



UNIVERSITÀ  
DI CAMERINO

## International University Master in Clinical and Sports Biomechanics

3° edition, 1° in English

Milan, Italy

The [International Master's Degree in Clinical and Sport Biomechanics](#) (1st level university Master) has the ambitious goal of creating new professional opportunities for a job profile that to date is little known in Italy. In fact, the Biomechanic is a fundamental professional figure for an effective intervention in both clinical-rehabilitation and athletic-sports.

The Master's degree addresses the study, analysis and measurement of human movement from a clinical-rehabilitation perspective (reduction of injury risk, knowledge of joint and muscle biomechanics for optimization of rehabilitation, pathological biomechanics, etc.) and an athletic-sports perspective (economy of sport-specific gesture, maximization of physical performance, biomechanical analysis of the individual phases characterizing the various sports for the improvement of the result, etc.) proposing itself as a high-level specialization for clinicians, physical therapists and athletic trainers.

To achieve advanced and specialized training in the field of biomechanics applied to clinical and rehabilitation as well as to sports performance, a training course with the most advanced notions and a faculty of high-level international lecturers is offered.

The training course includes a congruous high-level theoretical know-how and a voluminous and qualified practical activity.

The course will mainly target graduates in Physiotherapy, Exercise Science, Fitness and Health Products. Other graduate professionals in the medical-rehabilitation and/or sports fields can also participate in the Master's program.

The Master's degree aims at the high training of professionals destined for activity at clinical-rehabilitation centers, specialized studios, laboratories of human movement analysis as well as for employees with a specialization in biomechanics of the sporting gesture who can carry out their profession at professional sports clubs (soccer teams, basketball, volleyball, rugby, cycling, athletics, etc.) or at the service and support of individual athletes.

All this to enable the athlete to achieve maximum sports performance, minimization of injuries and optimization of rehabilitation in sports thanks to in-depth knowledge of human clinical-sport and physiological-pathological biomechanics, all technologies and instruments for measuring and analyzing human movement.

## EDUCATIONAL PLAN

Subjects	Instructor	SSD	n°	CFU	Online hrs	In-person hrs	Alternative didactic hrs*	Individual study hrs	In-person module dates
Research Methodology and Critical Appraisal of the Scientific Literature in Biomechanics with Applications to Sports Medicine, Rehabilitation, and Sports Performance (online)	D. Catelli, PhD (CAN)	M-EDF/01	1	1	7	online		18	online only (registrare in EN)  Delivery deadline Sept 20, 2026
Structure of the Master's thesis: a project for a scientific publication (online)	S. Nutarelli, PhDc (CH)		2	0	3	online		0	online only  Delivery deadline Sept 20, 2026
Anatomohistological bases for clinical biomechanics (online)	K. Tayebati, PhD (ITA)	BIO-16	3	4	28	online		72	online only  Delivery deadline Sept 20, 2026
Optimization of muscle activations and control/minimization of mechanical stresses acting on specific joint structures in therapeutic exercise (in-person)	M. Petrovic, PhD (ICE)	FIS-07	4	2	0	16 (2 gg)	2 (moduli specifici online Sports Biomechanics Lecture Series - vedi sopra)	59	#1 (4 gg) THUR-FRI 26-27 NOV '26
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, E. Lecce, PhD (in-person)  module #2 Neuromuscular electrical stimulation: principles and applications, F. Gonnelli, PhD (FAD)	E. Lecce, PhD (ITA)  F. Gonnelli, PhD (ITA)	MED/33 MED/34	5	3	8	16 (2 gg)	2 (moduli specifici online Sports Biomechanics Lecture Series - vedi sopra)	51	#1 (4 gg) SAT-SUN 28-29 NOV '26  FAD delivery deadline Sept 20, 2026
Principles of kinematics and kinetics and fundamentals of	P. Worsfold, PhD (UK)	MED/33 MED/34	6	4	4	24 (3 gg)	4 (moduli specifici)	72	#2 (5 gg)

