



University of Camerino
School of Pharmacy
and Health Products
a.a. 2025/2026



**1^a INTERNATIONAL
EDITION**

UNIVERSITY MASTER IN CLINICAL AND SPORTS BIOMECHANICS

FOR GRADUATES IN HEALTH, BIOMEDICAL AND SPORTS DISCIPLINES

Purposes

The University Master's in Clinical and Sports Biomechanics aims to create new career opportunities for a profession that is currently still relatively unrepresented across Europe. The 'biomechanist' is a key figure for effective intervention in both the clinical-rehabilitation and athletic-sports fields.

Training pathway

The Master's program covers the specific scientific literature methodology and how to critically appraise the published studies, provides solid foundations of kinetics and kinematics, and theoretically and practically address the analysis and measurement of human movement from both a clinical-rehabilitative perspective (joint and muscle healthy and pathological biomechanics and kinesiology for injury risk reduction and rehabilitation optimization) and an athletic-sports point of view (sport-specific biomechanics assessment for movement economy and performance enhancement). Over the course of studies, the students are offered an in-depth familiarization with all the relative technology to objectively quantify biomechanics, acquiring a high-level specialization which is key for clinicians, physiotherapists, and athletic trainers.

To achieve advanced and specialized training in biomechanics applied to clinical practice, rehabilitation, and sports performance, the program offers a comprehensive training program incorporating the most up-to-date knowledge and an international faculty of top-notch instructors.

The training program involves consistent, high-level theoretical expertise and extensive, qualified practical work.

Professional profile format

The Master's program is primarily aimed at graduates in Physiotherapy, Athletic Training, Sports and Motor Sciences, Fitness, and Health. Other professionals with degrees in medical rehabilitation and/or sports/health are also eligible to participate in the Master's program. The Master's program aims to provide advanced training for professionals working in clinical rehabilitation centers, specialized practices, and human movement analysis laboratories, as well as for professionals with specializations in sports biomechanics who can work for professional sports clubs (soccer, basketball, volleyball, rugby, cycling, athletics, etc.) or in the service and support of individual athletes.

All this is designed to enable athletes to achieve maximum sporting performance, minimize injuries, and optimize sports rehabilitation thanks to in-depth knowledge of clinical, sports, and physiological-pathological human biomechanics, as well as all the technologies and tools for measuring and analyzing human movement. At the same time, the Master's provides an evidence-informed training to best assist the general population that wants to stay active, workers exposed to job-specific loads, the aging population, and so on.

Course type

1 year blended Master, 6 in-person modules (26 days in total) + asynchronous online modules (1500 hrs total - 60 ECTS)

Number of participants

Min. 15 - max 40

Course duration

May 2026 - April 2027

Deadline for admission applications

April 10, 2026

Registration fee

€ 4.500

To register

Email the filled and signed registration form to: khosrow.tayebati@unicam.it

Master's Director

Prof. Seyed Khosrow Tayebati
0737 403305 / 320 4381159
khosrow.tayebati@unicam.it

Master's Educational Coordinator

Dr. Sebastiano Nutarelli

Master's Council

Prof. Andrea Biscarini
Prof. Seyed Khosrow Tayebati
Dr. Sebastiano Nutarelli

Master's Scientific Committee

Seyed Khosrow Tayebati
Andrea Biscarini
Stefania Luciani
Sebastiano Nutarelli
Leonardo Pasotti
Daniele Tomassoni
Enea Traini

