UNSW Course Outline

NEUR3101 Muscle and Motor Control - 2024

Published on the 13 May 2024

General Course Information

Course Code : NEUR3101
Year : 2024
Term : Term 2
Teaching Period : T2
Is a multi-term course? : No
Faculty : Faculty of Medicine and Health
Academic Unit : School of Biomedical Sciences
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

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. A series of advanced practical classes will range from experiments with isolated mammalian muscle to human studies with electromyography. The lectures, practicals and tutorials will be complemented by a series of expert seminars which provide insight into current research in the field and reinforce the relationship between integrative neuromotor function, movement physiology and the cellular and molecular physiology underlying muscle and motor control.

Course Aims

This course aims to:

- Develop an understanding of skeletal muscle function and adaptation and how the brain and spinal cord interact to produce different movements.
- 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.
- Apply anatomical and physiological knowledge to discover the mechanisms and treatments underlying motor system disorders.

Relationship to Other Courses

Assistance with progression checking:

If you are unsure how this course fits within your program, you can seek guidance on optimising your program structure from staff at the Nucleus Student Hub.

- Progression plans for UNSW Medicine and Health programs can be found on the UNSW Medicine & Health website.
- Progression plans for UNSW Science programs can be found on the UNSW Science website.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Effectively communicate how skeletal muscle and the nervous system work to generate controlled movements.
CLO2 : Apply your understanding of the key theoretical concepts in the field of movement neuroscience to extend into areas relevant for future professional practice in this field.
CLO3 : Evaluate the evolving trends in movement neuroscience research and conduct in-depth analyses and critical interpretation of the most current relevant literature within the field.
CLO4 : Apply your understanding of experimental study design in the area of motor and muscle control to effectively present relevant scientific data.
CLO5 : Demonstrate competence to perform EMG recordings and electrical nerve stimulation, and interpret experimental results based on understanding of the techniques and underlying physiological principles.

Course Learning Outcomes	Assessment Item
CLO1 : Effectively communicate how skeletal muscle and the nervous system work to generate controlled movements.	• Solving a research challenge • End of Session Exam • Motor control explained (blended learning assignment)
CLO2 : Apply your understanding of the key theoretical concepts in the field of movement neuroscience to extend into areas relevant for future professional practice in this field.	• Progress theory and practical quizzes • Solving a research challenge • End of Session Exam • Motor control explained (blended learning assignment)
CLO3 : Evaluate the evolving trends in movement neuroscience research and conduct in-depth analyses and critical interpretation of the most current relevant literature within the field.	• Progress theory and practical quizzes • Solving a research challenge • End of Session Exam • Motor control explained (blended learning assignment)
CLO4 : Apply your understanding of experimental study design in the area of motor and muscle control to effectively present relevant scientific data.	• Progress theory and practical quizzes • Solving a research challenge
CLO5 : Demonstrate competence to perform EMG recordings and electrical nerve stimulation, and interpret experimental results based on understanding of the techniques and underlying physiological principles.	• Progress theory and practical quizzes • End of Session Exam

Learning and Teaching Technologies

Moodle - Learning Management System | Blackboard Collaborate | Echo 360

Learning and Teaching in this course

All course materials and course announcements are provided on the course learning management system, Moodle (or Open Access).

By accessing and using the ICT resources provided by UNSW, you are agreeing to abide by the 'Acceptable Use of UNSW ICT Resources' policy particularly on respect for intellectual property and copyright, legal and ethical use of ICT resources and security and privacy.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Solving a research challenge Assessment Format: Individual Short Extension: Yes (2 days)	20%	Start Date: Not Applicable Due Date: 08/07/2024 11:59 PM
Progress theory and practical quizzes Assessment Format: Individual	20%	Start Date: Not Applicable Due Date: Weekly, see Moodle for exact weekly schedule
End of Session Exam Assessment Format: Individual	40%	Start Date: Not Applicable Due Date: During Exam period
Motor control explained (blended learning assignment) Assessment Format: Group	20%	Start Date: Not Applicable Due Date: 28/07/2024 11:59 PM

Assessment Details

Solving a research challenge

Assessment Overview

In this assignment you will have to design an evidence based experiment and present mock results in the strict format used in scientific literature. This assignment will be evaluated and marked using a detailed rubric providing you feedback indicating your achievement level for each assessment criterion.

