

Module code: MOD005684	Version: 5 Date Amended: 14/Sep/2020
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1. Module Title
Applied Biomechanics

2a. Module Leader
Andrew Morrison

2b. School
School of Psychology, Sport and Sensory Sciences

2c. Faculty
Faculty of Science and Engineering

3a. Level
6

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

5. Restrictions			
Type	Module Code	Module Name	Condition
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	BSc (Hons) Sport and Exercise Science BSc (Hons) Strength and Conditioning with Rehabilitation		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

An effective support team makes use of various sports and exercise sciences, such as physiology, biomechanics and psychology, to help improve the performance of an athlete, team or the quality of life of the general public. The module builds on all the concepts previously studied in Level 4 and 5. This includes: motion, (displacement, velocity, acceleration), force and momentum (the ground reaction force, the net force on the human, free-body diagrams and force vector diagrams), lever systems and the musculo-skeletal system, muscle contraction types and the production of force, the centre of mass, projectile science and work, energy and power. Additionally, this module concentrates on the application of biomechanics to improve technique and reduce predisposition to injury for sport or clinical populations. The aim of the module is to provide the knowledge and skills to successfully prescribe and/or deliver sport and exercise biomechanics interventions as a coach or sport scientist.

During lecture and laboratory sessions you will work to develop the skills to undertake your own biomechanics assessment. You will then carry out this assessment with an external member and report back your findings. You will also critically evaluate the influence of an applied biomechanist in a coaching or clinical setting and learn about the needs and issues of different users.

6b. Outline Content

- Advanced linear kinematics and kinetics
- Angular Kinematics
- Angular Kinetics
- Motion capture and analysis using Vicon, EMG and force plates
- Application of biomechanical theory to practice
- Application of tools of biomechanics to practice

6c. Key Texts/Literature

The reading list to support this module is available at: <https://readinglists.aru.ac.uk/>

6d. Specialist Learning Resources

Cambridge Centre for Sport and Exercise Sciences, Multi-purpose labs, Computer rooms.

7. Learning Outcomes (threshold standards)		
No.	Type	On successful completion of this module the student will be expected to be able to:
1	Knowledge and Understanding	Demonstrate a critical appreciation of biomechanical knowledge in relation to human performance
2	Knowledge and Understanding	Evaluate applied biomechanics practice for specific populations to inform conclusions
3	Intellectual, practical, affective and transferrable skills	Apply biomechanical understanding in a practical context
4	Intellectual, practical, affective and transferrable skills	Present advanced applied biomechanics interventions to a wider audience

8a. Module Occurrence to which this MDF Refers				
Year	Occurrence	Period	Location	Mode of Delivery
2026/7	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	Hours	Learning Outcomes	Details of Duration, frequency and other comments
Lectures	22	1-2	2-hour lectures
Other teacher managed learning	11	3-4	1-hour practical or computer workshops
Student managed learning	117	1-4	Completion of weekly readings, tasks and preparation for assessments
TOTAL:	150		

9. Assessment for the above Module Occurrence					
Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Coursework	1-4	100 (%)	Fine Grade	30 (%)
Written scientific report and presentation on a sports or exercise biomechanics case study (3000 word equivalent)					

Assessment components for Element 010				
Component No.	Assessment Title	Submission Method	Weighting (%)	Components needed for Mark Calculation?
010/1	Client Feedback Presentation	Canvas	40 (%)	All
010/2	Scientific Report	Canvas	60 (%)	

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:

- (a) achieve the qualifying mark for each element of fine graded assessment as specified above**
- (b) pass any pass/fail elements**

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]