For information

<https://www.unicam.it/laureato>



1^a INTERNATIONAL EDITION

UNIVERSITY MASTER IN

CLINICAL AND SPORTS BIOMECHANICS

EDUCATIONAL PROGRAM

- Research Methodology and Critical Appraisal of the Scientific Literature in Biomechanics with Applications to Sports Medicine, Rehabilitation, and Sports Performance (online 7 hrs) **D. Catelli, PhD (CAN)**
- Structure of the Master's thesis: a project for a scientific publication (online 3 hrs) - **S. Nutarelli, PhD, MS (CH)**
- Anatomohistological bases for clinical biomechanics (online 28 hrs) - **S.K. Tayebati, PhD (ITA)**
- Optimization of muscle activations and control/minimization of mechanical stresses acting on specific joint structures in therapeutic exercise (2 days/16 hrs in-person - module #1) - **M. Petrovic, PhD (ISL)**
- Neuromuscular activity and effects of fatigue, facilitation, training, disuse, rehabilitation, and electrical stimulation
module #1 Neuromuscular activities and adaptations: effects of fatigue, facilitation, training, disuse, and rehabilitation (2 days/16 hrs in-person - module #1) - **E. Lecce, PhD (ITA)**
module #2 Neuromuscular electrical stimulation: principles and applications (online 8 h) - **F. Gonnelli, PhD (ITA)**
- Principles of kinematics and kinetics and fundamentals of upper/lower trunk and limb biomechanics and kinesiology (3 days/24 hrs in-person & online 4 h - module #2) - **P. Worsfold, PhD (UK)**
- Clinical biomechanics in subjects with musculoskeletal problems, movement disorders, neurological disorders, and advanced age (online 14 hrs) - **B. Innocenti, PhD (BEL)**
- Evaluation of proprioception and static-dynamic balance (2 days/16 hrs in-person & online 5 hrs - module #2) - **P. Picerno, PhD (ITA)**
- Principles of strength, isokinetic objectification, and electromyographic evaluation of muscle activity for exercise prescription and rehabilitation (2 days/16 hrs in-person & online 5 hrs - module #3) - **M. Romanazzi, PhD (ITA)**
- Biomechanics of the lower quadrant applied to sports
module #1 Biomechanics of the upper quadrant applied to sports (2 days/16 hrs in-person & online 5 hrs - module #3) - **M. Mondonico, MS (ITA)**
module #2 Epidemic of UCL Injuries in Adult and Youth Baseball Pitchers (p1) + Biomechanics and Pathology of the Overhead Throwing Elbow (p2) + Biomechanics and Pathology of the Overhead Throwing Shoulder (online 3 hrs) - **R. Escamilla, PhD (USA)**
- Biomechanics of the lower quadrant applied to sports
module #1 Biomechanics of the lower quadrant applied to sports (2 days/16 hrs in-person & online 5 hrs - module #4) - **S. Nutarelli, PhD, MS (CH)**
module #2 While Performing Weight Bearing and Non-Weight Bearing Exercises Commonly Used in Sport & Rehabilitation: ACL Loading (p1) + PFJ Loading (p2) + Muscle Recruitment Patterns (online 3 hrs) - **R. Escamilla, PhD (USA)**
- Kinetics and kinematics assessment methodologies in sport, exercise, and rehabilitation
module #1 Inertial wearable sensing, force platforms and dynamometric objectification (3 days/24 hrs in-person - module #4) - **S. Nutarelli, PhD, MS (CH)**
module #2 2-3D video analysis and optoelectronic analysis (online 8 h) - **T. Yona, PhD (ISR)**
- Technologies, methodologies, and main applications of an optoelectronic motion analysis laboratory, with reference to clinical, ergonomic, and sports fields (2 days/16 hrs in-person c/o Human Performance Lab, Polo Lecco, PoliMi- module #5) - **M. Galli, PhD (ITA)**
- Biomechanics applied to work ergonomics: design, optimization and reconceptualization of workstations (online 7 hrs) - **R. Di Benedetto, PhD (ITA)**
- Running biomechanics and technique analysis
module #1 Running biomechanics (online 5 hrs) - **B. Van Hooren, PhD (NL)**
module #2 Running biomechanics and technique analysis (2 days/16 hrs in-person - module #6) - **B. Van Hooren, PhD (NL)**
- Biomechanics for performance optimization: ideal movement patterns, injury risk reduction, performance economy, variations in sport-specific technique (module #1: sports with a prevalence of sprints and changes of direction, jumping sports, other sports) (2 days/16 hrs in-person & online 5 hrs - module #6) - **L. Russo, PhD (ITA)**
- Biomechanics for performance optimization: ideal movement patterns, injury risk reduction, performance economy, sport-specific gesture technique variations (module #2: cycling & bike fitting)
module #1 Bike-fitting for road cycling (1 day / 8 hrs in-person & online 3 hrs - module #6) - **N. Quetri (ITA)**
module #2 Bike-fitting for time trial, hour record and in triathlon, mountain bike (online 3 hrs) - **N. Quetri (ITA)**
- The role of the biomechanist in sport: integration in a multidisciplinary team (online 7 hrs) - **P. Comfort, PhD (UK)**