upper/lower trunk and limb biomechanics and kinesiology (in-person)							online Sports Biomechanics Lecture Series - vedi sopra)		WED-FRI 13-15 JAN '27
Clinical biomechanics in subjects with musculoskeletal problems, movement disorders, neurological disorders, and advanced age (online)	B. Innocenti, PhD (BEL)	MED/33 MED/34	7	2	14	online		36	online only (da registrare in EN) Delivery deadline Dec 15 2026
Evaluation of proprioception and static-dynamic balance (in-person)	P. Picerno, PhD (ITA)	M-EDF/01	8	3	5	16 (2 gg)		54	#2 (5 gg) SAT-SUN 16-17 JAN '27
Biomechanics of the upper quadrant applied to sports  module #1 Biomechanics of the upper quadrant applied to sports, M. Mondonico, MS (in-person + online)  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 (p3), R. Escamilla, PhD (online)	M. Mondonico, MS (ITA)  R. Escamilla, PhD (USA)	M-EDF/02	9	3	5	16 (2 gg)	4 (moduli specifici online Sports Biomechanics Lecture Series - vedi sopra)	54	#3 (4 gg) THUR-FRI 4-5 MAR '27 FAD delivery deadline Jan 15 2027
Principles of strength, isokinetic objectification, and electromyographic evaluation of muscle activity for exercise prescription and rehabilitation (in-person)	M. Romanazzi, PhDc (ITA)	MED/34	10	3	5	16 (2 gg)	Partecipazione a 1 sessione di test in sede di stage (8 h) - associabile allo stage stesso	54	#3 (4 gg) SAT-SUN 6-7 MAR '27
Biomechanics of the lower quadrant applied to sports	S. Nutarelli, PhDc (CH)	M-EDF/02	11	3	5	16 (2 gg)	4 (moduli specifici	54	#4 (5 gg)

<p>module #1 <b>Biomechanics of the lower quadrant applied to sports</b>, S. Nutarelli, MS PhD (in-person + online)</p> <p>module #2 <b>While Performing Weight Bearing and Non-Weight Bearing Exercises Commonly Used in Sport &amp; Rehabilitation: ACL Loading (p1) + PFJ Loading (p2) + Muscle Recruitment Patterns (p3)</b>, R. Escamilla, PhD (online)</p>	<p>+ R. Escamilla, PhD (USA)</p>						online Sports Biomechanics Lecture Series - vedi sopra)		<p>WED-FRI 21-23 APR '27</p> <p>FAD delivery deadline: Jan 15, 2027</p>
<p>Kinetics and kinematics assessment methodologies in sport, exercise, and rehabilitation</p> <p>module #1 <b>Inertial wearable sensor systems, force platforms, and dynamometric testing</b>, S. Nutarelli, MS PhD (in-person)</p> <p>module #2 <b>2-3D video analysis and optoelectronic analysis</b>, Y. Tona, PhD (online)</p>	<p>S. Nutarelli, PhDc (CH)</p> <p>+ T. Yona, PhD (ISR)</p>	NG-INF/06	12	4	4	24 (3 gg)	Partecipazione a 1 sessione di test in sede di stage (8 h) - associabile allo stage stesso + 4 (moduli specifici online Sports Biomechanics Lecture Series - vedi sopra)	72	<p>#4 (5 gg) SAT-SUN 24-25 APR '27</p> <p>FAD delivery deadline: Feb 20, 2027</p>
<p>Biomechanics applied to work ergonomics: design, optimization, and reconceptualization of workstations (online)</p>	<p>R. Di Benedetto (ITA)</p>	ING-IND/34	13	1	7	online		18	<p>online only (da tradutt e in EN)</p> <p>FAD delivery deadline: Feb 20, 2027</p>
<p>Technologies, methodologies, and main applications of an optoelectronic motion analysis laboratory, with reference to clinical, ergonomic, and sports fields (in-person)</p> <p>*module held at the Optoelectronic Human Motion Analysis Laboratory</p>	<p>M. Galli, PhD + L Donno, PhD + G. Palotti, PhD Student + C. Francia, PhD Student + P. Maver</p>	M-EDF/02	14	3	5	16 (2 gg)		54	<p>#5 (2 gg - FRI- SAT at Human Perfor mance Lab)</p>