Course Learning Outcomes

- CLO1 : Effectively communicate how skeletal muscle and the nervous system work to generate controlled movements.
- CLO2 : Apply your understanding of the key theoretical concepts in the field of movement neuroscience to extend into areas relevant for future professional practice in this field.
- CLO3 : Evaluate the evolving trends in movement neuroscience research and conduct in-depth analyses and critical interpretation of the most current relevant literature within the field.

- CLO4 : Apply your understanding of experimental study design in the area of motor and muscle control to effectively present relevant scientific data.

Detailed Assessment Description

Pre-recorded detailed instructions will be made available to you in the form of prerecorded seminar slides. To complete this assessment successfully, you must carefully study these instruction slides.

Marks will be given for quality and originality 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.

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.

Detailed information about this assessment will be provided on the course Moodle page.

Assessment Length

Maximum 1500 words; no lower limit.

Submission notes

Refer to Moodle for submission information.

Assessment information

Use of Generative Artificial Intelligence (AI) in the assessment

UNSW Pro-Vice Chancellor Education and Student Experience (PVCESE) provides guidance on the use of generative Artificial Intelligence in assessments.

Simple Editing Assistance is permitted.

For this assessment task, you may use AI-based software to research and prepare prior to completing your assessment. You are permitted to use standard editing and referencing functions in word processing software in the creation of your submission. You must not use any functions that generate or paraphrase [or translate] passages of text, whether based on your own work or not.

Please note that your submission will be passed through an AI-generated text detection tool. If your marker has concerns that your answer contains passages of AI-generated text you may be asked to explain your work. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Progress theory and practical quizzes

Assessment Overview

*These online quizzes are composed of pre-practical and post-practical quizzes (10%) and progress quizzes (10%). The **pre-practical quizzes** are designed to ensure you come to the laboratory prepared. The **post-practical quizzes** test your understanding of the results obtained in the prac class and the ability to put these results into theoretical context. The open book **progress quizzes** are held on-line after each week's activities. The aim of the progress quizzes is to facilitate regular review of the course content. You will receive feedback about your performance in quizzes indicating correct and incorrect answers.*

Course Learning Outcomes

- CLO2 : Apply your understanding of the key theoretical concepts in the field of movement

neuroscience to extend into areas relevant for future professional practice in this field.
- CLO3 : Evaluate the evolving trends in movement neuroscience research and conduct in-depth analyses and critical interpretation of the most current relevant literature within the field.
- CLO4 : Apply your understanding of experimental study design in the area of motor and muscle control to effectively present relevant scientific data.
- CLO5 : Demonstrate competence to perform EMG recordings and electrical nerve stimulation, and interpret experimental results based on understanding of the techniques and underlying physiological principles.

Detailed Assessment Description

There are 4 pre-prac, 5 post-prac and 7 progress quizzes with a total weight of 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.

Post-prac quizzes are testing your understanding of the results you obtained in the lab and your ability to put them into the context of the theoretical framework. Some quiz questions may be ungraded and only require the reporting of experimental outcomes. You can complete them straight after each practical or until the end of the week. **Submission of the practical protocol is part of the post-prac activities and should be regarded as the first step of the post-prac quiz. Protocol submission is necessary to unlock access to the post-prac quiz questions.** Completed prac protocols contain the obtained data, data analyses, and answers to the protocol questions.

Progress quizzes test your knowledge of the current study week including lecture and seminar content. They are **open only during** the scheduled **time interval**. Not every week has a progress quiz, please follow the course schedule and announcements.

Assessment Length

The time limit is provided for each quiz individually,

Submission notes

On-line using WEB browser. Refer to Moodle for submission information.

Assessment information

Each individual quiz has its own deadline, which is provided on Moodle (see e.g.,weekly check-lists).

