

BIOMECHANICS AND MOTOR CONTROL, 15 CREDITS

General information

This course is offered as an optional course within the Master's program and as an independent course.

Discipline: Sport
Subject: Sport science
Scope: 15 credits
Level: Advanced

Processed by the Department of Sport and Health Sciences 2012-09-10.

This course profile was approved by the Board of the Faculty for Undergraduate Education 2012-09-27 and later revised 2014-05-07 and 2015-03-23.

This course profile is valid from Autumn 2015.

Admission requirements and selection

General pre-requisites

Basic eligibility for advanced level, i.e. completed underlying degree of 180 credits or the equivalent.

Specific pre-requisites

The student should have 90 credits in sport science (or equivalent).

Selection

In the case of receiving more applicants than the places of seats available, 50% of the cohort will be accepted based on their academic credits and 50% by a lottery system after submitting a personal written justification as to why you want to join the course. Students studying within GIH's Master's or doctoral program have priority to the course.

Learning objectives

The student should be able to:

- Have a deep understanding of the methodology used in biomechanics and motor control, and be able to evaluate the advantages and disadvantages of various methods
- Integrate and use knowledge to handle complex problems in biomechanics and motor control for sports and everyday movements

Content and structure

The course includes studies in the following thematic areas:

- Biomechanics - basic theory, measurement and analysis methods and application of results.
- Motor control of voluntary movements: From neuron to behaviour.
- Motor control in fatigue, performance and training.
- Force plates, kinematics, EMG, measuring strength and evoked potentials.

The focus of the course is related to the research field, the use of testing methods, theoretical connection, and the relationship between theory and sports.

Teaching and learning activities

Teaching consists of lectures, seminars, laboratory sessions and demonstrations. The students shall individually or in pairs, perform a literature review within a chosen field. The literature reviews will be presented orally and discussed within the group.

Progression

The course includes studies at an advanced level, which means a deepening of knowledge in relation to undergraduate education level. This means an increased level of complexity and abstraction in theoretical application, higher demands on communication skills, discussion of problems and integration of knowledge and increased independence regarding the implementation of written deepening in a chosen field.

Assessment

Requirements

Attendance at literature review seminars is obligatory. Any absence will result in the student being given a supplementary writing task.

To obtain a Pass as a final grade the student must receive a Pass for both the final examination and literature review. To obtain a Pass with distinction as a final grade, the student must receive a Pass for the literature study and a Pass with distinction in the written examination.

Modes of assessment

- Final written examination on the course curricula
- Written and oral presentation of a literature study

Number of examination and practice

The examinations are held during the course as detailed in the course outline, which students should expect to receive at the beginning of the course. Re-examinations will be offered no sooner than three weeks after the student has received results of the original examination. Re-examinations are held at the earliest three weeks after the completion of the relevant part of the course, before the start of the fall term and / or when the course is next offered.

Grades

Possible grades include: Pass with Distinction, Pass or Fail. Students should expect to receive defined criteria at the commencement of the course. Grades will be reported to the study administrator no later than three weeks after the completion of the course.

Course evaluation

After completion of the course each student will have the opportunity to evaluate the course and the lecturer will complete a self-evaluation. These evaluations will be returned to the student group and the examiner within 3 weeks.

Student Influence

Student participation takes place through student representation on the Undergraduate Education committee.

Literature and other teaching aids

Required:

- Enoka, Roger, M. (2008). *Neuromechanics of human movement*, 4th ed. Champaign, Ill: Human Kinetics, 556 pages.
- Susskind, L. and Hrabovsky G. (2013). *The Theoretical Minimum, What You Need to Know to Start Doing Physics*, Basic Books, 256 pages.
- Winter, David, A. (2009). *Biomechanics and Motor Control of Human Movement*, 4th ed. Hoboken, NJ: John Wiley & Sons, Inc, 384 pages.

Optional:

Additional original articles in their respective thematic areas in consultation with the teachers (~100-150 pages).