'Human Performance Lab', Politecnico di Milano c/o Lecco Campus)										FRI-SAT 25-26 JUN '27
Running biomechanics and technique analysis  module #1 <b>Running biomechanics</b> , B. Van Hooren, PhD (online)  module #2 <b>Running biomechanics and technique analysis</b> , B. Van Hooren, PhD (in-person)	B. Van Hooren, PhD (NED)  + B. Van Hooren, PhD (NED)	ING-INF/06	15	3	5	16 (2 gg)	3 (moduli specifici online Sports Biomechanics Lecture Series - vedi sopra)	54		#6 (5 gg) THUR-FRI 16-17 SEPT '27
Biomechanics for performance optimization: ideal movement patterns, injury risk reduction, performance economy, and sport-specific technique variations: sports with a prevalence of sprinting and changes of direction, jumping sports, other sports (in-person)	L. Russo, PhD (ITA)	M-EDF/02	16	3	5	16 (2 gg)	1 (webinar online BIOMECCANICA & POSTURALE NELLO SPORT)	54		#6 (5 gg) SAT-SUN, SEPT 18-19, '27
Biomechanics for performance optimization: ideal movement patterns, injury risk reduction, performance economy, sport-specific technique variations:  module #1 <b>Bike-fitting for road cycling</b> , J. Barrionuevo (online 3 hrs + in-person)  module #2 <b>Bike-fitting for time trial, hour record and in triathlon, mountain bike</b> , L. Riceputi (online 3 hrs)	Javier Barrionuevo (SPA)  L. Riceputi (ITA)	M-EDF/02	17	2	6 h	8 (1 gg)	3 (moduli specifici online Sports Biomechanics Lecture Series - vedi sopra)	11		#6 (5 gg) MON 20 SEPT '27
The role of the biomechanist in sport: integration in a multidisciplinary team (online)	P. Comfort, PhD (UK)	M-EDF/02	18	1	7	online		18		online only
Totale crediti insegnamenti				45	123	200		779		
Stage				5				125		
Prova Finale				10				250		
<b>Tot.</b>				<b>60</b>				<b>1500</b>		

\* Per didattica alternativa si intendono: esercitazioni/laboratori; seminari/testimonianze di esperti; visite aziendali/partecipazione a convegni; project work; etc.

## SSD

- BIO/16 ANATOMIA UMANA
- FIS/07 FISICA APPLICATA (A BENI CULTURALI, AMBIENTALI, BIOLOGIA E MEDICINA)
- ING-IND/34 BIOINGEGNERIA INDUSTRIALE
- ING-INF/06 BIOINGEGNERIA ELETTRONICA E INFORMATICA
- M-EDF/01 METODI E DIDATTICHE DELLE ATTIVITÀ MOTORIE
- M-EDF/02 METODI E DIDATTICHE DELLE ATTIVITÀ SPORTIVE
- MED/33 MALATTIE APPARATO LOCOMOTORE
- MED/34 MEDICINA FISICA E RIABILITATIVA

## SEDI STAGE (lista da completare da parte del Prof. Tayebati che ha tutti i dettagli)

- Sports Rehab (Lugano, Svizzera)
- Mapei Sport (Varese, Italia)
- Lab Luca Russo (Abruzzo, Italia)
- Lab Dr. Romanazzi (Torino, Italia)
- Clinica Motus (Torino, Italia)
- altre convenzionate?
- Possibile fare richiesta a strutture di analisi del movimento