Use of Generative Artificial Intelligence (AI) in the assessment

UNSW Pro-Vice Chancellor Education and Student Experience (PVCESE) provides guidance on the use of generative Artificial Intelligence in assessments.

NO ASSISTANCE is permitted.

It is prohibited to use any software or service to search for or generate information or answers. If such use is detected, it will be regarded as serious academic misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion.

Assignment submission Turnitin type

Not Applicable

Hurdle rules

You have to complete pre-prac quiz to gain access to the practical class. This is to ensure that you come to the laboratory prepared and use laboratory resources responsibly and safely.

To obtain access to the post-prac quiz, you should submit completed prac protocol, which will unlock access to the post-prac quiz questions.

Detailed information about this assessment will be provided on the course Moodle page.

End of Session Exam

Assessment Overview

The format will be mix of multiple choice questions and short answer questions. Feedback is provided through a final course grade.

Course Learning Outcomes

- CLO1 : Effectively communicate how skeletal muscle and the nervous system work to generate controlled movements.
- CLO2 : Apply your understanding of the key theoretical concepts in the field of movement neuroscience to extend into areas relevant for future professional practice in this field.
- CLO3 : Evaluate the evolving trends in movement neuroscience research and conduct in-depth analyses and critical interpretation of the most current relevant literature within the field.

- CLO5 : Demonstrate competence to perform EMG recordings and electrical nerve stimulation, and interpret experimental results based on understanding of the techniques and underlying physiological principles.

Detailed Assessment Description

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 be invigilated closed book and 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.

Detailed information about this assessment will be provided on the course Moodle page.

Assessment Length

2 hours

Submission notes

Quizzes are delivered on-line using WEB browser. Refer to Moodle for submission information.

Assessment information

The exam is invigilated and closed book.

Use of Generative Artificial Intelligence (AI) in the assessment

UNSW Pro-Vice Chancellor Education and Student Experience (PVCESE) provides guidance on the use of generative Artificial Intelligence in assessments.

NO ASSISTANCE is permitted.

It is prohibited to use any software or service to search for or generate information or answers. If such use is detected, it will be regarded as serious academic misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion.

Assignment submission Turnitin type

Not Applicable

Motor control explained (blended learning assignment)

Assessment Overview

In small groups (3-4), you will choose one of the motor control topics discussed during lectures or tutorials, and will produce a short educational video to explain the underlying principles and demonstrate motor control in action. Created blended learning products will be peer marked by other students, thereby providing feedback on the product. You will also receive marks for contribution to this peer assessment process. The final mark is determined by the course convenors but based on the average peer marks.

Course Learning Outcomes

- CLO1 : Effectively communicate how skeletal muscle and the nervous system work to generate controlled movements.
- CLO2 : Apply your understanding of the key theoretical concepts in the field of movement neuroscience to extend into areas relevant for future professional practice in this field.
- CLO3 : Evaluate the evolving trends in movement neuroscience research and conduct in-depth analyses and critical interpretation of the most current relevant literature within the field.

Detailed Assessment Description

Educational video

For the educational video project students will choose one of the motor control topics discussed during lectures or seminars. The project may also be based on literature research by the students. 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 this is a team project 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.

The videos should be no longer than 3 minutes plus production credits. There is no automatic grade penalty for exceeding this time limit, but excessive length could negatively impact the peer marks, if you lose the audience's attention. It is the idea that counts, video quality should not

matter, if 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 without editing. The videos can also be made entirely from animated slide presentations created by software like PowerPoint, Keynote or similar tools that can save presentations as animated video files. Based on past experience, videos including some acting elements and physical forms of expressions are better received due to better engagement leading to better learning. Nevertheless, there have also been many outstanding fully software-created projects.

It is suggested that the videos are uploaded to YouTube. You should carefully consider privacy settings and respect copyright. Depending on the content, you may prefer to select a YouTube setting which leaves the video unlisted (not found by search engines) and share the video as a private link. The videos need to be accessible for peer marking and public demonstration in the classroom. If there are concerns, instead of uploading videos online, you can submit the video file via Moodle and grant permission to demonstrate the 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)

Detailed information about this assessment will be provided on the course Moodle page.

