidence is available,
   - why new experimental evidence would be valuable and useful.

2. **The experimental aim and hypothesis (10%; <200 words)**
   In this section describe what exactly you want to investigate or demonstrate in your thought experiments, define aims and explain the expected outcomes. Use three subheadings Aim, Hypothesis and Rationale. Aim is usually defined in one or two sentences. The hypothesis what the expected outcome is should be described in one to three sentences and add another one to three sentences if you have an alternative hypothesis (two alternative expected outcomes of the experiment). In the Rationale section you must explain physiological mechanisms underlying your hypothesis and logic how you arrived at this hypothesis.

3. **Experimental design and methods to test the aim (15%; ~300 words)**
   This is a thought experiment – show your creativity and technical knowledge, let your imagination fly: money is no object. What matters is the logic of your thinking and meaningful experimental design to address the aims you defined.

4. **Results (20%; ~300 words)**
   In this section you are expected to demonstrate your knowledge how research data are analysed, presented, and formatted. The mock data in this section should be in the form of tables, diagrams, or graphs. You can use either one or a combination of these elements. Pay particular attention to the formatting of figure labels, figure/table captions and legends. It is important that data are represented with variability measures. This section should only report the results but should not discuss them. The obtained results and effects should be explained in the text and not in figure legends.

5. **Discussion (explanation of mock results and discussion in the wider context) (20%; ~300 words)**
   You should demonstrate understanding of the topic by being able to interpret what the obtained mock results indicate and what they mean in the wider context.

6. **Reference list (10%)**
   Must be consistently formatted using standards for research reports.

Referencing and References list

The scientific literature should be cited in both parts using in-text citation style https://student.unsw.edu.au/harvard-referencing. A full Reference list should be inserted at the end of the essay. The number of required references may differ depending on your chosen question, some topics may require more than others. The general rule is if you give a specific statement about something which is not a general knowledge, you may need to refer to the source of this statement or where more information could be found.
It is suggested that you use one of available reference management software packages like EndNote which is available to UNSW students for free (https://www.it.unsw.edu.au/students/software/). You can also choose to use freeware like Mendeley (https://www.mendeley.com/). Search for introductory and how-to demos online (e.g. YouTube).
It is suggested that you use Harvard referencing style, which has detailed instructions on UNSW website: https://student.unsw.edu.au/citing-different-sources
Most research papers will have a DOI (Digital Object Identifier), please include those in the list when available.

Marks will be subtracted for formatting and referencing style inconsistencies and errors.

By completing this assessment, you will

- develop and refine the skills needed to obtain information on a topic in muscle and motor control from scientific journals,
- improve your ability to interpret and assess scientific articles,
- develop your ability to comprehend and extend a field of scientific research.

Submission through Turnitin

ASSESSMENT TASK III – Motor control explained (blended learning assignment)

Educational video project

For the educational video project students will choose one of the motor control topics discussed during lectures or seminars. The project may be also based on relevant literature research. It is expected that you will produce a short educational video or use any widely accessible audio-visual means and animations to explain an aspect of muscle physiology or demonstrate motor control in action. This is a group assignment performed by 3-4 students per group. Strictly no more than 4 students per group. You will choose your own group members to work with, therefore you can start planning and forming groups for this assessment at any time during the course. While it is teamwork and everyone is expected to take part in every step of the production, in some situations, when communication between team members is less efficient, it is suggested that the group assigns task-coordinating responsibilities to individuals. For example, the group may designate one student to coordinate the narrative, one student for screenplay and one or two students in charge of video editing. This assessment is worth 15% of your final mark.

While working in groups, please strictly adhere to the current social-distancing rules.

The videos should be no longer than 3 minutes. There is no automatic punishment for exceeding this time limit, but you could be marked down by peers, if you lose audience's attention due to unnecessary excessive length. It is the idea that counts, video quality should not matter, provided that it is sufficient to convey the message. You can use your smartphone, i-device, webcam, or digital camera. You can digitally edit and combine separately shot videos or shoot as one continuous take requiring no editing. The videos can also be made entirely from animated slide presentations created by software like PowerPoint, Keynote or similar, that can save presentations as animated video files.

