

PDTY3103: Podiatric Biomechanics

Ourimbah

Semester 1 - 2024



THE UNIVERSITY OF
NEWCASTLE
AUSTRALIA

OVERVIEW

Course Description	This course will extend students' existing knowledge of podiatric biomechanics and introduces them to theoretical and clinical application of these skills to the specialist area of clinical biomechanics. This course develops skill in the area of podiatric biomechanics and integrates existing knowledge with advanced gait analysis and measurement techniques to provide comprehensive knowledge of biomechanical function and assessment of the lower limb. Students will learn to use common quantitative gait analysis tools and develop their capacity to critically appraise research relevant to podiatric biomechanics.
Academic Progress Requirements	Nil
Requisites	This course is only available to students enrolled in the Bachelor of Podiatry program. Pre-requisite - successful completion of PDTY2203 and PDTY2103
Assumed Knowledge	Biomechanics; Podiatric pathomechanics; Podiatric biomechanical theory; Sports podiatry
Contact Hours	Ourimbah Lecture Face to Face On Campus (Wyang Clinic) 2 hour(s) per week(s) for 12 week(s) Practical Face to Face On Campus 2 hour(s) per week(s) for 4 week(s) Tutorial Face to Face On Campus 2 hour(s) per week(s) for 7 week(s)
Unit Weighting Workload	10 Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

COURSE OUTLINE

CONTACTS

Course Coordinator **Ourimbah**
Dr Andrea Coda
Andrea.Coda@newcastle.edu.au
(02) 43484507
Consultation: Wed 11am-1pm. Please email Andrea.Coda@newcastle.edu.au to book an appointment.

Teaching Staff Other teaching staff will be advised on the course Canvas site.

School Office **School of Health Sciences**
Room 302, ICT Building
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SchoolHealthSciences@newcastle.edu.au
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SYLLABUS

Course Content

1. Review basic biomechanics of motion
2. The human gait cycle
3. Quantitative methods of gait analysis
4. Kinematics and kinetic of human motion
5. Quantitative measurement techniques
6. Plantar pressure analysis
7. Balance and posture
8. Research methods

Course Learning Outcomes **On successful completion of this course, students will be able to:**

1. Describe and explain the basic principles of motion
2. Explain the effects of loading on human tissues
3. Demonstrate competency in the use of selected quantitative tools to assess human motion
4. Critically evaluate literature in the area of podiatric biomechanics
5. Demonstrate skill in practical aspects of measurement with emphasis on issues of reliability and validity of currently used measures
6. Critically appraise the field of biomechanics, understanding the limitations and applications of currently used techniques
7. Integrate the theory and practice and biomechanics and how this relates to a clinical setting and the provision of evidence based practice
8. Discuss in detail the features of commonly encountered research designs and critically appraise research articles across the spectrum of research designs

Course Materials

- This course is supported by the Canvas site [PDTY3103 \(S1 2024 CENTRALCST\)](#)

The following texts are recommended only and multiple copies are available in the Library:

1. Kirtley C. Clinical Gait Analysis: Theory and Practice, 2006
2. Oatis, Kinesiology. The Mechanics and Pathomechanics of Human Movement (3rd Edition), 2016
3. Valmassey, R.L. Clinical Biomechanics of the Lower Extremity, 2009

ASSESSMENTS

This course has 3 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Mid-semester Exam	Friday 10 th May 2024 in lecture time (week 9)	Individual	25%	1, 2, 3, 5, 6, 7, 8
2	Formal Written Exam	Final written exam – due date to be confirmed	Individual	40%	1, 2, 3, 4, 5, 6, 7, 8
3	Written Assignment	Friday – 31 st May 2024 by 5 pm (week 12)	Individual	35%	4, 5, 6, 7, 8
4	Online Research Module*	Wed – 27 th March 2024 by 5 pm (week 5)	Individual	Pass/Fail	8

Late Submissions

The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Reminder

- A. It is a breach of Academic Integrity Policy to submit work or part thereof previously submitted for academic credit in this or any other course without permission from the course coordinator. This information is located in the policy [glossary](#), the [Academic Integrity Module](#) and/or details in HLSC1000 content on Academic Integrity for more information
- B. Reusing one's own work, or part thereof, that has been submitted previously and counted towards another course without permission from the relevant Course Coordinator and 2) making contact or colluding with another person, contrary to instructions, during an examination, in-term test, quiz or other individual assessment item are considered forms of Academic Fraud within the Student Academic Integrity Policy. This information is located in the policy glossary under academic fraud, the Academic Integrity Module and/or details in HLSC1000 content on Academic Integrity.

Assessment 1 - Exam Mid-semester

Assessment 1 - Exam Mid-semester	
Assessment Type	In Term Test: this is a closed book examination
Description	Multiple choice questions, short answer, and labelling questions
Weighting	25% of overall mark
Due Date	Friday 10 th May 2024 in lecture time (week 9)
Submission Method	In class test
Assessment Criteria	1, 2, 3, 5, 6, 7, 8
Return Method	This assessment item will not be returned to you but may be viewed upon request
Feedback Provided	General feedback will be provided via email and during week 11 tutorial session. Individual consultation is available upon request. Marks will be released on Canvas.
Opportunity to Reattempt	A second opportunity WILL NOT be provided unless accompanied by a successful adverse circumstance application