Assessment Length

Maximum 3 minutes video plus production credits

Submission notes

It is suggested to upload videos on YouTube and keep them unlisted, then upload YouTube link on Moodle. MCQ file should be uploaded on Moodle. Peer-marking is done on Moodle.

Assessment information

Video projects and MCQ questions are due on Saturday 28-July, 11:59pm

Peer marking is due on Wednesday 31-July, 11:59pm

Use of artificial intelligence: Full Assistance with Attribution is permitted. The end credits of the video should indicate which elements were created using generative AI, indicate duration and time of insertion point. If relevant, indicate essential content descriptors used to promt and query AI to generate such content.

Use of Generative Artificial Intelligence (AI) in the assessment

UNSW Pro-Vice Chancellor Education and Student Experience (PVCESE) provides guidance on the use of generative Artificial Intelligence in assessments.

VIDEO Project component: Full Assistance with Attribution is permitted.

The end credits of the video should indicate which elements were created using generative AI, indicate duration and time of insertion point. If relevant, indicate essential content descriptors used to promt and query AI to generate such content.

MCQ design componenet: Simple Editing Assistance is permitted.

For this assessment task, you may use AI-based software to research and prepare prior to completing your assessment. You are permitted to use standard editing and referencing functions in word processing software in the creation of your submission. You must not quary AI to generate MCQ question for you.

You must not use any functions that generate or paraphrase [or translate] passages of text,

whether based on your own work or not.

Please note that your submission will be passed through an AI-generated text detection tool. If your marker has concerns that your answer contains passages of AI-generated text you may be asked to explain your work. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.

Assignment submission Turnitin type

Not Applicable

General Assessment Information

Detailed instructions regarding assessments for this course are provided on the course Moodle page (or Open Learning).

For student information on results, grades, and guides to assessment see: https://student.unsw.edu.au/assessment

Grading Basis

Standard

Requirements to pass course

In order to pass this course students must:

- Achieve a composite grade of at least 50 out of 100.
- Complete practicals and submit filled out practical protocols.
- Meet any additional requirements specified in the assessment details section and on Moodle.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 0 : 20 May - 26 May	Other	O-week
Week 1 : 27 May - 2 June	Lecture	L1 - Introduction to muscle physiology, expected prior knowledge (IB) L2 – Motor unit and motoneuron recruitment; the size principle (IB) L3 – Muscle fibre typing; the genetics of speed and endurance (FvW)
	Seminar	S1 – Course introduction and important information about assessments (prerecorded; IB)
Week 2 : 3 June - 9 June	Lecture	L4 – Spinal control of locomotion – muscle and cutaneous afferents and reflexes (IB) L5 –– Cortical control of movement (FvW) L6 – Brain and movement (the ascending and descending tracts) (IB)
	Seminar	S2 – EMG techniques and clinical use (prerecorded; FvW)
	Laboratory	P1: EMG basics: motor units and force regulation
Week 3 : 10 June - 16 June	Lecture	L7 – Sensorimotor control – voluntary movement, feedback and feed-forward control (IB) L8&9 – Motor learning and internal models (IB)
	Seminar	S3 – Classic Paper Rhythmic movements and H-reflex (prerecorded; IB)
	Laboratory	No practicals due to public holiday (King's birthday)
Week 4 : 17 June - 23 June	Lecture	L10 – Cerebellum and motor control: learning & disorders (IB) L11 – Basal ganglia in motor control, including Parkinson's disease (IB) L12 - Sensorimotor control of dexterous manipulation in humans (IB)
	Seminar	S4 – Assessment II: Essay on research logic (discussion and instructions) (prerecorded; IB)
	Laboratory	P2: Reflexes and electrical stimulation (Hoffmann reflex)
Week 5 : 24 June - 30 June	Lecture	L13 – Muscle architecture (BB/FvW) L14 - Muscle growth injury and regeneration (BB/FvW) L15 – Muscle pain (FvW)
	Seminar	S5 – Putting it all together: Examples of task integration for motor control (prerecorded; IB)
	Laboratory	P3: Computational neuroscience and human-computer interfaces
Week 6 : 1 July - 7 July	Homework	STUDY WEEK Essay writing
Week 7 : 8 July - 14 July	Lecture	L16 – Muscle fatigue (FvW) L17 – Muscle building drugs and performance supplements (VB) L18 – Central fatigue (FvW)
	Seminar	S6 – Blended learning video project (Veni, vidi, vici, or how to) (prerecorded; IB)
	Laboratory	Practical #4 (see Moodle for details)
	Assessment	Essay on research logic: solving a research challenge
Week 8 : 15 July - 21 July	Lecture	L19 - Muscle cramps: causes and treatments (FvW) L20 – Sarcopenia and Muscular dystrophies (FvW) L21 – Stroke and rehabilitation (IB) L22 – Plasticity and adaptation to training and disuse (FvW)
	Laboratory	Practical #5 (see Moodle for details)
Week 9 : 22 July - 28 July	Group Work	STUDY WEEK for blended learning (video) projects "Motor control explained"
	Assessment	"Motor control explained" - video and MCQ submission
Week 10 : 29 July - 4 August	Homework	Peer Marking of video projects "Motor control explained"
	Assessment	"Motor control explained" - peer marking

