

Liverpool John Moores University

Title: BIOMECHANICAL FOUNDATIONS
Status: Definitive
Code: **4006SPOSCI** (114191)
Version Start Date: 01-08-2011

Owning School/Faculty: Sports Sciences
Teaching School/Faculty: Sports Sciences

Team	Leader
Mark Lake	Y

Academic Level: FHEQ4
Credit Value: 12.00
Total Delivered Hours: 25.00
Total Learning Hours: 120
Private Study: 95

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	16.000
Practical	6.000
Tutorial	2.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Practical report	50.0	
Exam	AS2	Multiple choice and short answer exam	50.0	1.00

Aims

The aim of this module is to establish the foundational theory of biomechanics and apply it to the study of the body in a sport and exercise context.

Learning Outcomes

After completing the module the student should be able to:

- 1 Describe sports skills and techniques in mechanical terms.
- 2 Illustrate basic mechanical and biological principles applied to the musculo-skeletal system.
- 3 Solve basic mechanical problems applied to sports skills.
- 4 Explain and Illustrate foundational biomechanical techniques.
- 5 Collect and interpret basic biomechanical data via group experimental work.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Lab report	1	2	3
Multiple choice / short answer	3	4	5

Outline Syllabus

Biomechanics of joint and muscle function.
Physical characteristics of sports skills.
Representation of the human body by a biomechanical model.
Segmental analysis.
Video analysis.
Force analysis.

Learning Activities

Lectures and demonstrations will be central to the student learning experience, where key foundational biomechanical principles and techniques will be explored. Experimental work within the laboratory will enable students to gain hand-on experience of techniques and engage in their own learning.

References

Course Material	Book
Author	Hall, S
Publishing Year	1999
Title	Basic Biomechanics
Subtitle	
Edition	3rd ed.
Publisher	St Louis: McGraw-Hill
ISBN	0070921180

Course Material	Book
Author	Hamill, J. and Knutzen, K.M.

Publishing Year	2003
Title	Biomechanical Basis of Human Movement
Subtitle	
Edition	2nd ed.
Publisher	Baltimore: Williams and Wilkins.
ISBN	0781734053

Course Material	Book
Author	Carr, G.
Publishing Year	2004
Title	Sports Mechanics for Coaches
Subtitle	
Edition	2nd ed.
Publisher	Human Kinetics
ISBN	0736039724

Notes

The module uses lecture and laboratory sessions to develop the students understanding of foundational theory of biomechanics and their ability to apply it to the study of the body in a sport and exercise context. The assessment tasks are designed to evidence the level of understanding and practical skill of the students.

Biomechanics is a fascinating field. Possessing sufficient knowledge in this area is paramount for properly understanding resistance training. I try my best to educate my readers so that over time they can build upon their knowledge and reach superior levels of understanding with regards to human movement.Â Human biomechanics is comprised of three basic disciplines: 1) Mechanics of Human Movement or Movement Biomechanics; 2) Orthopedic Biomechanics; and 3) Fluid Biomechanics. Introduction to Biomechanics: Basic Biomechanics of the Foot. Terminology and Concepts 2 and Ankle 222 Niha! bzkaya, Dawn Leger G. James Sammarco, Ross Todd Hockenbury. Appendix 1: The System International (11) Biomechanics of the Lumbar Spine 2. Basic Biomechanics. Post author. By. Post date. October 26, 2017. Get IT free here. <http://nitroflare.com/view/96F31003E493ADA/0073376442.pdf>. Basic Biomechanics 7th Edition. by Susan Hall (Author). 4.5 out of 5 stars 66 ratings.Â Hall's research interests have focused on low back pain prevention and the biomechanical aspects of selected sports and exercises, and she published numerous research papers and book chapters related to these topics.