Assessment 2 - Formal Written Exam

Assessment Type	Final Written Examination: this is a closed book examination
Description	Multiple choice questions, short answer, and labelling questions
Weighting	40% of overall mark
Due Date	Due dates to be confirmed
Assessment Criteria	1, 2, 3, 4, 5, 6, 7, 8
Return Method	This assessment item will not be returned to you but may be viewed upon request
Feedback Provided	Individual consultation is available upon request. Marks will be released on Canvas.
Opportunity to Reattempt	A second opportunity WILL NOT be provided unless accompanied by a successful adverse circumstance application

Assessment 3 - Written Assignment

Assessment Type	Written Assignment
Description	Students are required to choose a specific area of podiatric biomechanics and perform a review of the literature. More information is available on Canvas.
Weighting	35% of overall mark
Due Date	Friday – 31st May 2024 by 5 pm (week 12)
Submission Method	Online via Turnitin
Assessment Criteria	4, 5, 6, 7, 8
Return Method	Marks and comments released through Canvas
Feedback Provided	Individual feedback consultation is available upon request.
Opportunity to Reattempt	A second opportunity WILL NOT be provided unless accompanied by a successful adverse circumstance application

Assessment 4 – Online Research Module

Assessment Type	Online multiple-choice questions
Description	Students are required to complete the online research module readings and then complete the associated multiple-choice questions.
Weighting	This is a formative assessment and will not contribute to your final grade.
Compulsory Requirements	Unlimited attempts are permitted but successful completion (100%) is required by the due date.
Due Date	Wed – 27th March 2024 by 5 pm (week 5)
Submission Method	Online through Canvas
Assessment Criteria	8
Return Method	This assessment item will not be returned to you but may be viewed upon request.
Feedback Provided	Individual feedback consultation is available upon request. Marks will be released on Canvas
Opportunity to Reattempt	Students with a fail grade will be required to satisfactorily complete an alternate assessment item.

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

Range of Marks	Grade	Description
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a

		high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

*Skills are those identified for the purposes of assessment task(s).

Communication Methods

Communication methods used in this course include:

Course Evaluation

Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement. As a result, more practical biomechanics demonstration will be added as part of the weekly practical sessions.

Oral Interviews (Vivas)

As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the [Oral Examination \(viva\) Procedure](#). In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the [Student Conduct Rule](#).

Academic Misconduct

All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to <https://policies.newcastle.edu.au/document/view-current.php?id=35>.

Adverse Circumstances

The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where:

1. the assessment item is a major assessment item; or
2. the assessment item is a minor assessment item and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system;
3. you are requesting a change of placement; or
4. the course has a compulsory attendance requirement.

Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at:

<https://policies.newcastle.edu.au/document/view-current.php?id=236>

Important Policy Information

The Help button in the Canvas Navigation menu contains helpful information for using the Learning Management System. Students should familiarise themselves with the policies and procedures at <https://www.newcastle.edu.au/current-students/respect-at-uni/policies-and-procedures> that support a safe and respectful environment at the University.

Workplace Health and Safety

You are required to attend and complete your clinical induction session. You must comply with OH&S requirements of the Podiatry Clinic Handbook and of University Policy (<http://www.newcastle.edu.au/policy/000972.html>).

Semester 1 – 2024 - Ourimbah Timetable - PDTY3103 Podiatric Biomechanics					
Timetable	Lecture	Friday	15:00 - 17:00	Wyong Seminar Room	Weeks 1-12
	and Practical	Wednesday	13:00 – 15:00 (Group 1)	EXSB212	Weeks 4, 6, 8 & 9
	OR	Wednesday	15:00 – 17:00 (Group 2)	EXSB212	Weeks 4, 6, 8 & 9
	and Tutorial	Wednesday	13:00 – 15:00 (Group 1)	EXSA201	Weeks 1-3, 5, & 10-11 Weeks 10 also online
	OR	Wednesday	15:00 – 17:00 (Group 2)	EXSA201	Weeks 1-3, 5, & 10-11 Weeks 10 also online

Week No: (beginning)	TUTORIAL (Wed - EXSA201)	PRACTICALS (Wed - EXSB212)	LECTURE (Friday – Wyong Clinic Seminar Room)
(1) 26-Feb	Basic Biomechanics	No Practical	Introduction Review Foot Structure and Function Literature Review
(2) 4-Mar	Biomechanics form review (in class) Anatomy Review (online)	No Practical	Lower Limb Biomechanics Review
(3) 11-Mar	Literature review session (<i>Guest Speaker - Learning and Teaching Librarian</i>)	No Practical	The Human Gait Cycle Review Determinants of gait
(4) 18-Mar	No Tutorial	Lab Induction & Kinematic variables in the clinical setting	Ground reaction force Plantar Pressures
(5) 25-Mar	Basic Biomechanics Review	No Practical	Gait kinematics
(6) 1-Apr	No Tutorial	Force Plate Demonstration	Gait Kinetics
(7) 8-Apr	No Tutorial	No Practical	Review GRF, kinematics, and kinetics & Intro to power
MIDSEMESTER BREAK			
(8) 29-Apr	No Tutorial	Electromyography (EMG) Demonstration	Motor Control and Gait & Clinical movement tasks
(9) 6-May	No Tutorial	Barefoot and In-Shoe Plantar Pressure Analysis Demonstration	Mid Semester Exam Quantitative gait analysis techniques (online)
(10) 13-May	Critical appraisal tools & lit review help session (in class) Orthotic therapy (online)	No Practical	Gait pathology and energy expenditure
(11) 20-May	** Mid Semester Exam Review	No Practical	Foot pronation and lower limb injury
(12) 27-May	No Tutorial	No Practical	Exam review

*: Please note this review is subject to all students having undertaken this assessment item prior to this session

This course outline was approved by the Head of School. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.

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