Attendance Requirements

The attendance at practical classes and submission of practical reports is mandatory as it is required to achieve CLO5.

For Exercise Physiology program students, mandatory attendance is a requirement of the professional accreditation body, Exercise and Sports Science Australia.

During the practical classes, you will have to demonstrate competence using various research and/or clinical techniques in human motor control. The academic team will assist and train you to perform these procedures. During discussions with the academic team, you will be trained to analyse, critically evaluate and interpret the data you will obtain yourselves. The data recordings, analyses and interpretation will need to be included in the practical report which each student submits online individually. Your knowledge relevant to practicals will be assessed in pre-prac and post-prac quizzes as part of assessment #1.

If you are unable to attend a practical class, you should inform the Course Convenor. If the absence is for medical reasons you will be required to present a medical certificate. If examinations or other forms of assessment have been missed, you can apply for Special Consideration.

To achieve CLO5, alternative arrangements will be provided for students who have approved Special Consideration, or are registered with Equitable Learning Services and require educational adjustments.

Students who fail to submit practical reports within the requested timeframe, or who fail to meet attendance requirement without a legitimate approved reason, will not be able to pass the course. If alternative tasks assigned by the Course Convenor are not fulfilled, that student will not be able to pass the course.

General Schedule Information

The times and locations of classes can be found on myUNSW under Class Timetable.

The expected engagement for all UNSW 6UOC courses is 150 hours per term. This includes lectures, tutorials, readings, and completion of assessments and exam preparation (if relevant).

Course Resources

Prescribed Resources

There is no prescribed texbook as all study materials are covered in online recordings and slides.

Recommended Resources

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)

Note that 7th edition ISBN 978-0197616246 will be available during 2023: Check availability on following links:

https://www.bookshop.unsw.edu.au/details.cgi?ITEMNO=9780197616246 (print)

https://unswbookshop.vitalsource.com/products/-v9780197616680 (digital version)

- 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.
- Payne G, Isaacs L. *Human Motor Development: A Lifespan Approach* (10th Ed). Routledge. ISBN: 978-0367347376

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.

Additional Costs

There are no additional costs associated with this course.

Course Evaluation and Development

Student feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

We use student feedback from myExperience surveys to develop and make improvements to the course each year. We do this by identifying areas of the course that require development from both the rating responses and written comments. Please spare a few minutes to complete the myExperience surveys for this course posted at the top of the Moodle page at the end of term.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Ingvars Birznieks		WW 3NW 314	90651598	24/7	No	Yes
	Frederic von Wegner		WW 3NW 314	90653742	Monday-Friday ordinary working hours	No	No

Other Useful Information

Academic Information

As a student of UNSW Medicine & Health you are expected to familiarise yourself with the contents of this course outline and the UNSW Student Code and policies and procedures related to your studies.

Student Code of Conduct

Throughout your time studying at UNSW Medicine & Health, you share a responsibility with us for maintaining a safe, harmonious and tolerant University environment. This includes within the courses you undertake during your degree and your interactions with the UNSW community, both on campus and online.