It is suggested that the videos are uploaded to YouTube. You should carefully consider privacy settings and respect copyright. Depending on content usually the most appropriate YouTube setting is that videos remain unlisted (are not found by search engines) and are shared by a private link. The videos should be made freely accessible for peer marking and public demonstration in the classroom. If there are concerns, instead of uploading videos on-line, you can submit video files via Moodle and grant permissions to demonstrate submitted file in the classroom.

The videos require some embedded text recapping the main concepts. The videos should start with a title page and finish with end credits stating individual contributions (your names should be without personal information like student IDs, z numbers; your photos are permitted, optional), software used to create it and links to audio-visual materials taken from elsewhere (you should indicate duration and time of insertion point).

Each video submission should be accompanied with a separate document file containing one multiple choice question related to the content of your video. It must include at least 4 answer choices indicating a correct answer.

Peer marking

Created blended learning products will be peer marked by other students enrolled in this course. You will receive marks for contribution to the peer assessment process. The final mark will be decided by the course convenors based on the average peer marks. Your contribution to the peer-marking is worth 5% of your final mark.

Peer marking criteria

- **Scientific quality of the narrative (8 marks):** scientific depth (4 marks), scientific correctness (4 marks).
- **Adequate multiple-choice question and answer choices provided for the project (2 marks)**
- **Media learning value (5 marks) as detailed in the table below:**

	5 marks	3-4 marks	2 marks	1 mark	0 marks
Media learning value: clever, engaging, entertaining, demonstrations helping to explain difficult concepts and promoting interest in the topic.	Product has high learning and entertaining value. Explanation of scientific concept is significantly aided by screenplay and audio-visual means. Visually appealing or humorous presentation.	Product has good learning value. The investigated concept is explained well, but presentation is not sufficiently engaging.	Product has little learning value. Project has shortcomings explaining the scientific concept. Presentation is not engaging.	Product requires amendments to be considered for learning. Project identifies the question but fails to explain it properly.	Product not suitable for learning. Project has no substance.

By completing this assessment, you will

- learn skills of creating educational, research or professional presentation materials using various widely assessable tools and media,
- improve your ability to present complex scientific ideas in a straightforward manner using a video style format,
- learn to work as an effective member of a creative educational team,
- understand and engage in the peer assessment process.

ASSESSMENT TASK IV – End of session examination

The purpose of this exam is to test your understanding of concepts you have gained during this course. You will be tested on lecture content (including flipped classroom topics), laboratory practicals and seminars. The final exam layout comprises 40 multiple choice questions and 4 sections of 2 short answer questions. You will have to answer one question from each section (4 short answer questions in total). The exam will take place during the end of session exam period. At the time of writing of this document, the exam is planned to be an online and open-book exam, further details or changes will be announced in time. Please review Study guides for lectures when available and Q&As submitted together with Blended learning video projects.

Final exam period for Term 2 2021 is Friday 13 Aug to Thursday 26 Aug.

Supplementary exams

Supplementary exam period is 6-10 September 2021. The exact time for supplementary exams for the course will be announced in due time.

Penalties for late submission of assignments

In cases where an extension has NOT been granted, the following penalties will apply: For assignments submitted after the due date, a penalty of 25% of the maximum marks available for that assignment will be incurred for each day the assignment is late. Assignments received more than four (4) days after the due date **will not be allocated a mark**.

Special Consideration

For the latest university policy and procedures applying for Special Consideration please refer to https://student.unsw.edu.au/special-consideration

Enrolment and program progression questions

Please note that course convenors do not manage enrolment system, for technical questions and academic enquiries please use web forms at
https://portal.insight.unsw.edu.au/web-forms/