



# SG2804 Människans rörelsemekanik 7,0 hp

## Biomechanics of Human Movement

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Kursplan för SG2804 gäller från och med HT15

**Betygsskala:** A, B, C, D, E, FX, F

**Utbildningsnivå:** Avancerad nivå

**Huvudområde:** Maskinteknik

### Lärandemål

After the course, the student should be able to:

- Apply principles of classical mechanics to the study of human motion
- Describe motion with precise, well-defined mechanical and anatomical terminology
- Describe the internal and external forces acting on the body during typical human activities
- Understand how muscle actions control movements
- Model muscle activation and movement
- Understand the methods and limitations of different experimental and analytical techniques used

### Kursens huvudsakliga innehåll

The course focuses first on the anatomy and physiology of the human muscle-force system, then on biomechanical applications involved in human movement. Fundamental topics of muscle physiology, anatomy, and treatment, and muscle modeling will be covered first. From this foundation, the course will focus on methods to analyze biomechanical problems, including kinematics and kinetics of movement and the muscle force system. Finally, relevant topics requiring such analyses will be discussed, with some emphasis on walking. Emphasis is placed on analysis, interpretation and critical evaluation of results.

### Kursupplägg

Lectures, discussions, data collection at a motion analysis laboratory, computer labs, project presentations and reports.

### Undervisningsspråk

Undervisningsspråk anges i kurstillfällesinformationen i kurs- och programkatalogen.

### Behörighet

Mechanics I and II, or corresponding courses.

### Litteratur

Biomechanical Basis of Human Movement av Joseph Hamill

- ISBN10:1451194048
- ISBN13:9781451194043

### Examination

- PRO1 - Projekt, 7,0 hp, betygsskala: A, B, C, D, E, FX, F

The course grade is based on 5 at-home group assignments and 1 at-home group final project. Some of these are presented orally and some in written form.

### **Krav för slutbetyg**

All projects must be completed satisfactorily.