The UNSW Student Code of Conduct website provides a framework for the standard of conduct expected of UNSW students with respect to both academic integrity and your responsibility as a UNSW citizen.

Where the University believes a student may have breached the code, the University may take disciplinary action in accordance with the Student Misconduct Procedure.

The Student Conduct and Integrity Office provides further resources to assist you to understand your conduct obligations as a student at UNSW.

Academic Honesty and Plagarism

Academic integrity

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW staff and students have a responsibility to adhere to the principle of academic integrity, and ethical scholarship of learning is fundamental to your success at UNSW Medicine & Health.

Plagiarism, contract cheating, and inappropriate use of generative AI undermine academic integrity and are not tolerated at UNSW. For more information see the Academic Integrity and Plagiarism toolkit.

In addition to the information you are required to review in your ELISE training, UNSW Medicine & Health strongly recommends that you complete the Working with Academic Integrity module before submitting your first assessment task.

Referencing

Referencing is a way of acknowledging the sources of information that you use to research your assignments. Preferred referencing styles vary among UNSW Medicine & Health disciplines, so check your course Learning Management System (e.g. Moodle or Open Learning) page for information on preferred referencing styles.

For further information on referencing support and styles, see the Current Student Referencing page.

Academic misconduct and plagiarism

At UNSW, academic misconduct is managed in accordance with the Student Misconduct Procedure. Allegations of plagiarism are generally handled according to the UNSW Plagiarism Management Procedure. Plagiarism is defined in the UNSW Plagiarism Policy and is not tolerated at UNSW.

Use of Generative AI and other tools in your assessment

UNSW has provided guiding statements for the use of Generative AI in assessments. This will differ, depending on the individual assessment task, your course requirements, and the course stage within your program.

Your course convenor will outline if and how you can use Generative AI in each your assessment tasks. Options for the use of generative AI include: (1) no assistance; (2) simple editing assistance; (3) planning assistance; and (4) full assistance with attribution.

You may be required to submit the original generative AI responses, or drafts of your original work. Inappropriate use of generative AI is considered academic misconduct.

See your course Moodle (or Open Learning) page for the full instructions for individual assessment tasks for your course.

Submission of Assessment Tasks

Special Consideration

In cases where illness, misadventure or other circumstances beyond your control will prevent you from submitting your assessment by the due date and you require an extension, you need to formally apply for Special Consideration through myUNSW.

UNSW has a **Fit to Sit/Submit rule**, which means that by sitting or submitting an assessment on the scheduled assessment date, you are declaring that you are fit to do so and cannot later apply for Special Consideration.

Timed online assessment tasks

If you experience a technical or connection problem during a timed online assessment, such as a timed quiz, you can apply for Special Consideration. To be eligible to apply you need to contact the Course Convenor and advise them of the issue immediately. You will need to submit an application for Special Consideration immediately, and upload screenshots, error messages or

other evidence of the technical issue as supporting documentation. Additional information can be found on: https://student.unsw.edu.au/special-consideration

Examinations

Information about the conduct of examinations in your course is provided on your course Moodle page.

Other assessment tasks

Late submission of assessment tasks

UNSW has standard late submission penalties as outlined in the UNSW Assessment Implementation Procedure, with no permitted variation. All late assignments (unless extension or exemption previously agreed) will be penalised by 5% of the maximum mark per calendar day (including Saturday, Sunday and public holidays).

Late submissions penalties are capped at five calendar days (120 hours). This means that a student is not permitted to submit an assessment more than 5 calendar days (120 hours) after the due date for that assessment (unless extension or exemption previously agreed).

Failure to complete an assessment task

You are expected to complete all assessment tasks for your courses. In some courses, there will be a minimum pass mark required on a specific assessment task (a “hurdle task”) due to the need to assure clinical competency.

Where a hurdle task is applicable, additional information is provided in the assessment information on your course Moodle page.

Feedback on assessments

Feedback on your performance in assessment tasks will be provided to you in a timely manner. For assessment tasks completed within the teaching period of a course, other than a final assessment, feedback will be provided within 10 working days of submission, under normal circumstances.

Feedback on continuous assessment tasks (e.g. laboratory and studio-based, workplace-based, weekly quizzes) will be provided prior to the midpoint of the course.

Any variation from the above information that is specific to an assessment task will be clearly indicated in the course and assessment information provided to you on your course Moodle (or Open Learning) page.

Faculty-specific Information

Additional support for students

The university offers a wide range of support services that are available for students. Here are some links for you to explore.

- The Current Students Gateway: https://student.unsw.edu.au
- Academic Skills and Support: https://student.unsw.edu.au/academic-skills
- Student support: https://www.student.unsw.edu.au/support
- Student Wellbeing, Health and Safety: https://student.unsw.edu.au/wellbeing

Mind Smart Guides are a series of mental health self-help resources designed to give you the psychological flexibility, resilience and self-management skills you need to thrive at university and at work.

- Mind Smart Guides: https://student.unsw.edu.au/mindsmart
- Equitable Learning Services: https://student.unsw.edu.au/els
- Guide to studying online: https://www.student.unsw.edu.au/online-study

Most courses in UNSW Medicine & Health use Moodle as your Learning Management System. Guidance for using UNSW Moodle can be found on the Current Student page. Difficulties with Moodle should be logged with the IT Service Centre.

- Moodle Support: https://student.unsw.edu.au/moodle-support

The IT Service Desk is your central point of contact for assistance and support with remote and on-campus study.

- UNSW IT Service Centre: https://www.myit.unsw.edu.au/services/students

Course evaluation and development

At UNSW Medicine & Health, students take an active role in designing their courses and their overall student experience. We regularly seek feedback from students, and continuous improvements are made based on your input. Towards the end of the term, you will be asked to participate in the myExperience survey, which serves as a source of evaluative feedback from students. Your input to this quality enhancement process is valuable in helping us meet your learning needs and deliver an effective and enriching learning experience. Student responses are carefully considered, and the action taken to enhance educational quality is documented in the myFeedback Matters section of your Moodle (or Open Learning) course page.

School-specific Information

Laboratory or practical class safety.

For courses where there is a laboratory or practical-based component, students are required to wear the specified personal protective equipment (e.g., laboratory coat, covered shoes, safety glasses) indicated in the associated student risk assessments. The student risk assessments will be provided on the course Moodle page and must be read and acknowledged prior to the class.

Master of Science in Health Data Science courses

Courses in the Master of Science in Health Data Science are hosted through Open Learning. Additional resources are available on the Health Data Science Student Hub.

Recording of lectures, tutorials and other teaching activities (MSc. HDS only)

Lectures, tutorials and other teaching activities may be recorded. Students should be advised that they are consenting to the recording by their enrolment in the course or participation in the activity. The purpose of audio and video recordings is to enhance the student experience by supporting engaged learning in an online teaching environment and ensure equitable access to all course resources for our students. If you have concerns about accessing course recordings, or being recorded, please contact the Course Convenor.

School Contact Information

School guidelines on contacting staff:

Course questions

All questions related to course content should be posted on Moodle (or Open Learning) or as directed by your Course Convenor.

In cases where email communication with course convenors is necessary, we kindly request the following:

- Use your official email address for any correspondence with teaching staff.
- We expect a high standard of communication. All communication should avoid using short-hand or texting language.
- Include your full name, student ID, and your course code and name in all communication.

Our course convenors are expected to respond to emails during standard working hours of Monday to Friday, 9am-5pm.

Administrative questions

If you have an administrative question about your program of study at the School please submit your enquiry online at UNSW Ask Us.

Complaints and appeals

Student complaints and appeals: https://student.unsw.edu.au/complaints

If you have any grievances about your studies, we invite you to address these initially to the Course Convenor. If the response does not meet your expectations, you may then contact:

School Grievance Officer, Prof Nick Di Girolamo (n.digirolamo@unsw.edu.au)

Health Data Science programs: School Grievance Officer, Dr Sanja Lujic (s.lujic@unsw.edu.au)